Table of Contents

Requirements Analysis

Appendices

1. Introduction

1.1 Purpose

This document specifies requirements for the new billing and accounting software for Goldman Greenberg Associates.

The format of this document is based on IEEE standard 830-1998 and conforms to that standard where possible. Because the IEEE standard does not group non-functional requirements into a separate category, this document will deviate from the standard in presenting non-functional requirements together in one section. Hence the interface requirements specified in section 2 of the IEEE template will appear in section 4 of this document along with the rest of the non-functional requirements.

The basic issues to be addressed by this document, as defined in the standard, are:

- *Functionality*: The tasks the software is required to perform
- *External Interfaces*: How the system interacts with people, hardware and external hardware and software
- *Performance*: Speed, availability, response time, recovery time.
- *Attributes*: Portability, correctness, maintainability, security, etc.
- *Design Constraints*: Required standards, implementation language, policies for database integrity, resource limits, operating environments, etc.

The requirements analysis contained in this document defines the specific functionality that must be met in order to successfully deploy a new billing information system. The client's desires for the new system have been translated into measurable and definable business rules and functions to allow for successful development of a comprehensive new billing system. Please see Appendix 1 for transcripts of interviews with the client.

The intended audience for this SRS includes technical personnel involved in the design, coding and testing of the system as well as management of Goldman Greenberg Associates.

1.2 Background

Goldman Greenberg Associates is a Toronto-based law firm specializing in corporate commercial law, real estate, wills and estates, and income tax law.   They are a medium-sized firm consisting of ten lawyers with seven additional support staff members and an annual revenue of approximately four million dollars.

Interviews with key people in the firm provided information on the current system.   The current billing system was implemented in 1992 and consists of a DOS based program into which all billable items are entered by a single person, a paralegal who also functions as the bookkeeper.

Invoices are generated at the end of each month. The billable items that are included in the invoice are as follows:

- time spent on a matter by lawyers or paralegals and description of how time was spent
- filing fees
- long distance telephone charges
- copy charges
- fax charges
- postage/courier fees
- miscellaneous third party charges

The flow of data, from client to invoice, in the current system is graphically represented in the following diagram.

Figure 1: Flow of Information from Client to Bill (Current System):
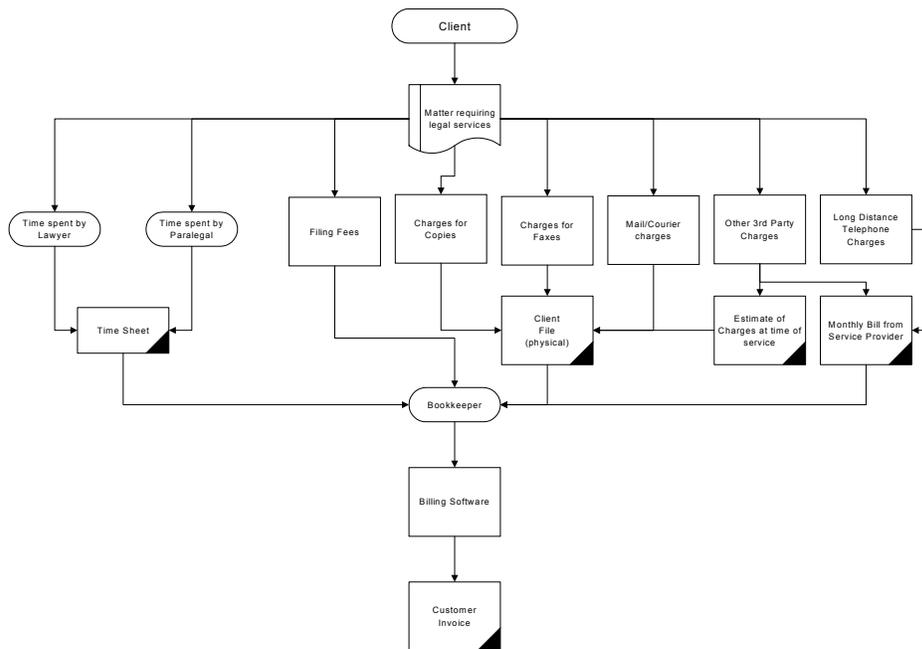
Lawyers write their time down by hand on a timesheet. The sheets are designed to be given to the bookkeeper daily for input to the system. Copies, faxes, postage, and all other charges that are added to a client's invoice which are not time entries are called disbursements. The bookkeeper also enters the disbursements. Whenever copies are made or faxes sent, it is recorded by hand and given to the bookkeeper with the client number for entering the information into the computer. This is true for courier charges as well, and should also be true for postage, however they are currently not tracking postage.

Long distance telephone charges are not added to the client invoice until the bill comes in from Bell Canada. The client file number (matter number) is entered into the telephone before dialing

the number. The bill then comes with long distance charges sorted by client file number. The bookkeeper goes through the bill entering the information into the system. This information is usually billed a month behind due to the wait for the telephone bill. Occasionally GGA is unable to recover the some of the charges because a final accounting has already been issued to the client prior to the arrival of the telephone bill. Lawyers are prohibited, by directive from the Law Society of Upper Canada, from charging more for long distance than the actual charges incurred so there is currently no way to accurately enter any long distance charges into the billing system before the arrival of the telephone bill.

The bookkeeper spends on average half of her time engaged in matters pertaining to the billing of accounts. Because she is also a paralegal, this is time that she could be spending as a billable employee.   This lost billable time represents a large expense associated with the current system.

The problems with the current system are directly related to the manner in which information is collected and entered into the system. The size of the firm makes the hand entry of billables, and reliance primarily on employee time to track cost recovery relating to the business machines of the office highly inefficient. They are just too large a firm to be entering this much data by hand.

The problem is summarized by the following simplified flowchart highlighting the obvious bottleneck created when all data that needs to get into the system must first go through the bookkeeper and be entered by hand.

Figure 2: Information Bottleneck
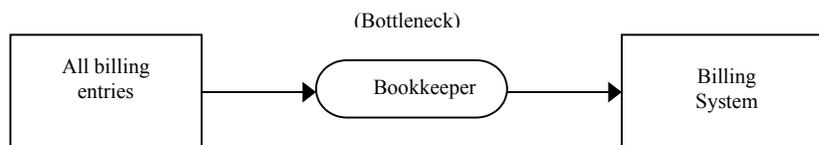
The following list outlines the problems with the current system which are to be addressed by the implementation of a new system:

- Too much time spent entering disbursements by hand.
- Cost recovery from usage of the copier and fax machines is either not recorded, or entered by hand at great expense
- Long distance charges to client accounts are not posted in a timely manner
- Lawyers enter their time by hand, which is then entered by bookkeeper, doubling the time a billable employee must spend entering this time.
- Invoices not always accurate
- Time-consuming end of the month invoice generation process
- Limited reporting and limited flexibility for existing reports
- Limited access to necessary information for lawyers and senior partners

1.3 Scope

The software to be produced from these requirements is a new billing, time tracking and accounting system. For the purposes of this SRS, the new system will be called EZ-Law.

The objective the client wants to achieve in acquiring a new system is to reduce time spent entering billable charges to client accounts by hand. This practice results in a very large expense to the firm and the purpose of this software is to reduce that cost. Specifically, the new system must achieve the following goals:

- Automate the business machines of the office (copier and fax) and the telephone system, significantly reducing the need to enter information by hand, and increasing the costs recovered from use of these machines on behalf of clients
- Allow lawyers to record their time at their own computers, reducing the time spent entering this time.
- Provide greater accuracy on invoices
- Provide and easier, and less time-consuming end of the month invoice generation process
- Provide greater reporting capability
- Provide all basic accounting functionality that exists in the current system, to current standards and to specific standards set by the Law Society of Upper Canada.
- Be easy to use and learn
- Be reliable and require little maintenance

Much of the automation will be handled by a 3rd party cost recovery system. That system hooks up to the copy machines, fax machines and telephone system and records the usage. However that system only collects the data. The actual processing, storing, and billing of those charges are the responsibility of the custom system, EZ-Law.

While the 3rd party cost recovery system was part of the feasibility study, and represents a new and very important part of the overall system, it is not part of the EZ-Law system for the purposes of this SRS. It is considered to be outside the system boundary and is a sub-system with which EZ-Law must interface. The boundary of the system whose requirements are addressed in this document, is the custom software application, not including the 3rd party hardware/software, though the interface for data collection from the 3rd party system will be addressed in these requirements.

EZ-Law refers to the custom software component of the new system. It will provide all standard accounting functionality, as well as specific accounting functionality required by a law firm, such as transaction tracking and logging for audit purposes. It will automate the time entries of lawyers and paralegals, and collect data from the 3rd party cost recovery system hooked up to the copy machines, fax machine and telephones, and apply these charges to client accounts. It will generate and print invoices and statements on client accounts, applying all relevant charges and maintaining records of the billings. It will also handle all payroll functionality.

The feasibility study did not address the basic accounting functionality that is required in a new system. This is due to the fact that the basic accounting functionality is not at the core of the problem to be solved by this new system. There is no problem with accounting functionality in the existing system, except as it relates to billing.

A billing system is, by definition, an accounting system in that the bills generated become accounts receivable to be tracked, reported on, collected. Amounts collected from clients and posted to client accounts must also be recorded on a general ledger. Checks written for items paid on behalf of clients must have their amounts posted not only to a general ledger, but also to the client's invoice. Hence this billing system does not, and cannot stand alone outside of a separate accounting system.

The new system also cannot be designed to work with the existing system. That system is DOS based and switching between them may introduce new problems into the firm's system of processing accounting information. The data stored within that system is also not being stored in a DBMS system. Trying to combine two such incompatible systems is a more complicated issue than simply including that accounting functionality within the new software.

The current system handles all of the accounting functionality in addition to billing. To replace it, the new system must do the same. Even though this issue was not specifically addressed as a problem in the feasibility study, the costs involved in designing the new system were considered to include this type of standard accounting functionality.

It must be noted that a certain level of expertise in regard to accounting systems and functionality is not readily available at this time and therefore specific requirements for accounting functionality will not be addressed in this documents. However, this part of the system covers some fairly standard functionality and the risk of surprises in this area is low.

Some of the accounting functionality will be analyzed in detail in the Functional Requirements section of this document, specifically that functionality that directly relates to processing billing information. However the specifics of other accounting features will not be addressed in this SRS. Because the basic accounting functions are considered standard functionality, common to all accounting software systems, the specifics of requirements for standard accounting processes are considered to be already known.

1.4 Definitions, acronyms, and abbreviations

The following tables defines the terms used in this software requirements specification.

Table 1:   Terms and Definitions

Term	Definition
Billable Employee	Lawyer or Paralegal whose time is billed to the client (also an actor in the use cases)
Billables	Anything that can be charged to the client and appears on the invoice
Bookkeeper	The employee responsible for all accounting and billing (also an actor in the use cases)
Client	Goldman Greenberg Associates
Copitrak	The 3rd Party Cost Recovery System
Disbursement	Any item billable to a client other than time. These include: Copies, postage, fax charges, long distance telephone charges, courier charges, filing fees, etc.
EZ-Law	The new custom software application that is the subject of this SRS
File Number	The account number given to a matter for a client, synonymous with matter number
GGA	Goldman Greenberg Associates (client)
Grayed out	When a button, or function on a menu is not accessible to the user. The button/function still appears, but it is a light gray and cannot be used.
Matter	Analogous to a project. Defines the boundary of work being done for a client on a particular subject. Clients can have one or many matters. For instance a law firm might be doing a divorce and a contract negotiation for the same client. These represent different matters.
Matter Number	The account number given to a matter for a client, synonymous with File Number
Splash Screen	Screen that appears briefly while the program is loading
SRS	Software Requirements Specification (this document)
Staff	Any member of the staff of GGA (also an actor in the use cases
Tool Tips	small windows which pop up when you drag the mouse over certain tool bar items or button, and serve as a sort of abbreviated balloon help for the user

1.5 References

1.   *IEEE Recommended Practice for Software Requirements Specification* (IEEE-STD-830-1998). Available at http://ieeexplore.ieee.org
2.   *Goldman Greenberg Associates Feasibility Study*: Prepared by HVK Solutions. Available through the authors on request.
3.   *Standard Glossary of Software Engineering Terminology* (IEEE Std 610.12-1990 IEEE). Available at http://ieeexplore.ieee.org

1.6 Overview

In the following sections, the requirements for the new system are described. This document is organized such that functional requirements are detailed in Section 3, and non-functional

requirements can be found in Section 4. The requirements are described by use cases, providing a view of the high level functionality of the system from the user's perspective.

2. Overall Description

2.1 Product Perspective

The new system is a custom client/server application that works in conjunction with a 3rd party cost recovery hardware/software system.   The system is to be a fully functional billing/accounting system that collects the data generated by the 3rd party system which automates the recording of copies, faxes and long distance telephone charges.   These two systems, working together, address all the problems outlined in the existing system in the section above.

The 3rd party vendor system chosen for this project is made by Control Systems. Their Copitrak, Faxtrak and Phonetrak systems hook up to the devices and become an integrated system that feeds into a proprietary software that collects and stores the data. For the purposes of this SRS, these systems will be referred to simply as "Copitrak." (See Appendix 2 for details on these products.) However, the Copitrak system is not a part of the EZ-Law software, but a system with which it must interface.

The following diagram represents the flow of information, from client to invoice, in the new system:

Figure 3: Flow of Information from Client to Bill (New System):
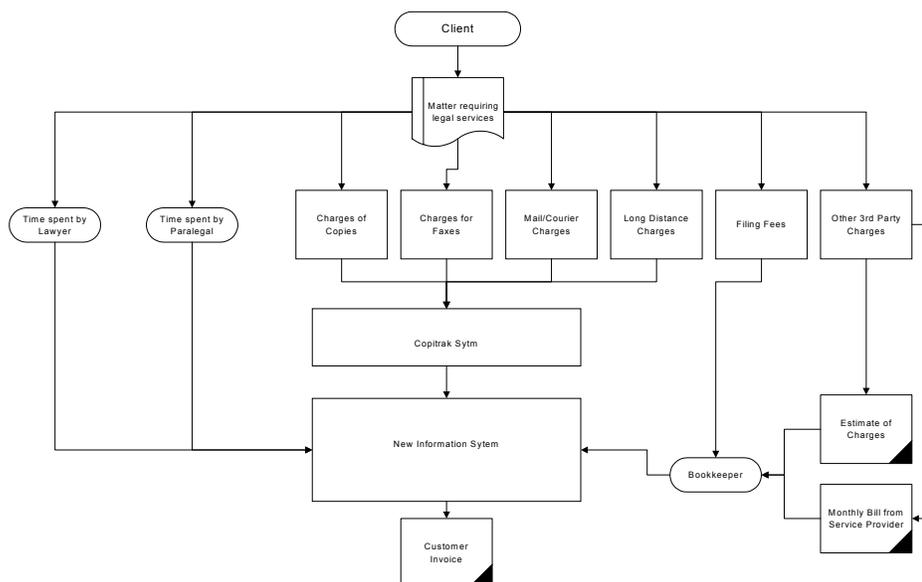
The Copitrak system is a combination of hardware and software that hooks up to the copier and fax machines as keypads. A valid file number must be entered to gain access to service, after which the number of copies made, or faxes sent are transmitted via the network to the server where the Copitrak software records the data. The telephone is connected in a similar manner. A valid file number must be dialed in order to place a long distance call. Local telephone company rates can be downloaded from the internet and placed in a designated folder for use by the Copitrak system. The system can then calculate the cost of the calls it has recorded and include that as part of the data it stores about a call. The data is collected and stored within the Copitrak's own software which is fully ODBC and SQL compliant. The information will be queried by the custom application at regular user defined intervals, and recorded in the appropriate client accounts in the system.

The custom application that is the subject of this SRS will handle all aspects of billing and accounting for the firm, with an interface specific to law offices in general and this firm specifically. It must handle all standard accounting functionality as well as adhere to specific guidelines for law offices as set by the Law Society of Upper Canada. It will take time entries from lawyers and paralegals from their individual PC's. It will also perform all payroll functionality for the law firm.

Below is a view of the other software systems with which the EZ-Law system must interface.

Figure 4: System Interaction Diagram.
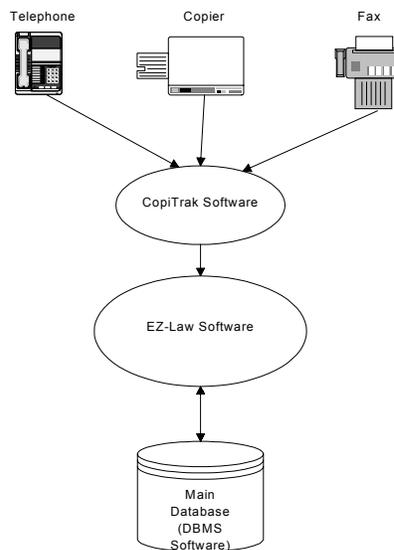
2.2 User Characteristics

The skill set of the user's of this software is varied. The main user, the bookkeeper has a college education and twenty years or more experience as a bookkeeper. She has used several accounting software systems and is comfortable with them. She has been using a computer for the past ten years and is a competent user of Windows programs and the Windows operating system.

All of the lawyers have graduate degrees. Their experience with computers varies from limited use of the internet and email, to experience with all aspects of Windows networking and experience as a system administrator and web page designer.

Most, but not all, of the paralegals have a college education. Their level of comfort with computers is also varied, but all are at least familiar with the functionality standard among Windows programs.

The rest of the employees are secretaries. They have a high school education, some with a year of college, but no degrees. They are all comfortable with the Windows operating system and standard Windows program functionality.

2.3 Constraints

This subsection will specify the constraints placed on design that will limit the development options of the system.

Hardware Limitations – This system must be designed and built to run within the confines of the current hardware and technology in existence at GGA. The only exception to this is the purchasing another hard drive for the server to serve as a redundant disk backup for the system. Current backup capability includes both a tape drive and CD writer.

The following table represents the hardware and systems currently in existence:

Table 2: Hardware Limitations

Item	Desktops	Server
Operating System	Windows 98	Windows 2000
Processors	Pentium II 400 or higher	Pentium 4 1.8 GHz
RAM capacity	64 MB RAM or higher	512MB
Hard Drive	10 GB or more	80GB

Interfaces to other applications – The new system must provide an internal interface to the Copitrak system for purposes of querying and downloading the data collected and stored by that system.

Criticality of the application - This application is not considered to be critical software as defined by IEEE Std 610.12-1990 (Standard Glossary of Software Terminology) as follows:

> Software whose failure could have an impact on safety, or could cause large financial or social loss.

However, the Law Society of Upper Canada has set strict guidelines on the storage of law firm accounting data, as well as the traceability of transactions. The accounting data, as well as the transaction logs must be stored for a minimum of seven years. While this may seem like only an archival issue, any loss of information from a system crash or malfunction, is considered critical by GGA. It is critical that no data be lost. It must therefore be considered a critical design priority to ensure the integrity of the data.

Functionality of the system that is not related to data storage can be considered as less than critical.

Audit Functions – EZ-Law must provide transaction tracking for all accounting functionality. Each transaction, and the user performing that transaction, must be stored in a trace log, with before and after values, for audit purposes.

2.4 Assumptions and Dependencies

These factors are not design constraints on the software, but rather assumptions on which the requirements have been based. Any changes to these assumption affect the requirements stated herein. If these assumptions are not true, these requirements cannot be considered valid. For this reason, the requirements are said to be dependent on these assumptions.

The following assumptions have been made about the system.

Windows Operating System: The server is currently running Windows 2000 and it is assumed that this is the operating system the software must run on. The client software will run on Windows 98 or higher for the desktops.

Database Management System: EZ-Law will store data in a relational DBMS system that has adequate security functionality. It is assumed that it will be an Oracle database.

Copitrak System: The 3rd party cost recovery hardware and software system will be the Copitrak, Faxtrak and Phonetrak as provided by Control Systems and described in section 2.1 of this document.

3. Functional Requirements

3.1 Product Functions

Functions can best be represented from the actor's perspective in the form of use cases. In the tables that follow, the requirements are listed with their applicable use cases for easy reference to the diagrams in the appendix.   However, first the actors, their roles and their applicable use cases will be addressed.

The actors in this system are few. The bookkeeper role performs most of the tasks requiring interaction with the system. The following actors are involved with this system:

- Bookkeeper
- Billable Employee
- System Administrator
- Staff
- Copitrak System

Actor 1: Bookkeeper:
The bookkeeper role is the main actor interacting with the system. As a result, most of the use cases are dedicated to this actor. Other employees may or may not play this role, at the discretion of management. However when and if another employee undertakes one or many of these tasks, they are still acting in the bookkeeper role with respect to the system.

Table 3: Summary of Use Cases for Actor: Bookkeeper

Use Cases:	
Add New Client (Case 1)	Edit Client (Case 2)
Add New Matter (Case 3)	Edit Matter (Case 4)
Generate Invoices (Case 5)	Print Invoices (Case 6)
Apply Payment to Account (Case 7)	Generate Statements (Case 8)
Print Statements (Case 9)	Print Trust Check (Case 10)
Print General Check (Case 11)	Add New Employee (Case 12)
Edit Employee (Case 13)	Pay Employee (Case 14)
Record Employee Time (Case 15)	

Actor 2: Billable Employee
 Billable Employee encompasses lawyers and paralegals and is a suitable role for everyone from the lowest ranking paralegal to the senior partner. Their access to the system is limited in comparison to that of the bookkeeper role, but they enter their own time and they need access to some reporting options in order to view their own historical time entry data, or the charges and payments and trust balances (retainer) on their clients' accounts. Exactly how much access and which options they can use will be determined by individual employee. The senior partner, for example, may want full access to the system. However, the basic use cases for this actor do not change, regardless of how much information they have access to for viewing/reporting purposes.

Table 4: Summary of Use Cases for Actor: Billable Employee

Use Cases:	
Record Billable Time (Case 16)	Record Expenses (Case 17)

Actor 3: System Administrator
This role will, in all likelihood, be played by the same person that plays the bookkeeper role. However, it is a separate roll with respect to the system. This actor is responsible for activities that relate to controlling access, managing the interface to the Copitrak system and data backup and archiving.

Table 5: Summary of Use Cases for Actor: System Administrator

Use Cases:	
Set Polling Interval (Case 18)	Poll Data (Case 19)
Backup System (Case 20)	Assign Access to System (Case 21)

Actor 4: Staff
This role is for any staff member and represents the use cases that all users have in common. All other actors extend the Staff actor.

Table 6: Summary of Use Cases for Actor: Staff

Use Cases:	
Record Disbursement (Case 22)	Generate Reports (Case 23)
Print Reports (Case 24)	Print (Case 25)

Actor 5: Copitrak System
This role represents the interaction between Copitrak and the System

Table 7: Summary of Use Cases for Actor: Copitrak System

Use Cases:	
Poll Data (Case 19)	

The following tables outline the basic functional requirements of the system. Also included are the relevant use cases and the actors to which they apply.

Table 8: Functionality required by Bookkeeper actor

Function #	Function:	Use Case(s):
Billing Functionality:		
1	Record names, addresses and contact details for each client.	1. Add New Client
2	Edit contact details for each client	2. Edit Client
3	Record details of each matter for each client	3. Add New Matter
4	Edit details of existing matter	4. Edit Matter
5	Generate/Print Invoices	5. Generate Invoices 6. Print Invoices
6	Apply payments to accounts	7. Apply Payment to Account
7	Generate/Print Statements	8. Generate Statements 9. Print Statements

8	Allow for overriding of rates for individual matters:
	      Default hourly rate
	      Flat fee
	      Contingency
		3. Add New Matter
		4. Edit Matter

Standard Accounting Functionality:		

9	Trust Accounting:
	      Recording and tracking of all trust payments.
	      Trust transfers
	      Printing trust checks
		7. Apply Payment to Account
		10. Print Trust Check

10	General Ledger Accounting to track all aspects of firm accounting:
	      Journal entries
	      Balances
		7. Apply Payment to Account
		11. Print General Check

11	Accounts Payable:
	      Tracking and paying of all payables
	      Recording of charges to client accounts when the charges are billable
	      Print checks
		11. Print General Check

12	Print checks from the general account	11. Print General Check
Payroll Functionality:		
13	Record name, address and payroll information for new employee	12. Add New Employee
14	Edit employee information	13. Edit Employee
15	Enter non-billable employee time	15. Record Employee Time
16	Record billing rate information for employees	12. Add New Employee 13. Edit Employee
17	Generate payroll information: Pay employees	14. Pay Employees 11. Print General Check

Table 9: Functionality required by Billable Employee actor

Function #	Function:	Use Case(s):
18	Record time spent by a billable employee on a matter	16. Record Billable Time
19	Record Expenses	17. Record Expenses

Table 10: Functionality required by System Administrator actor

Function #	Function:	Use Case(s):
20	Set the polling interval for collecting data from Copitrak system and applying it to client accounts	18. Set Polling Interval 19. Poll Data
21	Backup Data	20. Backup
22	Assign Access Levels to Employee Users (user groups)	21. Assign Access to System

Table 11: Functionality required by Staff actor

Function #	Function:	Use Case(s):
23	Record billable charges to client account	22. Record Disbursements
24	Generate/Print Reports (including custom report writing)	23. Generate Reports 24. Print Reports 25. Print

Note: The functionality required for the Copitrak actor relates to the Poll Data use case only. This functionality has been listed in the tables above under the System Administrator actor.

The requirements can also be represented graphically. The diagrams in the list that follows can be found in the Appendices to this SRS. They demonstrate the system requirements described above.

- **Use Case Diagrams:** These diagrams document the high level functions of the system and describe the interaction between the actors and the system and the relationship between the use cases. Use cases can be found in Appendix 3.
- **Class Diagram:** This diagram graphically represent the dependencies between the classes of the system. The class diagram can be found in Appendix 4.
- **Sequence Diagrams:** These diagram a time sequence of the interaction between the system and external objects (or actors). Sequence diagrams can be found in Appendix 5.
- **State Diagrams:** These diagrams demonstrate the states of transition of objects within the system. They may represent the lifetime of an object within the system or interaction of the system in an environment. See Appendix 6 for these diagrams

3.2 Use Cases

The following sub-sections describe the details of the functionality represented by the use cases.

3.2.1 User Class: Bookkeeper

The use cases in the tables that follow document the details of the functionality required by the bookkeeper actor

Table 12: Add New Client Use Case

Use Case 1: Add New Client	
Overview	The main purpose of this use case is to add a new client to the system. When a new client comes to the firm, the details are recorded. Contact information, client number, lawyer who brought the client to the firm. A clientID number is assigned.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to create a new client
Ending Point	The actor's request to create a client is completed or cancelled
Measurable Results	A client is added to the system
Flow of Events	The use case begins when the actor requests to add a new client. The actor is prompted to enter information that defines the client, such as name, contact, lawyer who brought the client to the firm, etc. The actor can choose to save the information or to cancel the operation. If the actor decides to save the information, the new customer is created in the system. If a client with an identical name is already in the system, a warning is given and the actor can choose whether to save it anyway (i.e. confirm it is a different client), or cancel.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

Table 13: Edit Client Use Case

Use Case 2: Edit Client	
Overview	The main purpose of this use case is to modify client contact information. When the contact details of an existing client change, the new old information is replaced with the new.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to edit a client chosen from a list of customers (or typed in)
Ending Point	The modification is completed or cancelled
Measurable Results	Client information is modified
Flow of Events	The use case begins when the actor requests to review an existing client and the system presents the information. The actor makes a request to edit the client. The actor can edit all of the client information. The actor can either save the changes and return to the list of clients or can return to the list of clients without any changes being saved. If the actor chooses to save the changes, the edited client information is saved and the list of customers is updated.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

Table 14: Add New Matter Use Case

Use Case 3: Add New Matter	
Overview	The main purpose of this use case is to create new matter for a client. When a client has a matter that is to be done by the firm, information relating to that matter, such as type of matter, type of law, lawyer assigned to the case, whether the standard hourly rate applies, or there is a special hourly rate, flat fee, or contingency.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to create a new matter
Ending Point	The actor's request to create a matter is completed or cancelled
Measurable Results	A matter is added to the system
Flow of Events	The use case begins when the actor requests to create a new matter. A new matter is created and the actor is prompted to enter the information that defines the matter. The actor can choose between standard billing, or override the standard billing rates and enter a special rate for this matter. The actor can choose to save the information or to cancel the operation. If the actor decides to save the information, the new matter is created in the system. If another matter with an identical name is already in the system for that client, a warning is given and the actor can choose whether to save it anyway (i.e. confirm it is a different matter), or cancel.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	none

Table 15: Edit Matter Use Case

Use Case 4: Edit Matter	
Overview	The main purpose of this use case is to edit the details of an existing matter. When some details about the matter change, the new information must be recorded in the system.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to edit a matter
Ending Point	The actor's request to create a matter is completed or cancelled
Measurable Results	The matter is edited and the new information stored in the system
Flow of Events	The use case begins when the actor requests to edit a new matter. The actor is prompted to enter the client to which the matter belongs, or choose it from a list of clients. The actor is then prompted to choose the matter from a list of matters belonging to that client. The matter is displayed and the user can change the information. The actor can choose the override standard billing, or to remove an existing override and revert to standard billing rates for the lawyer assigned to the matter. The actor can choose to save the information or to cancel the operation. If the actor decides to save the information, the new matter is saved in the system
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

Table 16: Generate Invoice Use Case

Use Case 5: Generate Invoice	
Overview	The main purpose of this use case is to generate and print invoices with all current charges and calculated GST.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to generate invoices.
Ending Point	The actor's request is completed or cancelled
Measurable Results	One or more invoices are generated and printed. An envelope is printed for mailing the invoice to the client
Flow of Events	The use case begins when the actor requests to Generate Invoice. The actor is prompted to enter information for one or more specific clients, or for all clients for whom work was done and recorded for the month. The invoice is then generated.
Alternative Flow of Events	The actor attempts to print a invoice for a client that does not exist. The system will notify the user and cancel the operation. The actor tries to generate a invoice that has already been generated and recorded as sent to client. The system warns that a invoice has already been sent on this account for this month, displays a duplicate of the invoice that was sent to the client. The actor can choose to print the invoice and an envelope.
Use Case Extensions	None

Table 17: Print Invoices Use Case

Use Case 6: Print Invoices	
Overview	The main purpose of this use case is to facilitate printing of invoices
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to print invoice(s)
Ending Point	The invoice(s) are printed or the action is cancelled
Measurable Results	Invoices(s) are printed
Flow of Events	The actor has generated invoice(s). The actor then has the option to print the invoice. The actor requests to print and is prompted (standard windows printing interface) to select number of copies, and other printing-related choices. The actor can either okay the request of cancel. If the actor okay's the request, the document is printed. Once the invoice is printed the system is updated to reflect a invoice generation on each account and any discount given.
Alternative Flow of Events	None
Use Case Extensions	Print

Table 18: Apply Payment to Account Use Case

Use Case 7: Apply Payment to Account	
Overview	The main purpose of this use case is to record a payment to the account of a client. The payment can be either a payment due on the account, or a retainer to be deposited in trust.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to record a payment.
Ending Point	The actor's request is completed or cancelled.
Measurable Results	The payment is posted to the client's account, to the General Ledger and to the Trust Account (if trust payment). The payment is added to the current deposit slip.
Flow of Events	The use case begins when the actor requests to enter a payment. The actor is prompted to enter the client name, or choose the client from a list. The actor is then prompted to enter the payment. The actor can choose to save the information or to cancel the operation. After the information is saved, the client account and relevant ledgers are updated in the system.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

Table 19: Generate Statements Use Case

Use Case 8: Generate Statements	
Overview	The main purpose of this use case is to generate a statement of an account. with the amount owing, the amount 30, 60, 90 and over 120 days past due, as well as calculate interest from the 30 days after the date the original invoice was issued
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to generate statements.
Ending Point	The actor's request is completed or cancelled
Measurable Results	One or more statements are generated to the screen and printed. An envelope is printed for mailing the invoice to the client
Flow of Events	The use case begins when the actor requests to generate a statement. The actor is prompted to enter information for one or more specific clients, or for all clients for whom invoices are outstanding and payment has not been received. The statement is then generated.
Alternative Flow of Events	The actor attempts to print a statement for a client that does not exist. The system will notify the user and cancel the operation.
Use Case Extensions	none

Table 20: Print Statements Use Case

Use Case 9: Print Statements	
Overview	The main purpose of this use case is to facilitate printing of statements
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to print statement(s)
Ending Point	The statement(s) are printed or the action is cancelled
Measurable Results	Statement(s) are printed
Flow of Events	The actor has generated statements. The actor then has the option to print the statements. The actor requests to print and is prompted (standard windows printing interface) to select number of copies, and other printing-related choices. The actor can either okay the request of cancel. If the actor okay's the request, the document is printed. . Once the statement is printed the system is updated to reflect a statement generation on each account and any discount given.
Alternative Flow of Events	None
Use Case Extensions	Print

Table 21: Print Trust Check Use Case

Use Case 10: Print Trust Check	
Overview	The main purpose of this use case is to generate a trust check, record the check entry in the Check Register for the Trust Account and Trust Ledger deduct amount from client's trust account balance.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to print trust check.
Ending Point	The actor's request is completed or cancelled.
Measurable Results	A trust check is generated and recorded in the trust check register, Trust Ledger, and client account. The amount is deducted from the client's trust account balance.
Flow of Events	The use case begins when the actor requests to print trust check. The actor is prompted to enter the name of the payee, or choose from a list of payees previously paid. If the payee does not exist, the actor is prompted to enter the name and address information of the payee. The actor is prompted to enter the amount of payment, the Trust Ledger account to post the payment to, and the client account to post to, as well as a brief description of what is being paid for. The actor can enter the client account number directly, or choose from a list off clients and matters. The actor is then prompted to make sure a check is in the printer. The actor can choose to print the check, which saves the information, or to cancel the operation.
Alternative Flow of Events	The actor enters a client for whom the trust account balance is zero. The system warns the user and will not allow the check to be printed. The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered.
Use Case Extensions	None

Table 22: Print General Check Use Case

Use Case 11: Print General Check	
Overview	The main purpose of this use case is to generate a check, record the payment entry in the Check Register and General Ledger, and record charges to the client account when applicable.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to print general check.
Ending Point	The actor's request is completed or cancelled.
Measurable Results	A check is generated and recorded in the Check Register, General Ledger and client account (if the charges are billable).
Flow of Events	The use case begins when the actor requests to print general check. The actor is prompted to enter the name of the vendor, or party to whom the check is payable, or choose from a list of vendors previously paid. If the vendor does not exist, the actor is prompted to enter the name and address information of the vendor. The actor is prompted to enter the amount of payment, the vendor invoice/statement number (if any), the General Ledger account to post the payment to, and if applicable the client account to post the amount to as a disbursement, as well as a brief description of what is being paid for. The actor can enter the client account number directly, or choose from a list off clients and matters. The actor is then prompted to make sure a check is in the printer. The actor can choose to print the check (which saves the information) or to cancel the operation.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered.
Use Case Extensions	None

Table 23: Add New Employee Use Case

Use Case 12: Add New Employee	
Overview	The main purpose of this use case is to create a new employee in the system and record contact information, payroll information such as salary or hourly rate, bonus percentages, etc., and in the case of billable employees, billing rate information.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to create a new employee
Ending Point	The actor's request is completed or cancelled
Measurable Results	An employee is added to the system
Flow of Events	The use case begins when the actor requests to add a new employee. The actor is prompted to enter information that defines the employee, such as name, address, tax information etc. The actor can choose from billable or non-billable employee type. If the actor chooses billable employee type, the actor is prompted to set a standard billing rate for the employee. The actor can then choose to save the information or to cancel the operation. If the actor decides to save the information, the new employee is created in the system.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update

	until a proper value for the field is entered
Use Case Extensions	None

Table 24: Edit Employee Use Case

Use Case 13: Edit Employee	
Overview	The main purpose of this use case is to update employee information in the system such as new address, change of payroll information, change of standard billing rate.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to edit an employee
Ending Point	The actor's request is completed or cancelled
Measurable Results	The new employee information is updated in the system
Flow of Events	The use case begins when the actor requests to edit an employee. The actor is prompted to enter the name of the employee or choose from a list. The actor can then modify all employee information. If the employee type is billable, the actor can change the standard billing rate for the employee. The actor can then choose to save the information or to cancel the operation. If the actor decides to save the information, the new employee information is updated in the system.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Us Case Extensions	None

Table 25: Pay Employees Use Case

Use Case 14: Pay Employees	
Overview	The main purpose of this use case is to generate payroll checks for employees.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to pay employees.
Ending Point	The actor's request is completed or cancelled.
Measurable Results	Checks for employees are printed, and payments are recorded in the system.
Flow of Events	The use case begins when the actor requests to pay employees. The user is prompted to select one or more employees for whom to print checks. The information for each employee is displayed on the screen for verification. The actor is then prompted to okay the printing of the check.
Alternative Flow of Events	The actor enters an employee that does not exist. The system will not allow generation of a check.
Use Case Extensions	None

Table 26: Record Employee Time

Use Case 15: Record Employee Time	
Overview	The main purpose of this use case is to record time spent by employees who are not billable, or billable employees who were on vacation.
Primary Actor	Bookkeeper
Secondary Actor	None
Starting Point	The use case starts when the actor requests to enter employee timesheet. The recorded time is stored in the system
Ending Point	The actor's request is completed and the time is stored, or the request is cancelled
Measurable Results	Employee time is stored in the system
Flow of Events	The actor requests to record employee time. The actor is prompted to enter the name of the employee or select from a list. The actor enters the account number (not client account number) for the time to be recorded. (i.e. vacation, or non-billable employee time) and records the hours. The actor can then save the time or cancel.
Alternative Flow of Events	The actor attempts to add time to an account that does not exist. The system will notify the user and prompt for valid account number. The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

3.2.2 User Class: Billable Employee

The use cases in the tables that follow document the details of the functionality required the billable employee actor

Table 27: Record Billable Time Use Case

Use Case 16: Record Billable Time	
Overview	The main purpose of this use case is to record billable employee time.
Primary Actor	Billable Employee
Secondary Actor	None
Starting Point	The use case starts when the actor requests to start timing their work on a matter, or when the actor requests to enter time spent on a matter.
Ending Point	The recorded time is stored in the system or the request is cancelled
Measurable Results	The time spent is recorded in the system
Flow of Events	The use case begins when the actor requests to start timing their work. The actor is prompted to enter a valid client account number or choose from a list of clients and matters. The actor can then choose to start the timer. At any time the actor can pause the timer and then restart it. When the actor chooses to end the timing, the total time spent is displayed and the actor is

	prompted to enter a description of how the time was spent. The actor can then save the time or cancel it.
Alternative Flow of Events	The actor requests to enter time spent on a matter. The actors' timesheet for the week is provided for editing. The actor enters a valid client account number, or may choose from a list of clients and matters. The actor enters the amount of time spent on the matter and is prompted to enter a description of how the time was spent. The actor can then save the time or cancel. The actor attempts to add time to a client account that does not exist. The system will notify the user and prompt for valid account number. The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

Table 28: Record Expenses Use Case

Use Case 17: Record Expenses	
Overview	The main purpose of this use case is to allow billable employees to record expenses for which they are entitled to be reimbursed by the firm
Primary Actor	Billable Employee
Secondary Actor	None
Starting Point	Actor requests to enter an expense
Ending Point	Request is completed or action is cancelled
Measurable Results	Expense is entered into the system
Flow of Events	The use case begins when the actor requests to record an expense. The actor enters the amount, the nature of the expense, and if it is billable to the client, the MatterID.
Alternative Flow of Events	None
Use Case Extensions	Record Disbursement

3.2.3 User Class: System Administrator

The use cases in the tables that follow document the details of the functionality required the system administrator actor. The functionality required by the Copitrak System actor is also listed here, because the Copitrak actor shares the Poll Data use case with the System Administrator actor.

Table 29: Set Polling Interval Use Case

Use Case 18: Set Polling Interval	
Overview	The main purpose of this use case is to set the frequency at which the system will poll the 3rd party system to transfer disbursement cost recovery information.
Primary Actor	System Administrator
Secondary Actor	None
Starting Point	The use case starts when the actor requests to set polling frequency.
Ending Point	The polling frequency is set or the actor cancels the request
Measurable Results	The polling frequency is set.

Flow of Events	The actor requests to set polling frequency. The actor is prompted to choose the frequency from drop down lists. The actor is then prompted to save or cancel. None
Alternate Flow of Events	None
Use Case Extensions	None

Table 30: Poll Data Use Case

Use Case 19: Poll Data	
Overview	The main purpose of this use case is to represent the polling of data from the 3rd party cost recovery system.
Primary Actor	System Administrator
Secondary Actor	Copitrak System
Starting Point	The use case starts when the time set by the user in use case 18, set polling interval, has expired, or the user requests to poll data now.
Ending Point	The polling of data is completed
Measurable Results	The data has been downloaded from the Copitrak cost recovery system.
Flow of Events	The set polling interval time has expired and it's time to poll the Copitrak system. The software interface to the Copitrak system starts a download. All information is downloaded, logged and stored in the database.
Alternative Flow of Events	The user requests to poll data. The software interface to the Copitrak system starts a download. All information is downloaded, logged and stored in the database.
Use Case Extensions	Set Polling Interval

Table 31: Backup System Use Case

Use Case 20: Backup System	
Overview	The main purpose of this use case is to set frequency of backup onto redundant hard drive, and to allow backup of system data onto secondary storage media (CD ROM or tape drive)
Primary Actor	System Administrator
Secondary Actor	None
Starting Point	The use case starts when the actor requests to backup the system
Ending Point	Backup frequency confirmed as set, or backup finished, or actor cancels request
Measurable Results	The backup frequency to redundant hard disk is set and/or a backup is made on secondary storage media

Flow of Events	The actor requests to set backup frequency. The actor is prompted to choose the frequency from drop down lists. The actor is then prompted to save or cancel.
Alternative Flow of Events	The actor requests to make a backup. The actor is prompted to choose the type of medium to store to and the data to be backed up. The actor is then prompted to create backup or cancel.
Use Case Extensions	None

Table 32: Assign Access to System Use Case

Use Case 21: Assign Access to System	
Overview	The main purpose of this use case is to allow employees to be granted levels of access to the system. When an employee is created in the system he/she is automatically assigned to no access to the system until their information is edited in this use case and a user name and password and level of access is set.
Primary Actor	System Administrator
Secondary Actor	None
Starting Point	The use case starts when the actor requests to assign access to system. The employee is assigned a user name and password and level of access to the system
Ending Point	Access level is set, or request is cancelled
Measurable Results	The employee is assigned a user name and password and level of access to the system.
Flow of Events	The actor requests to assign access to system. The actor is prompted to enter the name of the employee or select from a list of employees. The actor then enters the desired user name and sets a preliminary password. The actor is then prompted to add the user to a user group, or customize access level. The actor can then save the time or cancel.
Alternative Flow of Events	The actor attempts to add access for an employee that does not exist. The system will notify actor and prompt for a valid employee. The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

3.2.4 User Class: Staff

The use cases in the tables that follow document the details of the functionality required the Staff actor

Table 33: Record Disbursement Use Case

Use Case 21: Record Disbursement

Overview	The main purpose of this use case is to record disbursements to the account of a client.
Primary Actor	Staff
Secondary Actor	None
Starting Point	The use case starts when the actor requests to post a disbursement to an account.
Ending Point	The actor's request is completed or cancelled.
Measurable Results	The disbursements is recorded in the system on the appropriate client's account
Flow of Events	The use case begins when the actor requests to record a disbursement. The actor is prompted to enter the client name, or may choose from a list of clients. The actor is prompted to choose one of the matters assigned to that client. The actor chooses the category of disbursement, postage, courier, copies, fax, long distance charges, or other and is prompted to enter the information. The actor may choose to save the information or cancel the operation.
Alternative Flow of Events	The actor enters an improper value for one of the fields. The system will not allow the update until a proper value for the field is entered
Use Case Extensions	None

Table 34: Generate Reports Use Case

Use Case 22: Generate Reports	
Overview	The main purpose of this use case is to generate reports. A number of standard reports, such as work in progress for a client or a matter, will be available as well as custom report writing. The information available for a given user to put on a report is determined by the user's access level in the system.
Primary Actor	Staff
Secondary Actor	None
Starting Point	The use case starts when the actor requests to generate reports
Ending Point	The actor's request is completed or cancelled.
Measurable Results	A report is generated to the screen and possibly printed
Flow of Events	The use case begins when the actor requests to generate reports. The actor is prompted to choose from standard pre-formatted reports or custom reports. In either case, the actor is prompted to choose from a list of items that can be included in the report. The report is generated to the screen and the actor is prompted to either print the report, go back and edit the report specifications or exit.
Alternative Flow of Events	None
Use Case Extensions	None

Table 35: Print Report Use Case

Use Case 23: Print Report	
Overview	The main purpose of this use case is to facilitate printing of reports
Primary Actor	Staff
Secondary Actor	None
Starting Point	The use case starts when the actor requests to report(s)
Ending Point	The reports(s) are printed or the action is cancelled
Measurable Results	reports(s) are printed

Flow of Events	The actor has generated report(s). The actor then has the option to print the report. The actor requests to print and is prompted (standard windows printing interface) to select number of copies, and other printing-related choices. The actor can either okay the request of cancel. If the actor okay's the request, the document is printed
Alternative Flow of Events	None
Use Case Extensions	Print

Table 36: Print Use Case

Use Case 24: Print	
Overview	The main purpose of this use case is to facilitate printing
Primary Actor	Staff
Secondary Actor	None
Starting Point	The use case starts when the actor requests to print
Ending Point	The item to be printed is printed or the action is cancelled
Measurable Results	document is printed
Flow of Events	The actor requests to print and is prompted (standard windows printing interface) to select number of copies, and other printing-related choices. The actor can either okay the request of cancel. If the actor okay's the request, the document is printed
Alternative Flow of Events	None
Use Case Extensions	None

3.3 Data Input and Output

Data inputs into the system will be from a combination of keyboard entry and polling of data collected by the Copitrak system. For most of the use cases, data will be input into the system from keyboard entry by the bookkeeper actor. However, quantitatively more data will come from the data collected by the Copitrak cost recovery system. Virtually all of the data will be of text or numeric (including dates) form.

The following table details the input method of the use cases:

Table 37: Details of Inputs into System By Use Case

Case #	Use Case	Input

1	Add New Client	Text and numeric data (keyboard): ClientID, Company name, client name, contact, address, telephone number,
2	Edit Client	Text and numeric data (keyboard): Same as Add New Client
3	Add New Matter	Text and numeric data (keyboard): Matter ID, ClientID, Billing rate (standard, special hourly rate, flat fee contingency), notes on nature of matter
4	Edit Matter	Text and numeric data (keyboard) Same as Add New Matter
5	Generate Invoices	none
6	Print Invoices	none
7	Apply Payment to Account	Text and numeric data (keyboard): Type of payment (apply to existing bill, or trust deposit (retainer)?), method of payment, amount, MatterID(s), GL or trust account to apply credit
8	Generate Statement	none
9	Print Statement	none
10	Print Trust Check	Text and numeric data (keyboard): Payee information, amount, ClientID, MatterID, numerical entry describing purpose of payment, text field for further description

Table 37 Continued

Case #	Use Case	Input
11	Print General Check	Text and numeric data (keyboard): Payee information, amount, G/L account to debit, numerical entry describing purpose of payment, text field for further description, ClientID to charge to (if applicable), amount of payment that is GST
12	Add New Employee	Text and numeric data (keyboard): Name, address, phone, payroll information (pay rate, tax information, etc.)_ billing rate (if billable employee), employeeID
13	Edit Employee	Text and numeric data (keyboard): Same as Add New Employee
14	Pay Employee	None
15	Record Employee Time	Text and numeric data (keyboard): Hours worked, numerical entry describing time (i.e. regular, vacation, sick, etc.)
16	Record Billable Time	Text and numeric data (keyboard): MatterID, ClientID, LawyerID (employeeID), time spent, numerical entry describing task, text field for further description
17	Record Expenses	Text and numeric data (keyboard): LawyerID (employeeID), MatterID(if billable to client), description of charge, numeric code indicating type of expense (i.e. mileage, dinner for client, parking, etc.)
18	Set Polling Interval	none
19	Backup System	none
20	Assign Access to System	Text and numeric data (keyboard): User name, password, tables to which user is allowed access, interfaces to which user is allowed access, user group
21	Record Disbursement	Text and numeric data (keyboard): MatterID, charges, numeric entry describing charge, text field for further description
22	Generate Report	none
23	Print Report	none
24	Print	none
25	Poll Data	Download of numeric data from Copitrak System:

		MatterID (or employeeID for employee personal charges), # copies, # pages fax, telephone charges

The system will have output in the form of on screen reports and output printed on paper. Messages indicating successful addition of data to the system can be in the form of progress bars, or simple window popup message. However, the user should not have to click on them to get them to go away. The following table delineates the expected outputs of the new system divided by use case.

Table 38: Expected Output by Use Case

Case #	Use Case	Output
1	Add New Client	On screen message confirming successful addition
2	Edit Client	On screen message confirming update
3	Add New Matter	On screen message confirming successful addition
4	Edit Matter	On screen message confirming update
5	Generate Invoices	Invoice generated on screen
6	Print Invoices	Paper Invoice printed

Table 38 Continued

Case #	Use Case	Output
7	Apply Payment to Account	On screen message confirming payment has been applied to account
8	Generate Statement	Statement is displayed on screen
9	Print Statement	Statement is printed
10	Print Trust Check	Paper check printed. On screen confirmation of update to client account and trust ledger
11	Print General Check	Paper check printed. On screen confirmation of update to General Ledger
12	Add New Employee	On screen message confirming successful addition
13	Edit Employee	On screen message confirming update
14	Pay Employee	Paper checks are printed
15	Record Employee Time	On screen message confirming time recorded
16	Record Billable Time	On screen message confirming time recorded
17	Record Expenses	On screen message confirming expense recorded
18	Set Polling Interval	On screen message confirming interval
19	Backup System	On screen "backup successful" message
20	Assign Access to System	On screen confirmation of change/addition
21	Record Disbursement	On screen message confirming successful addition
22	Generate Report	Display report on screen
23	Print Report	Paper report is printed
24	Print	Item is printed
25	Poll Data	Transfer of data to main system generates a log indicating success or failure of polling and statistics on data transferred

The figure below shows the means of input and output to the system.

Figure 5: System Input/Output Diagram

3.4 Data to be Maintained by the System

The system must maintain all data that is entered into it as outlined in the tables above. All of the data into the system will be text, numeric or date. This information must be kept in the system indefinitely, allowing for archiving of client records past a certain age. General ledger and accounting information must also be kept for a minimum of seven years for the purpose of audit and can be archived when it is three years old.

The information that must be stored in the database includes:
- Client billing information:
  - Contact information
  - Matter records
  - All charges (time, disbursement, other) and the bill they appeared on (either store whole bill or maintain ability to regenerate any old bill)
  - Billing rates applied
  - Payments
  - All transactions on account
  - Time spent on each matter
  - Lawyers who worked on matter
- Accounting ledgers and records for the firm:
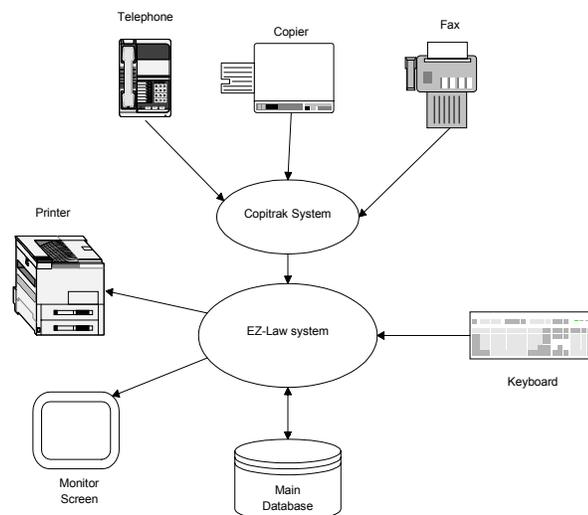
- General Ledger
- Trust Ledger and records of all transactions
- Payables history and payment record
- Check registers for all accounts
- Employee Information
- Payroll records
- Billable employee time records
- Historical data on copier/fax/telephone usage

4. Non-Functional Requirements

4.1 External Interface Requirements

This section will define all external system interfaces.

4.1.1 User Interfaces

The user interfaces, in general, shall to standard 32-bit Windows interface conventions, so as to easily capitalize on existing user knowledge of and familiarity with this interface. All tool bars and button, where possible, should provide mouse over tool tips. This includes the implementation of standard menus (e.g. File, Edit, View, etc.) and toolbar options, with functionality accessible by redundant methods, in order to enhance usability. In general, buttons will define transitions between non-related windows, or windows if different sizes. Tabs will define transitions between related windows. Design should be concerned with providing the most user friendly and easy to use format, with ergonomic transitions between windows.

There will be 5 major interfaces, access to which will be defined by user.

- **Main Program Interface** – The main interface of the program from which all other interfaces are launched.

- **Time Tracking Interface** – Allow user to record time spent on client matters directly to the system. Provide pop up "reminder" messages to lawyers and paralegals when they are behind in entering their billable time into the system. Program should be able to launch this screen at startup for those whose main interest is in recording time.

- **Accounting Interface** – Allows user access to all general accounting functionality of the system:
  - Bill Generation and printing
  - General Ledger Accounting
  - Trust Accounting
  - Check Printing

- · Accounts Payable
- · Payroll
- · Record and Override Billing Rates

- **System Administrator Interface** - Allows the administrator of the system to set access levels for users, add and remove users, reset passwords. Allows for management of 3rd party system polling interface for data transfer to the EZ-Law system. Allows access to logs generated by polling**.**

- **Report Generator Interface** – Allows access to a report writer functionality to print custom and/or pre-defined reports. Levels of access within this interface will be strictly controlled by user defined access levels.
- **Disbursement Entry Interface** - Allows limited access to the system for purposes of entering any disbursement that must be manually recorded to a client account (i.e. postage or miscellaneous expenses billable to the client). Through this interface, any staff member can enter charges for things such as postage or courier fees. The user entering the item must be tracked to allow bookkeeper to verify charges, if necessary, at the time of invoice generation.

The diagram below illustrates the relationship between the interfaces

Figure 6: Relation of Interfaces
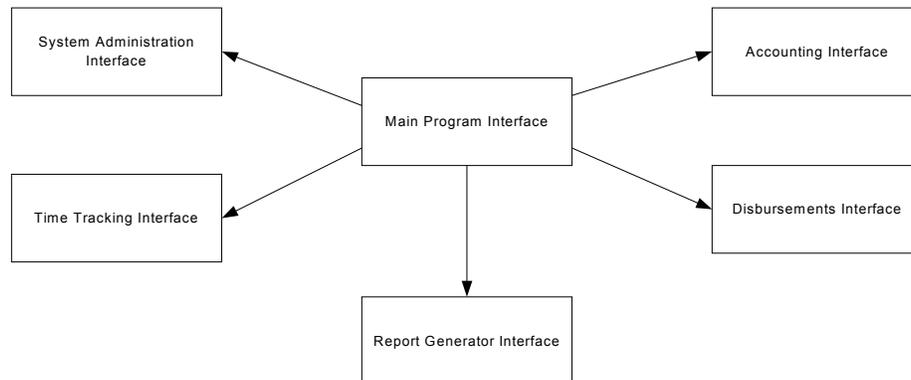
Main Program Interface
To start the Main Program Interface, the user will enter an ID and password. Once this information is entered, a splash screen will appear and the interface will launch. The main window will consist of a series of buttons that launch the other interfaces. Which other interfaces are available to the user will be determined based on an assigned access level. If a user does not have access to a function, the item will appear grayed out. Each of these interfaces will also be available for launch through the menu, toolbar and through keyboard actions.

Time Tracking Interface

This interface should manifest as a small window with drop down boxes for allowing the user to select the matter and a calendar icon for date selection. Once the matter has been chosen, the clientID and matterID should be displayed on the form. The form should also have a drop down box for allowing the user to select an activity code for the work being performed, and a text box for entering the description of the work. Functionality for starting, pausing and stopping timing of work must be on this form. A button should also be available for allowing the user to go directly to the timesheet entry window.

When invoked, the timesheet entry window should list all of the user's entries for that day and allow editing. To make it user friendly, this form should look much like the current paper timesheet being used in the office. (See Appendix 7 for current paper timesheet in use by GGA.) The user will have the option to either make an entry on the current timesheet, or choose a tab to view past timesheets. The timesheets contain fields such as matter ID, client ID, hours worked, client name, client address, number of hours worked on the matter, and a description text box. It is mandatory to enter the matter ID, or choose from a list of current matters. Time can be

entered without filling in this field, and the timesheet can be saved for later entry and posting, but the timesheet cannot be posted without a valid file number.

On timesheet form, there should be a "view charges" button. The user should be able to highlight the MatterID on the timesheet and clicks the button. The report generator will display a predefined report showing in detail all pending charges on a particular file, as well as balance of trust monies (retainer) or outstanding balance due on account. Printing the report should be an option.

When the user is ready to submit the timesheet, he/she will either click on a submit button on the timesheet form or can choose to save or cancel it. The submit function should also record the user's login identity and transmit this information with the timesheet. The timesheet cannot be submitted with critical fields empty. If critical fields are empty when the user attempts to submit, the interface must provide an error message describing what is wrong with the timesheet so that the user can edit and submit it again.

The user should also be able to save his timesheet for later submission or further entries. This could be either on the system or on the user's hard drive. Once the timesheet is submitted, the user can edit and resubmit it, provided it is still within the same billing period for which the original timesheet was posted. If the time has already been billed, the user will be unable to make changes to the entries. The submitted timesheets will remain for 6 months in the user's archives for viewing purposes. Report writer functionality will allow the user to view his billing history for as far back as data is kept in the system.

Because timesheets are to be posted daily, any timesheet that is not posted at the end of the day will generate a reminder to the user when the user logs into the system the next day.

Figure 7: Graphical Representation of Time Keeping Interface
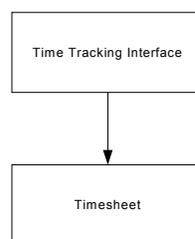
Accounting Interface
This interface is also accessible from the Main Program Interface. It will contain and control further access to all accounting functionality in the form of buttons for unrelated tasks and tabs for switching views within related tasks. Because these interfaces are going to deal with specific standard accounting functionality, they will not be described in as much detail. The "sub-interfaces" of this interface, which would appear as buttons will include:

- Billing
- Accounts (for firm accounts General and Trust)
- Employees (or Payroll)

The Billing sub-interface would encompass all functionality relating to client accounts, including:

- Adding/editing clients and matters
- Generation and printing of invoices and statements
- Applying payments to accounts
- Adding disbursements to an account

Each of these would be accessible through one or more buttons or tabs, the selection of which by designers must related to the functionality of these tasks. It's imperative that these interfaces be set up in a way that does not inhibit work flow, or cause the user to go back and forth between windows to perform related or repeated functions.

The Accounts sub-interface would encompass all functionality for administering the firm's general and trust accounts, each of which could be represented by a tab, or series of tabs.

The Employees (or Payroll) sub-interface would handle all aspects relating to the employees of the firm. It would be a central interface for entering any and all information pertaining to individual employees, including the setting of the hourly rate at which they bill out at.

In any respect, it is anticipated that the bookkeeper, who is the main user of this interface, will be particularly busy especially towards the end of the month. Thus, the software must ensure adequate help with navigation through this critical interface.
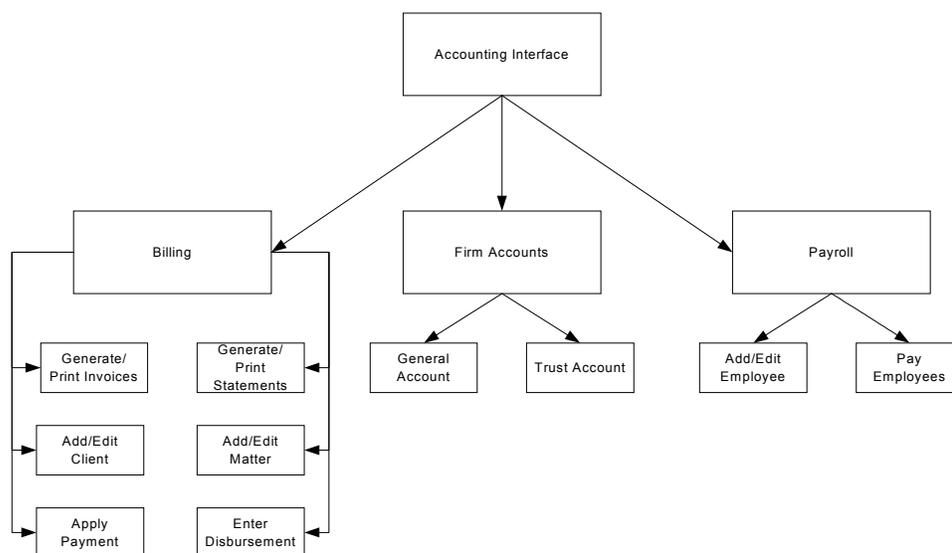
Figure 8: Graphical Representation of Major Windows in Accounting Interface

System Administrator Interface
This interface exists for the maintenance, and administration of security of the system as well as administering the interface between the system and the Copitrak cost recovery system.. This will be a simple interface that is also launched from the Main Program Interface.

This interface will consist of a series of tabs (could also be buttons) representing the few functions this interface controls. There should be a "backups" tab/button, a "user access" tab/button and a "polling" tab/button to administer the polling of the 3rd party system.

The Backup tab/button should allow for making manual backups of selected system data. This backup should be allowable on tape or CD, or redundant hard disk, or any combination thereof. There should also be a means of setting automatic backup intervals for all data in the system to be duplicated on the redundant hard drive. Ultimately this mirroring should be set to run daily, but the frequency must be controllable by the client.

The User Access" tab/button should allow control over the access all users have to the system. A special password entry should be required to remove system administrator access for any other user who already has it to prevent a disgruntled employee from locking everyone out of the system. The user should be able to assign users to user groups or assign individual privileges. Passwords should also be reset here.

The Polling tab/button would control all interaction with the Copitrak software system for the purposes of information retrieval. From this tab, the user should be able to set polling interval, manually cause the data to be polled immediately, and view/print reports on polling efficiency and logs of polling errors.

Figure 9: Graphical Representation of Major Windows in System Administrator Interface
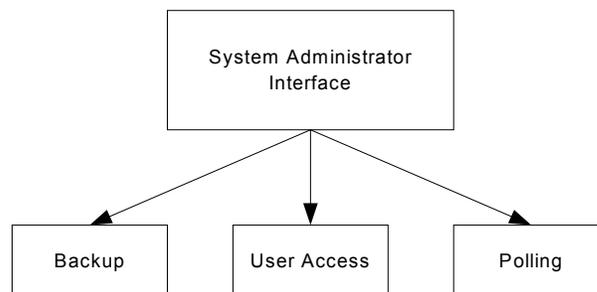
Report Generator Interface

This interface is also accessible from the Main Program Interface.   This single window interface provides access to custom report generation, as well as predefined standard reports by tabbing from predefined to custom. EZ-Law must provide security for access to reports/data available to create reports.

There will be a series of predefined reports. Examples include, but are not limited to the following:

• Work in Progress	• Accounts Receivable
• Lawyer Activity	• Trust Listing
• Past Due Accounts	• Time Reports by billable employee
• Deposit Listing	• Month End Reports
• Billing Reports	• Client Listing
• Year End Reports	• Financial Statements
• Matter Listing	• Matter Summaries
• GST Report	

The report generator will allow for customization of existing reports. It will also allow for the user to design custom reports.

The client will provide more specific information on the exact data and formats of predefined reports in the design phase of the project.

4.1.2 Hardware Interfaces

There are no extraordinary hardware interfaces for EZ-Law. EZ-Law is a client/server system and as such will use the existing network, interface with the printer for invoice and statement generation, and displaying things on a monitor. However all of these should conform to general standards for Windows operating system program.

4.1.3 Software Interfaces

Copitrak System Interface

EZ-law must provide an interface to the Copitrak system. The interface must be able to poll the Copitrak system and download its data, applying all charges to the appropriate client accounts. The interface must keep logs of all polling activity, including error reports, activity reports, and statistics including:

- Total number of copies recorded by date, available for summary by month or year.
- Total number of faxes recorded by date, available for summary by month or year.
- Telephone usage reports that include number dialed, duration of call, originating phone
- Totals for all of the above broken down by billable and non-billable
- Totals by matter ID

Specifications on the format of the data coming from the Copitrak system will be provided directly by Control Systems.

4.1.4 Communications Interfaces

There are no communications interfaces for EZ-Law

4.2 Performance Requirements

Time/Space Bounds & Efficiency
- EZ-Law shall support no less than 20 users simultaneously, and optimally 30 to allow for expansion.
- 95% of all transactions shall be processed in less than 1 second.
- Storage space is not a major concern as drive space on the server is expandable and the amount of data anticipated to pass through the system or be stored is considered to be moderate and not expected to exceed capacity.
- Memory usage, at any given time shall be no more than 32 MB of RAM at any desktop, and no more than 128 MB of RAM at the server.

Exception Handling
All exception errors will be immediately returned to the caller as they are encountered. Processing will then stop at that point and control will be returned to the GUI module. There will be an error message returned to the GUI process indicating the nature of the error. The exception will be stored in a log to allow maintenance/repair of the system.

Testing Requirements
EZ-Law shall be thoroughly tested before install. Each module shall be tested before integration with other modules. Test cases shall be defined from this requirements document and the use cases therein and a test document shall be written during the design process.

It is imperative that installation and on-site testing of the new system not interfere with peak work days, such as end of the month billing. Upon initial install, both the old system and the new shall be in place simultaneously so that onsite testing and data migration can go on without disrupting the work flow.

4.3 Design Constraints

- Design of accounting functionality, and all accounting procedures shall conform to standard accounting practices.

- Audit Tracing. This software must trace all processing activity and store the information in a trace file with before and after values.

- Report formats shall offer a standard configuration, but must be completely customizable by the user.

- Data naming shall conform to a standard data naming convention.

4.4 Software System Attributes

Correctness
EZ-Law must be correct to the extent that it satisfies all specifications in this document and solves the problems outlined in the existing system

Interoperability
The system interaction with the Copitrak system shall be fully recorded by the system in logs that allow the user to verify the data is being successfully transferred and monitor operations.

Maintainability
The system shall be of modular design to minimize the effort required to locate and fix an error after delivery. This attribute can be measured by the number of hours that must be spent per year fixing and maintaining the software.

Portability

There is no required for this system to be portable. The system will never be expected to run on anything but a Windows platform.

Reliability
This system must be extremely reliable. Uptime must be at 99%. Minor bugs at a rate no greater than 2 per 5,000 lines of code are acceptable. Major bugs, affecting the software operation or the integrity of stored data are unacceptable.

Security
Access to the system shall be by use of login ID and password. Access shall be controlled by user groups that provide specific access privileges based on the user. Levels of user access should be linked to access to tables in the database. Any given user should be able to access the interfaces and print reports based on the information in tables in the database that are available to their user level. The system administrator shall be able to set up user groups, or give completely custom access to one or more employees. Main user groups would include:

- System Administrator: Full access to all data: All interfaces available
- Bookkeeper: Full access to all data: All interfaces available
- Billable Employee: Time Tracking, Disbursement and Report Generator Interfaces Available
  From Report Generator Interface:
  - Access to client billing information and charges
  - Access to their own timesheet information and billings
- Staff: Disbursement and Report Generator Interfaces Available
  From Report Generator Interface:
  - Access to limited client billing information
  - (current charges only)

These user groups should be considered as guidelines and must be customizable. The main security concern, with respect to designing access levels, is the security of accounting information pertaining to the firm, employee information, and billable employee time keeping information. For this reason, it is specified here that access should be controlled on a per table basis within the database. Further, database design must be such that data that is allowable for many users, and data that is highly secure shall not be placed in the same table. This is a design issue of critical nature. The following items are of high priority for security:

- All firm accounting data
- All employee data

Survivability
- The system shall allow back up on the server by means of a redundant hard disk. Backups of this nature shall be set to run at user defined intervals.
- The system shall support backup onto CD-ROM so that data can be stored off site, and old data can be archived and removed from the system.
- All backups must include the transaction tracking record, which must be kept for auditing purposes.

Usability

This attribute is of significant importance to the client. The users should be able to navigate the system at a minimal level without any training. A minimal amount of training (1 hour) should provide most users with all the information they need to successfully use the system. The GUI design must be intuitive and task-based without any superfluous design. This characteristic can be measured by customer satisfaction with user ability to navigate and use the system, and can be tested by the effectiveness of the limited training, and whether there is a need for more.

4.5 Other Requirements

Physical Constraints
The system will run on an existing server, existing desktops and existing network, all of which are located in the same building on the same floor. Hence, there are no physical constraints for this system.

Documentation
The functionality of the system shall be fully documented and this documentation shall be provided to the client. Further, the development process shall be documented and those documents shall be kept together with all design documents for the purpose of maintenance to the system.

Lifecycle

The system should be functional and maintainable for a minimum of eight years. Modular design techniques should allow the system to be expanded and upgraded as it grows older, instead of requiring the firm to go through the whole process of purchasing a new system again. Ultimately GGA would like to see this system operational and feasible for more than ten years.

Economic

Economic factors do not impose significant constraints in this case because GGA is currently spending much more in operational costs on their current system than the development costs of the new system. Their current expenditure is approximately $165,000 per year for the existing system. The development costs for this new system, including the Copitrak component, were estimated in the feasibility study to be $92,245, with annual operating costs of $12,000. Total cost for the whole system should not go over the $100,000 mark.

Interview with Senior Partner:

The following information was collected over the course of two interviews and one telephone interview:

General Information

Purpose to evaluate:

- ♦ whether current information system can generate sufficiently accurate invoicing

- ♦ whether current system maintains backups

- ♦ whether current system has some type of archival mechanism

- ♦ whether current system is secure

- ♦ the importance of accuracy on invoices

- ♦ general complaints about the current system

Name David Goldman (name has been changed at the request of client)
Job Title: Senior Partner
Number of Years in position: 22

Billing System

1. How does your current billing system work? We record time spent on client matters on a paper time sheet. The bookkeeper enters the time into the computer at the end of each week. Actually she enters them as she gets them and that's supposed to be daily, but it does not always work out that way. We're often behind in reporting our time to her.

2. How is time tracked and billed? By the 10th of an hour.

3. What charges appear on an invoice? How are the charges broken down or itemized? Time is listed by lawyer with a description of how the time was spent. Other charges are copies, faxes, filing fees, etc.

4. How are non-time charges tracked and added to the bill? They are supposed to be recorded in the file folder at the time they occur. Like when copies are made or a fax comes in. They are also given to the bookkeeper on a slip of paper for entry. The bookkeeper then enters these charges into the computer. Right now not everything is making it onto the bills. We have a serious problem with copies. Most clients do not pay for any.

5. How many copies do you make per month? Between 15,000 and 20,000.

6. How many faxes come in and out per month? I could guess at about 6,000 pages, but I'm sure that's not accurate. I don't have an accurate figure. That's my best guess.

7. How many of those are not recorded? Around half.

8. How are long distance charges calculated? The Law Society requires that we do not charge more than the actual charge, so they are entered when the telephone bill comes in.

9. How much do you spend per month on postage? $300-$500 per month.

10. How much of that gets recovered in billing? None of it. We are currently neglecting to record it.

11. How much of it would be billable? 95% of it.

12. Do you ever run into problems of billable items not making it onto the invoice? As I said, copies. Faxes make it onto the bill more often, but many are missed. Long distance charges sometimes don't make it. For instance if the telephone bill arrives after a final bill has been sent to a one time client. We're not going to bill again for a couple dollar's worth of charges.

13. Why don't you bill for printer usage? It's just not something we do. It's not customary in the practice of law to charge for such a thing. The Law Society establishes allowable charges on a bill and printer usage is currently considered to be part of overhead.

14. What percentage of your fees billed goes to overhead? 50-60%. I'm sure it's closer to 60% here with the extra manpower we use on our manual tracking.

15. What is included in overhead? Rent, utilities, salaries, printers, copiers, etc. Everything we pay for on a monthly basis to keep the business running.

16. What kind of reports do you generate? i.e. cost reports, time reports, work in progress, work not yet begun? I'd like to say we do generate reports, but the sad truth is that we don't really. If our system was better, it would be great to see things like current to date anticipated billing for the month and totals billed for individual items for the month, or year. We do get monthly time reports after the invoices are printed.

17. End of year reports – what is the process you use to generate these? The bookkeeper compiles these. Currently we get time per lawyer broken down by matter, type of law and disbursements. It's broken down by charges that incur GST and those that do not. Other than that, it is not specific as to what the charges were. It's basically a consolidation of the monthly information.

18. Do you ever find you need information, like an estimate of what a client's charges are up to the current date, but you don't have access to the information? Absolutely. We are often trying to track down the current amount for a client who wants to know where he stands on the bill, or a client whose matter has just wrapped up and we need to get a bill out mid month because the work is finished and the client wants the bill.

Backups

1. Do you currently have a backup system for your computer files (all files in main server)?
   ☒ Yes ☐ No

2. If you answered YES to the previous question, how often do you perform backups? Backups are done weekly

3. Do you have any general worries about the current information system you are using? It's not great, but we've been doing it this way for so long. We're comfortable in our misery.

4. Does your system crash: ☐ Never ☒ Sometimes ☐ Often

Archiving

1. Do you often look up old information (i.e. old invoices) Yes.

2. How often do you look up old information?
   ☐ Never ☒ Sometimes ☐ Often

3. How old is the information being looked up (in general)? days/months/years Days to months.

Security

1. Do you have any concerns about the security of your information system? No not really. There's not much to secure. There would be no reason for anyone to tamper with billing information, except maybe a disgruntled employee. Currently the bookeeper is the only one who has access and she's been with me for many years.

2. Have there ever been accidental tampering with the data (by an employee)? No. Never.

3. Have you ever had problems with a breach of security (from someone wanting to damage the system)? Never.

4. Would you have a problem with others having access to the system? Yes. I don't want just anyone being able to get in there and change things. It's not that they could steal from the company or anything, but I just don't trust anybody but Rachel to get it done without really making a mess of things.

5. What if the system allowed others to enter their own time, but didn't allow them into other parts of the program and gave you/Rachel the option of reviewing their entries?   I guess I wouldn't have a problem with that.

6. What about if some of the current functions of the system were automated? Like copy tracking, fax tracking, long distance phone calls? You mean like just show up on the bills automatically? That would be great. We've considered that in the past. I know there are systems to do that. But it's really cost prohibitive. We'll probably look at it again in the future as we continue to grow. Very soon we're going to reach a point where it just isn't practical to have one person hand entering so much information. But I don't think we're there yet.

7. Would you be interested in a system that allowed secretaries to enter other incidental charges. Perhaps something that allowed a review of what they had input during the day for your, or Rachel's review? I think I could live with that. But if most of the billables are automated, it wouldn't really be that much for Rachel to enter anymore.

8. How often do encounter problems saving or recovering data from the present storage locations? How would you rate the severity of the problem? Not really a problem.

Current System

1. How much of the current system is computerized? The billing program is on the computer. It's a program that does all of our accounting. It handles receivables as well as billables,

though you do have to put an incoming check in two places to get it to post correctly to the client's account.

2. What software are you using for your invoices? It's an old DOS based program that was designed for us.

3. When was it implemented (what year)? 1992

4. What information is recorded by hand and input later? Most of it. Time, copies, faxes. I think I covered all that above.

5. Have there been any modifications to any parts of it? (i.e. software updates, computer upgrades etc.) Computers have been upgraded. I think the software may have had an update once.

6. What is the cost of maintaining the current system on a yearly basis? That depends on what you mean by cost. If you mean just the cost of the system, the cost is almost nothing. If you are talking about the time involved in recording things by hand and the bookkeeper entering all that data into the computer, the estimate would be $80,000 - $100,000 in staff time, but that could be high. I think Rachel is a better person to quantify how much time she spends on this instead of billable matters. That's where the real expense is in my mind.

7. What is your monthly revenue? roughly $300,000

8. How much do you estimate is lost in charges not getting onto invoices? Maybe – 1-2 % of the total billing.

9. Have there ever been any employee complaints about the current system? Well the bookkeeper isn't all that thrilled with it. Most of the lawyers would like us to use computers for our record keeping.

10. Would a system that was more automated be something you'd be interested in? We have considered doing something like that. I think at some point we're going to have to. At the rate we have been growing, we can't keep this type of billing system forever.

11. Would you be interested in something that allowed lawyers to enter their time directly at their own computers? Yes, I think that would be a nice feature. I'd like to see us automate the way copies, faxes and long distances charges are billed. Entering those takes a great deal of time every month, and as I've said before, much of it doesn't get recorded.

Billing Rate Information

1. What are the billing rates for the lawyers, paralegals, secretaries? Lawyers range from $175 to $300 an hour. Paralegals bill out at $50 an hour. Secretarial time is not billable.

2. What's the average for all the lawyers in this firm? Probably around $225.

3. What are the salary ranges for paralegals and secretaries? Paralegals average about $50,000 and secretaries about $30,000.

Interview with Bookkeeper

The following information was collected during one interview:

Purpose to evaluate:
- ♦   The amount of time the bookeeper is spending in entering time and expenses
- ♦   if current information system is efficiently using the bookeeper's time
- ♦   if the bookkeeper likes the current system
- ♦   the bookeepers opinion on automating the process

General Information

Name   Rachel Green (name has been changed at the request of client)
Job Title Paralegal / Bookkeeper
Any previous roles with the company?   No
Number of Years of employment in this company:
☐   < 1 years   ☐   1-3 years   ☐   3-5 years   ☒   >5 years

General System Questions

1. What software program do you use most often?   The accounting program we have.   It doesn't really have a name. It's an old custom application.

2. What do you use this program for? accounting

3. What is the process/tasks you spend the most amount of time on during a week? Entering time and charges into the billing system

4. Do you find the computer software you use on a daily basis to be easy to use? No, not really. I'd prefer a Windows program that took electronic entry of time directly from the lawyers and maybe automatically entered some of the charges, or allowed secretaries to enter charges as they occur instead of just entering them in the file for me to input later.

Invoicing Questions

1. How often do you generate invoices? Once a month, sometimes one or two in the middle of the month.

2. How many invoices are generated in a month? Approximately 100 - 150

3. What program do you use to generate these invoices? It doesn't have a name

4. Is this program easy to use? No.

5. Do you like the interface?   No. It's a DOS program

6. Does the program ever crash? Yes.

7. Do you keep paper copies of invoices filed? Yes. The Law Society requires that we keep papers copies.

8. Is it hard to isolate outstanding invoices? Yes, but it's not impossible. The system does track them

9. How much time do you spend entering lawyer/paralegal time into the computer? I spend 10-15 minutes per lawyer or paralegal a day. So that's roughly 2 –3 hours per day.

10. How much time do you (or others) spend entering expense information such as copies, faxes, courier services, filing fees? Another hour or two per day.

11. What percentage of the copies made do you estimate get billed? Maybe half.

12. How much time do you spend getting invoices out at the end of the month? Most of the last week of the month. It's probably more realistically 3 days of at the end of the month but it seems like it fills the whole week. I'd like to have one of the secretaries help me, but David doesn't want anybody but me in the system.

13. What would you think about having a system that automated some of the entry tasks for you? Something that automatically recorded things like copies, faxes, and long distance charges? That would be great. But I don't think David is ready to go for that just yet. It's expensive. He'd have to be convinced that it actually was worth it.

Accounts Receivable Questions

1. How do you track incoming receivables and apply the payments to the accounts? I apply the checks to the accounts as they come in. They are then recorded again in the general ledger part of the program.

2. What software do you use? Same software does both.

Interview with Associate Lawyer

General Information

Interviewee: Spencer Heath
Purpose to evaluate:

♦ if current system causes any problem for the lawyers.

♦ if the lawyers would be interested in an automated system and would use it

Name: Spencer Heath
Job Title: Lawyer
Any previous roles with the company?   No
Number of Years of employment in this company:

☐ < 1 years   ☒ 1-3 years   ☐ 3-5 years   ☐ >5 years

System Questions

1. Do you work with the current billing system at all? Not really. We don't have any access.

2. Would you like to have access? It would be nice to be able to get a report on time to date spent on a client.

3. Would you be willing to enter your own time into the system on a computerized time sheet instead of the paper one you currently use? Absolutely. That would be great

4. Is there anything you'd like to see in a new billing system? More access for anyone who has a need to know what's currently on your client's bill. Better tracking of non-time billable items. Sometimes they just don't get recorded because it's such a pain.

5. How much time do you spend per day recording billable items onto paper, not including your timesheet? Probably a little more than five minutes.

6. Could you estimate how much time the paralegals spend in the same task? Definitely more than I do. Probably about 20 minutes a day.

Second Interview with Senior Partner:

Purpose to evaluate:
- ♦ the accuracy of requirements so far
- ♦ additional requirements

General Requirements Questions

1. Having seen a copy of the requirements we've come up with, do you feel they relate to the product you'd be looking for?

   Yes. You seem to have captured most of the operations we have in the current system, as well as functionality we'd like to see if we were getting a new system.

2. Is there anything you would add to what we already have?

   Well, I think you're light on the accounting functionality.

3. Is accounting functionality something that is standard, something that is done the same way in any law firm and in any software?

   I can't speak to any software, but yes, the way things are done in most accounting is very standard.

4. How long would you want to store information on the system?

   We're required by the Law Society to store our accounting data for a minimum of 7 years for audit purposes. However, we like to store our client billing data indefinitely, and for the most part we store our accounting data longer than the 7 years.

5. Are there any other Law Society requirements that might affect this software?

   We are required to use a software with a transaction log.

6. How does that work?

   Each transaction must be stored with before and after values so they can unwind what we've done. It's done to aid forensic accounting in investigating embezzlement, such as when a lawyer misappropriates his client's trust monies.

7. How do you feel about the idea of adding an additional hard drive to the server for backup and to maintain the integrity of the data?

   If this were a real system, and that's a real big if isn't it? – then I would be fine with it. Hard drives are cheap. That probably isn't a bad idea for us right now.

8.   What kind of safeguards would you want in place if you were to allow someone besides the bookkeeper to enter disbursements?

I'd want to make sure that person couldn't do anything but fill out a form and that it was tracked as to where it came from.

9.   What if users' access to the system was controlled on an individual basis and you could let people use the things they needed without compromising the private data?

That's exactly what would have to happen for us to consider using a system that allowed everyone access. The accounting data has to be secure. It's private and should not be looked at by employees. But sometimes lawyers need to know what's going on with a client's account and it would be nice if they could see that billing information themselves without taking up Rachel's time – and their own – in coming to her to get the information.

Business Rules Questions

10.   How many matters can one client have with you?

At any given time, it could be none, or it could be many.

11.   Can a matter belong to more than one client?

No

12.   How many lawyers and/or paralegals are assigned to work on a matter?

It depends on the matter. It could be just one, or it could be several of us. It depends on how much work is involved in the matter.

13.   Can a disbursement be billed to more than one matter?

Technically no. I suppose in reality it occurs that we've got a client with two matters and I make some phone call related to both of them. But we don't worry about it. We bill it to one of the other. We never split it like that.

14.   How many time entries are billed to a matter?

Could be none, if nobody worked on the matter in the billing cycle. Could be many also.

15.   Can a time entry be billed to more than one matter?

No. If a lawyer works on more than one matter for the same client, even if the matters are related, he splits the time up and bills it separately.

16.   Are lawyers assigned by client or by matter?

They're assigned by matter. A lawyer may always work on a specific client's work.
That lawyer may have even brought that client into the firm, but we still look at it on a
per matter, not per client, basis.

18.   Do you assign all lawyers and paralegals to the matters they work on?

If you mean do I make the decisions as to who works on what, the answer is most of the
time I do. It depends on who the client is. If a lawyer brings a client in, he is no doubt
planning to be the one doing the work. But as for showing people as assigned to matters
in the computer, no. We assign one lawyer – the main lawyer for the matter. The other
billable employees who work on it are only reflected in the time they spent on it.

Copitrak   Faxtrak   Phonetrak   Lasertrak   Postrak   WebEDIT   ERS   Zixtrak

CopiTRAK fx DIAMonde SERIES

"TCP-IP Communications
Advanced Cost Recovery Features
Super G-3 and Dual Line Capability
…Document Retrieval"

The Copitrak DIAMonde CFX terminal provides simultaneous control and tracking of both photocopier and facsimile usage as well as postage and miscellaneous charges. The terminal combines all of the features of the Copitrak DIAMonde terminal and Faxtrak DIAMonde terminals in one economical unit that is ideal for offices where a fax machine and photocopier are in close proximity.

The DIAMonde terminal is a true Client/Server terminal, using State-of-the-Art TCP/IP communications, allowing terminals to communicate back to a central Copitrak server from any point within an existing LAN and WAN network.

The Distributed Information Access architecture built into the DIAMonde allows much more than just simply tracking copies or fax. The DIAMonde terminal will also let you view a profile of your last jobs, seamlessly search your client list based on variable criteria, help you complete your data entry with AutoFill. When linked with Lasertrak print control software the DIAMonde terminal facilitates complete Document Retrieval of your files for on demand printing at any multifunctional copier/printer.

MAXIMUM COST RECOVERY

The highest realization of revenues from billable expenses is a hallmark of all Control Systems products. The DIAMonde series terminal makes it easy for users to enter and validate billing information without interfering with their workflow. The following convenience features ensure maximum cost recovery:

- On-screen display of descriptive names for client/matter validation
- Last job recall of the last 16 recent billable accounts by user
- One-key speed entry for instant access to common accounts by user
- Scan feature searches alphabetically, phonetically or by key word
- On-screen alert for non-billable account usage

FLEXIBILITY AND DURABILITY

The DIAMonde series terminal is compatible with all brands of photocopiers and fax machines. It can track special copier features such as oversized documents or color copies, and it supports fax features such as memory receiving, high-speed mode, error correction, group sending and Super G-3.

NETWORK ARCHITECTURE AND DATA SECURITY

- Full TCP/IP communications
- DHCP support
- Realtime Server validation
- Realtime server transaction storage
- Up to 3 host servers removes single point of failure
- Designed for minimal network traffic, independent of Account list size
- Realtime display of communications status
- Local battery backed up RAM stores all users and transactions if server is offline
- Scan feature searches alphabetically, phonetically or by key word

SERVER ENHANCEMENTS

- Realtime transaction usage view with ServiceTRAK
- Immediate Error detection and email notification with ServiceTRAK
- Fax Transmission Email notification with ServiceTRAK
- Multiple, realtime validation servers can be configured to avoid downtime if main server becomes unavailable
- Centralized administration and configuration of all or individual terminals from the Copitrak Server

SERVER ENHANCEMENTS (cont'd)

- Unlimited number of Users and Accounts supported
- Unlimited number of terminals, centralized to a single reporting and editing engine, by Unit, Branch, Head Office or any other criteria

KEY FEATURES

- Large color screen
- 20 line display for lists
- Enhanced graphic user interface (GUI)
- Qwerty keyboard / convenient numeric keypad
- Dedicated feature keys – scan, search, speed dial
- Super Search finds key words from within client-matter description
- Intelligent Prompting activates only required fields, based on user criteria
- AutoFill reduces user keystrokes completing client-matter field automatically
- Intelligent Field Masking eliminates keystrokes
- 5 programmable and fully validated data entry fields
- Centralized configuration and support of terminals
- Centralized data profiling for Global feedback
- Document Retrieval in conjunction with multifunctional copier/printers
- Co-exists with present Copitrak systems
- Supports memory receive, high-speed mode, error correction, group sending and Super G-3
- Support for up to 100 additional user-defined disbursements.

Copitrak   Faxtrak   Phonetrak   Lasertrak   Postrak   WebEDIT   ERS   Zixtrak

"Effortless tracking and costing
of telephone usage."

PhoneTRAK

Phonetrak for Windows provides effortless tracking and costing of telephone usage. By collecting call data directly from the SMDR output of the phone system, the software ensures that 100% of all calls are accurately tracked and recorded.

Phonetrak's powerful costing and reporting functions make it simple to monitor employee phone usage, estimate toll charges, verify phone bills, and even compare costs among different carriers for maximum expense recovery.

MAXIMUM COST RECOVERY
The highest realization of revenue from billable expenses is a hallmark of all Control Systems products. Phonetrak makes it easy for users to enter client billing information by simply dialing the account code from their telephone keypads when making long distance calls. This call data is then processed by the software, costed for toll charges and optional surcharges as required, and assembled into a variety of reports for billing and monitoring purposes.

Complete validation of billing codes is also performed at processing time. All calls made with missing or inaccurate codes are sorted by user and compiled into exception reports that can be printed and routed for manual corrections. Network users can also opt for online editing of call transactions using our Net Edit software that eliminates the need for paper exception reports.

The phonebook module incorporated in Net Edit automatically builds a matching file of account codes and corresponding telephone numbers for easy reconciliation of telephone charges.

FLEXIBILITY AND DURABILITY
Phonetrak for Windows simplifies call accounting by collecting call data directly from the phone system's SMDR (Station Message Detail Record) output and saving it to the PC hard disk. This operation is performed continuously and automatically in the background so that the same PC can also be used for other tasks. Processing, sorting, and costing of all call data is performed on

a user-assigned basis, usually daily.

Phonetrak works with all versions of Microsoft Windows including Windows 3.1x, Windows NT, and Windows 95/98. The software has no specific hardware requirements other than the minimum requirements imposed by Windows itself and a direct connection via RS232 port to the SMDR output of the phone system. Most modern PBX systems and intelligent electronic key systems include this type of output.

Phonetrak's powerful and flexible costing capabilities allow it to accurately cost all types of calls. Regular software updates are available to support the latest tariffs and pricing plans for all of the major telecommunication carriers.

The software also supports WATS lines, dial-up carriers such as 10288, and software defined networks or tie lines where the number dialed does not conform to the normal area code and exchange format.

INTEGRATION AND NETWORKING
Phonetrak for Windows is part of a complete line of network-compatible hardware and software products for cost recovery. The software can be integrated with other products via ERS for Windows system software to form a complete enterprise-wide expense management system.

This system can import usage data from other telecommunication devices, including fax machines, for costing of toll charges, and it can automatically export billable transaction data directly

to third-party time and billing systems. Data can be polled from remote sights using a dial-up modem or WAN connection and network users can edit call transactions online using Net Edit. The Phonetrak software can also operate independently by generating its own management reports.

SPECIFICATIONS
Contact Control Systems for Phonetrak Specifications

www.copitrak.com

2424 North Federal Highway, Suite 164 Boca Raton, Florida 33431 Phone: (800) 755-9901 Fax: (561) 361-9803

control systems
Complete Cost Recovery
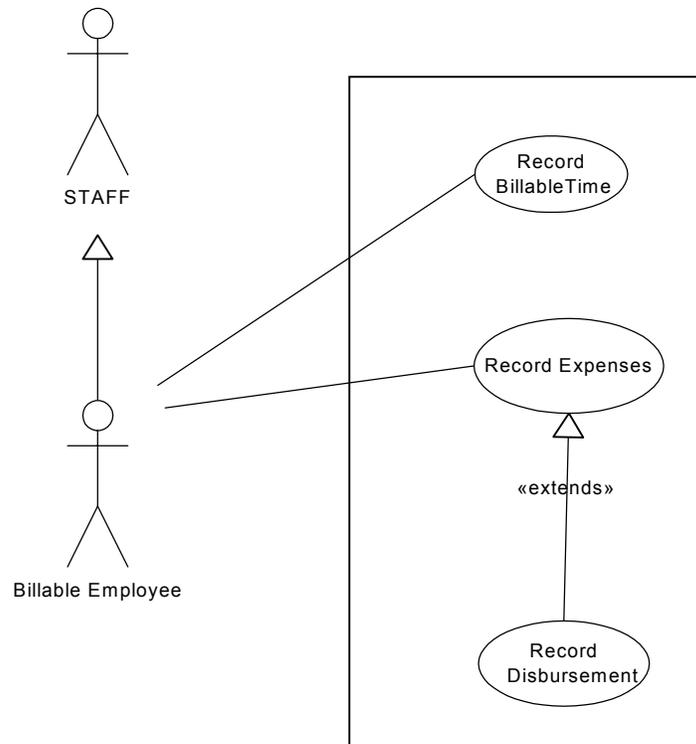
Use Case Diagrams

This appendix contains the use case diagrams for each actor. These diagrams demonstrate the interaction between the actors and the system. The following table is a brief summary of the use cases. For a full description of each use case, see Section 3.2 Use Cases

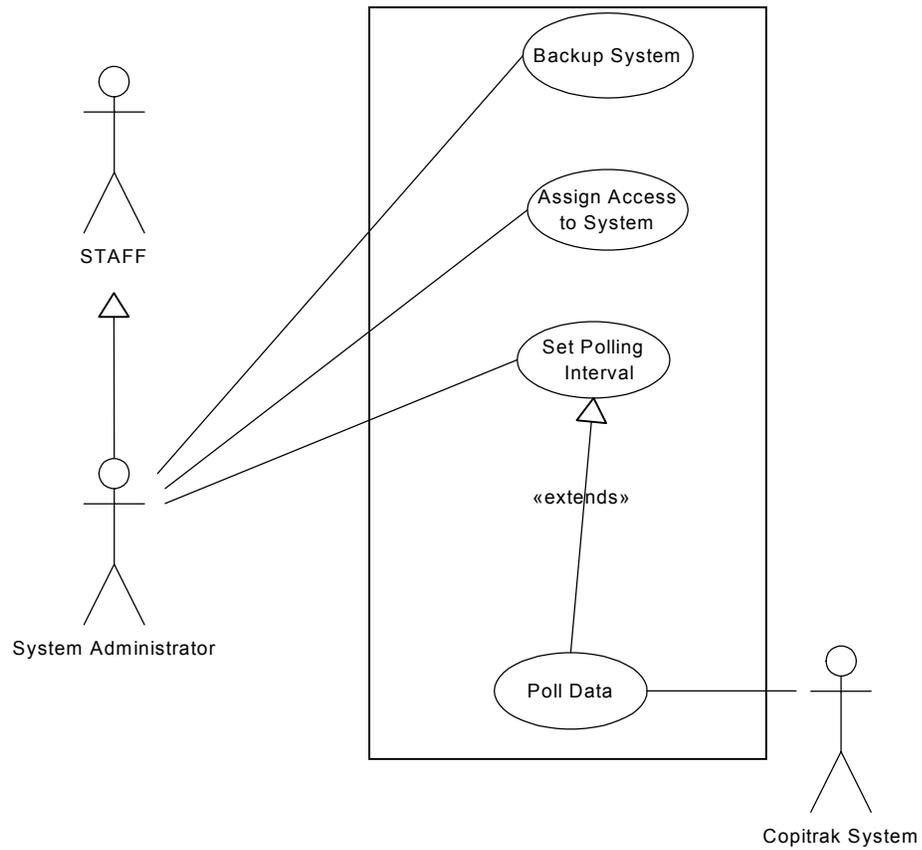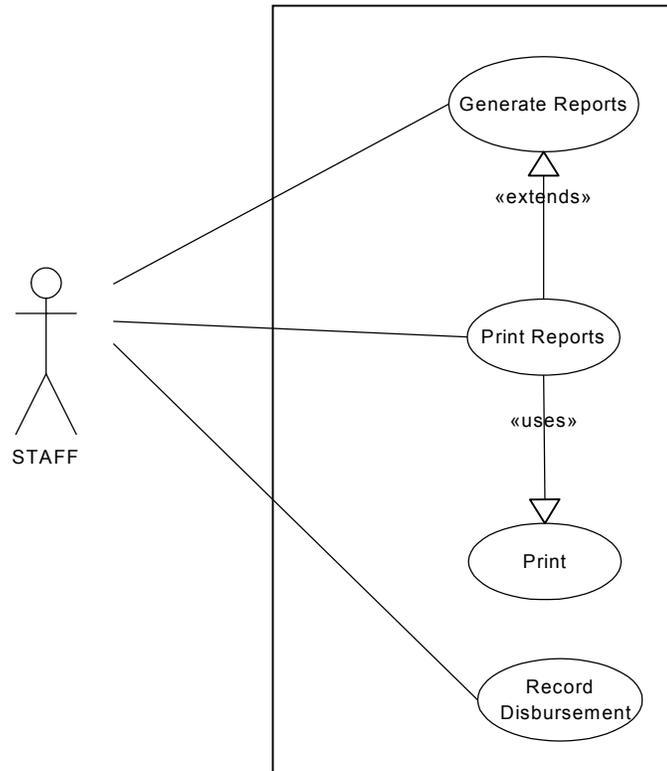| *Use Case*	*Description*
Add New Client	Used by the Bookkeeper to add a new client to the system
Add New Employee	Used by the Bookkeeper to add a new employee to the system
Add New Matter	Used by the Bookkeeper to add a new matter for a client
Apply Payment to Account	Used by the Bookkeeper to apply a client's payment to their account
Assign Access to System	Used by the System Administrator to assign user access levels for users
Backup System	Used by the System Administrator to backup the system by either setting an interval to backup to redundant hard drive, or make backup onto other media (CD or tape)
Edit Client	Used by the Bookkeeper to edit an existing client in the system
Edit Employee	Used by the Bookkeeper to edit an existing employee in the system
Edit Matter	Used by the Bookkeeper to edit an existing matter in the system
Generate Invoices	Used by the Bookkeeper to generate invoices for client accounts at the end of the month
Generate Report	Used by Staff to generate reports (custom or predefined)
Generate Statement	Used by Bookkeeper to generate statements
Pay Employee	Used by Bookkeeper to pay employees
Poll Data	Used by the Set Polling Interval use case to collect the date from the 3rd party system. Also used by the System Administrator triggering an immediate polling of data.
Print	Used by Print Reports and Print Statements/Reports to facilitate printing
Print General Check	Used by Bookkeeper to draw a check on the general account of the firm
Print Invoices	Used by the Bookkeeper to print invoices
Print Report	Used by Staff to print reports generated
Print Statement	Used by the Bookkeeper to print statements
Print Trust Check	Used by the Bookkeeper to draw a check on the trust account of the firm
Record Billable Time	Used by Billable Employee to record time spent on a matter
Record Disbursement	Used by Staff to record a charge (other than time) to a client account
Record Employee Time	Used by Bookkeeper to record time for non-billable employees
Record Expenses	Used by Billable Employee to enter expenses to which he is entitled to be reimbursed by the firm
Set Polling Interval	Used by the System Administrator to set the interval at which to poll the 3rd party system for data collection.

Use Cases for Bookkeeper
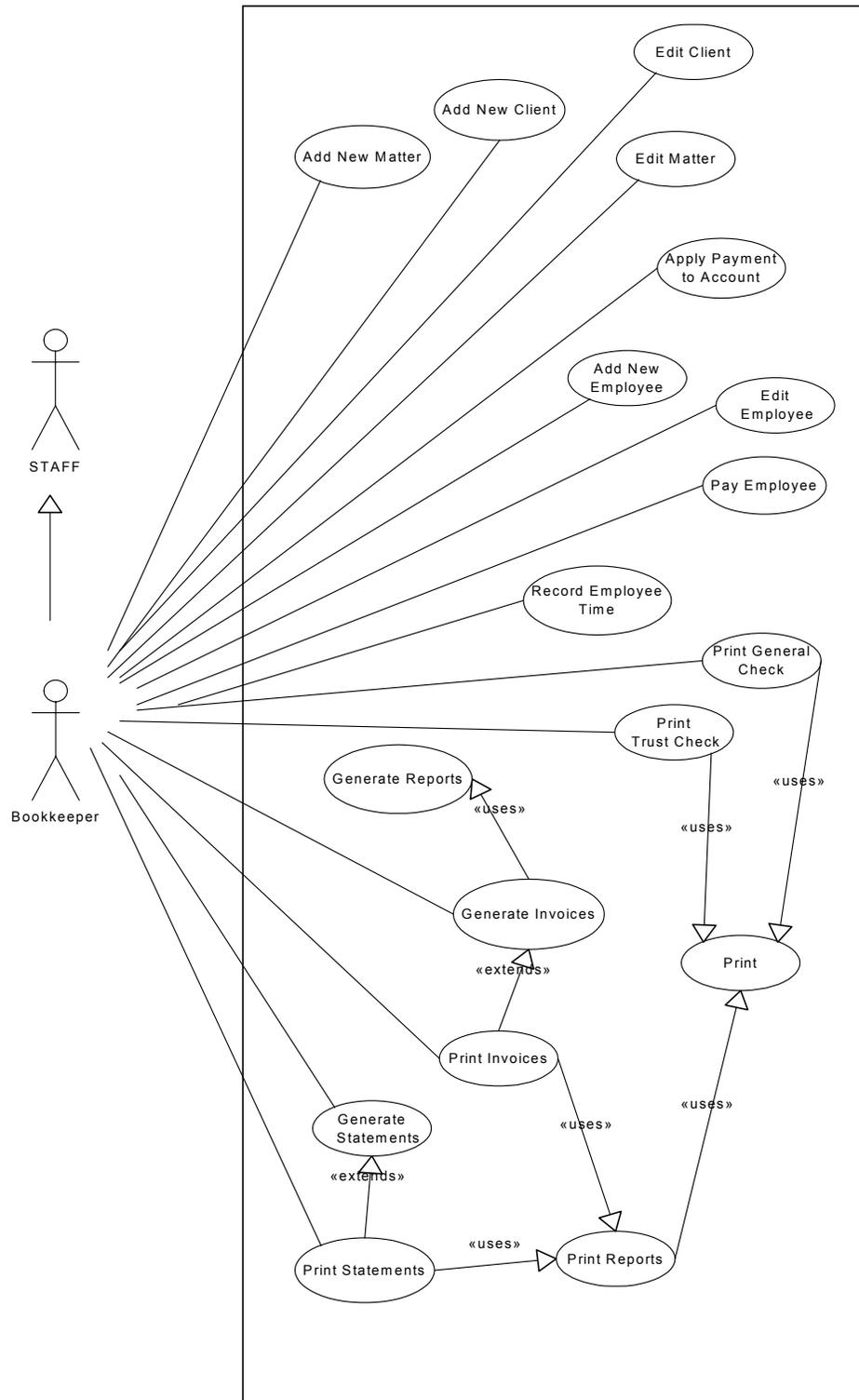
Use Cases for Billable Employee

Use Cases for System Administrator and Copitrak System

Use Cases for Staff

Class Diagram

On the page that follows, is a class diagram of the system. In this diagram a class is defined to be the description of a set of objects with the same attributes, operations and relationships. Each object is an instance of a particular class. The diagram shows the collection of these classes and how they are related to one another. It is a simple static view of the classes of the system. Class properties and methods are not shown in the diagram due to space considerations. These details are presented on page 61, in this appendix. A data dictionary for the classes can be found on page 60.

The Copitrak System is shown as a subsystem on the diagram even though it is not considered part of the EZ-Law system. Because the "Interface to Copitrak System" is part of the system, it was desirable to show the relationship between this interface and the Copitrak System.

Class Diagram omitted due to size of graphics file

The following table is a data dictionary for the classes in the class diagram of this appendix

Data Dictionary for Classes

Class Name	Description of Requirements Represented
Access Control	Represents the requirements for controlling access to the system on a per user bases
Access Level	Individual level of access for a user
Accounting Interface	The interface to the accounting functionality
Accounting Manager	Liaises with the Billing Manager and Payroll Manager classes to collect information from billing and payroll and post it to the firm accounts
Backup	Represents the functional requirements for backing up the system
Billable Employee	Inherits from Employee. Allows setting of a billing rate and expenses for this type of employee
Billing Manager	Liaises with the Accounting Manager to ensure all billing information is reflected in the firm accounts
Charges	A charge for a copy/fax/telephone call as collected and downloaded by the Copitrak System
Check	A check drawn on a firm account
Client	Represents the clients of the firm
Disbursement	Represents any disbursement that is to be applied to a matter
Disbursement Interface	Allows access to system to enter disbursements
Employee	An employee of the firm
Expense	An expense paid by a billable employee to which he is entitled to reimbursement
Firm Account	The accounts of the firm
General Account	Inherits from Firm Account. The general account from which checks are written to pay for services and payroll in the normal course of business
General Ledger	The ledger of an account
Interface to Copitrak System	The software interface that handles the actual data transfer from the Copitrak System to the EZ-Law system
Invoice/ Statement Generator	Generates invoices and statements
Login	Takes user login and password information and verifies user and access level before allowing access to system and launching the main interface
Main Program Interface	The main interface of the program from which all other interfaces are launched.
Matter	An individual matter for a client
Payroll Details	Represents the time and expenses that employees are to be paid for
Payroll Manager	Liaises with the accounting manager to get payroll checks printed and payment details recorded in the firm accounts. Represents the payroll sub-interface
Polling	Manages the Interface to Copitrak System. Allows for setting of polling interval or immediate polling.
Report Generator	Generates Reports
Report Generator Interface	Takes input on the type of report and data required and accesses the report generator
System Administrator Interface	Allows access to backup, user access levels and polling activities
Time Entry	An entry on a time sheet
Time Tracking Interface	Interface that allows employees to access timesheets to enter their time
Timesheet	The online timesheet containing time entries
Trust Account	Inherits from Firm Account. Represents the account for trust monies held by the firm for its clients

The following are the classes from class diagram of on page 50, with attributes and method details included. These were left off the class diagram due to space considerations

Access Control
-users
+getAccessLevel( )
+verifyUser( )
-setAccessLevel( )
-getAccessTable
-permit( )
-deny( )

Access Level
-userID
-password
+getAccessLevel( )
#getPassword
+setUserID
+getUserID
+delete( )
+save( )

Accounting Interface
+ launchBilling ( )
+ launchAccounting( )
+ launchPayroll( )

Accounting Manager
+getPayrollInformation ( )
-postPayrollInformation ( )
+getBillingInformation ( )
-postBillingInformation ( )
+postToLedger( )
+viewAccount( )

Backup
-lastBackupDate
-lastBackupType
-nextBackup
+createBackup ( )
+setBackupInterval ( )
+getLastBackupDate ( )
+getLastBackupType ( )

Billing Manager
+generateStatements( )
+generateInvoices( )
+createNewClient( )
+editClient( )
+createNewMatter( )
+editMatter( )
+applyPayment( )

Charges
-type
-matterID
-numberCopies
-numberPagesFAX
-telephoneNumber
-timeOfCall
-numberOfMinutes
-telephoneCharge
(public get and set methods for all of the information above)

Check
-payee
-amount
-date
-accountToPostTo
-matterID
-employeeID
(public get and set methods for all of the information above)
+postToAccount( )
+voidCheck( )
+print( )

Client
-name
-contact
-dateOfCreation
-address
-telephone
-fax
-Lawyer
(public get and set methods for all of the information above)
+addMatter( )
+save( )
+edit( )
+delete( )

Disbursement
-type
-matterID
-numberCopies
-numberPagesFAX
-telephoneNumber
-timeOfCall
-numberOfMinutes
-telephoneCharge
-expenseType
-expenseAmount
-time
-Lawyer
-DiscriptionOfTime
(public get and set methods for all of the information above)
+postToMatter( )
+save( )
+edit( )
+delete( )

Disbursement Interface
+createNewDisbursement( )

Employee
-name
-address
-phone
-startDate
-payrate
-employeeID
(public set and get methods for all information above)
+save( )
+delete( )

Billable Employee
-billing rate
+setBillingRate ( )
-getBillingRate ( )

Expense
-amount
-type
-billable (bool)
-description
+postToPayroll
+postToBilling

Firm Account

-name
-accountNumber
-Balance
-Bank

+createNewAccount( )
+save( )

General Account

+deposit( )
+reconcile( )

Trust Account

+deposit( )
+reconcile( )

Interface to Copitrak System

+getData( )
-createLog( )

Invoice/Statement Generator

+generateInvoices( )
+generateStatements( )

Login

+getLogin
+getPassword
-verify( )
-reject( )
-accept( )
-launchMainInterface

Main Program Interface

+launchAccounting( )
+launchDisbursement( )
+launchTimeTracking( )
+launchReportGen( )
+launchSystemAdmin( )

Matter

-matterID
-matterType
-clientID
-typeOfLaw
-billingRateType

(public get and set methods for all
information above)
+assignLawyer( )
+recordTimeCharge ( )
+recordDisbursement ( )
+close( )
+archive( )

Payroll Details

-taxRate

+recordExpense
+recordTime

Payroll Manager

+payEmployees( )
+editTimesheets( )
+createTimesheet( )
+editExpense( )
+sendPayrollDataToAccountingMana
ger ( )

Polling

-pollingInterval
-lastPolling

-poll( )

Print

print( )

Report Generator

+generateReport( )

Report Generator Interface

+saveReport
+print( )

System Administrator Interface

+verifyPassword( )
+setUserAccess( )
+setPollingInterval( )
+createBackup( )

Time Entry
-hours
-billable (bool)
-matterID
-clientID
-description
-timeCode
(public set and get methods for all information above)
+createNewTimeEntry( )
+save( )
+edit ( )

Time Tracking Interface
+launchTimeSheet
+getOldTimeSheets( )

Time Sheet
-employeeID
+displayBillingData( )
+timer( )
+submit( )
+save( )

Sequence Diagrams

On the following pages are sequence diagrams for most of the use cases. For purposes of simplicity, the manager objects, as defined in the Class Diagram, have been left out. These objects are Accounting Manager, Billing Manager, Payroll Manager.   They may (or may not depending on design) represent and extra level of processing between the objects and the database, however they don't really change the sequence of events. Their main function is to ensure that data that needs to be shared with the accounting functionality of the software is in fact shared. They are liaisons. As such, they represent an extra step, but do not fundamentally change the sequences represented in these diagrams. In the interest of fitting the diagrams on the page, these objects were left out.

The function of sequence diagrams is to help analyze requirements and identify at a detailed level the operations that are necessary to implement the functionality of a use case. For this reason, most of the use cases have been covered.
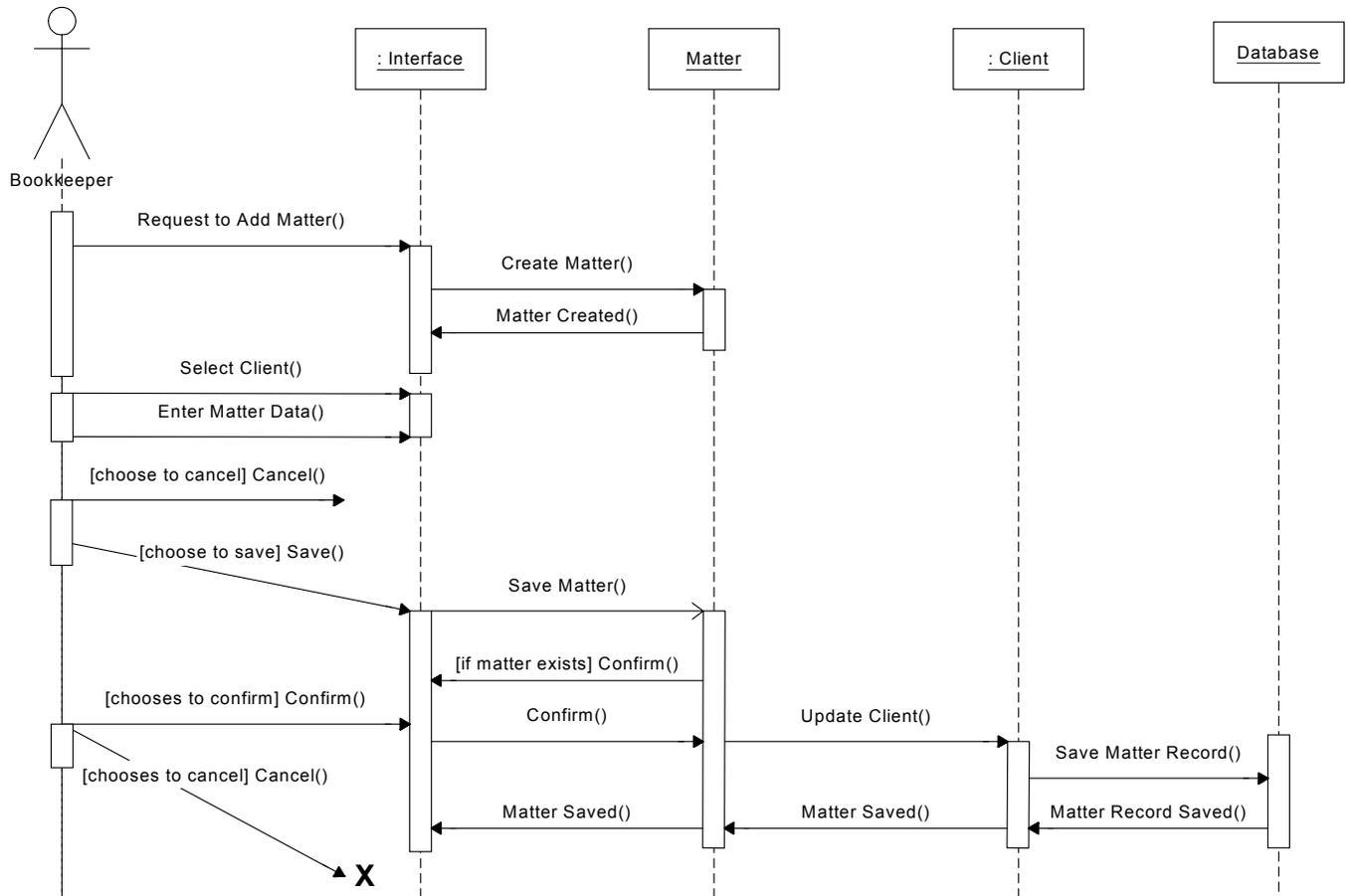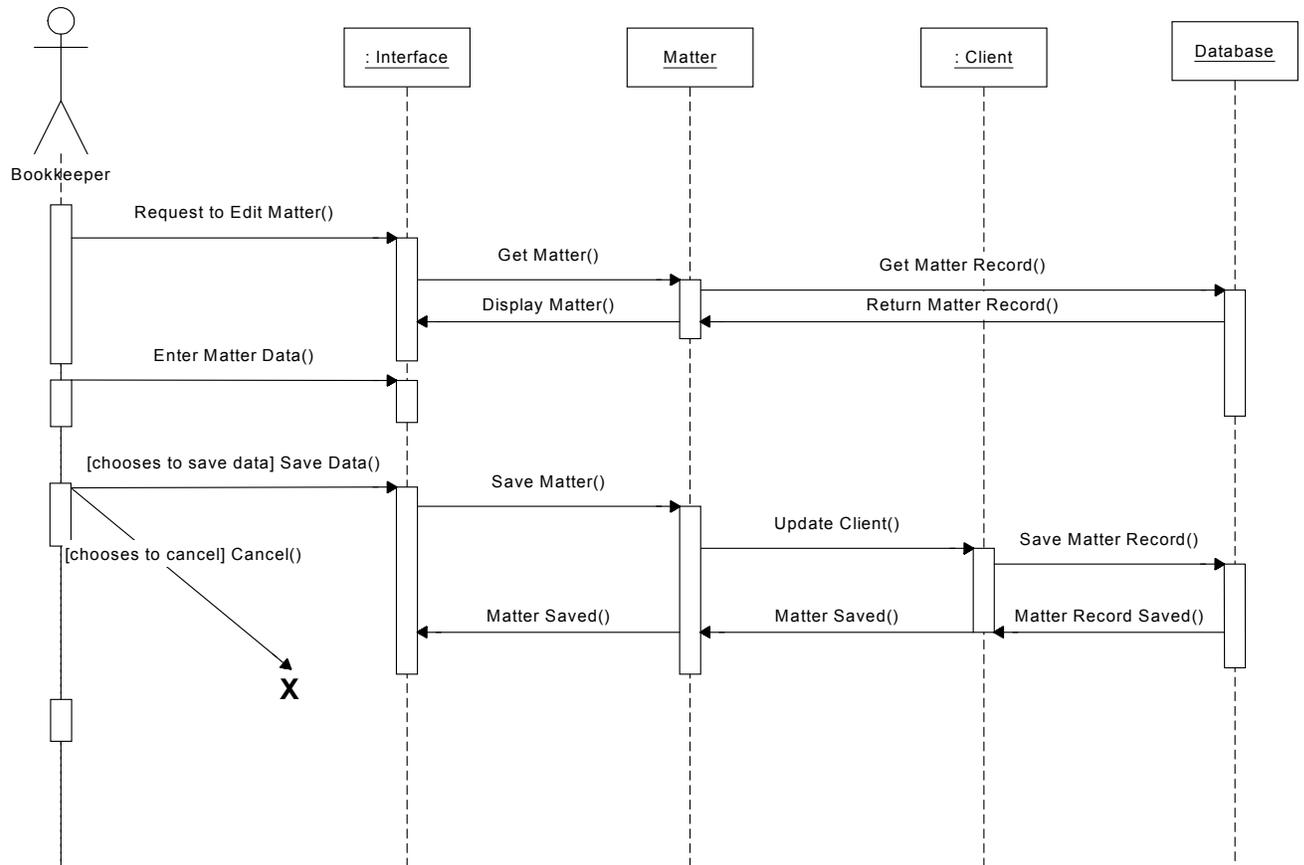
<u>Sequence Diagram for Add Client use case</u>
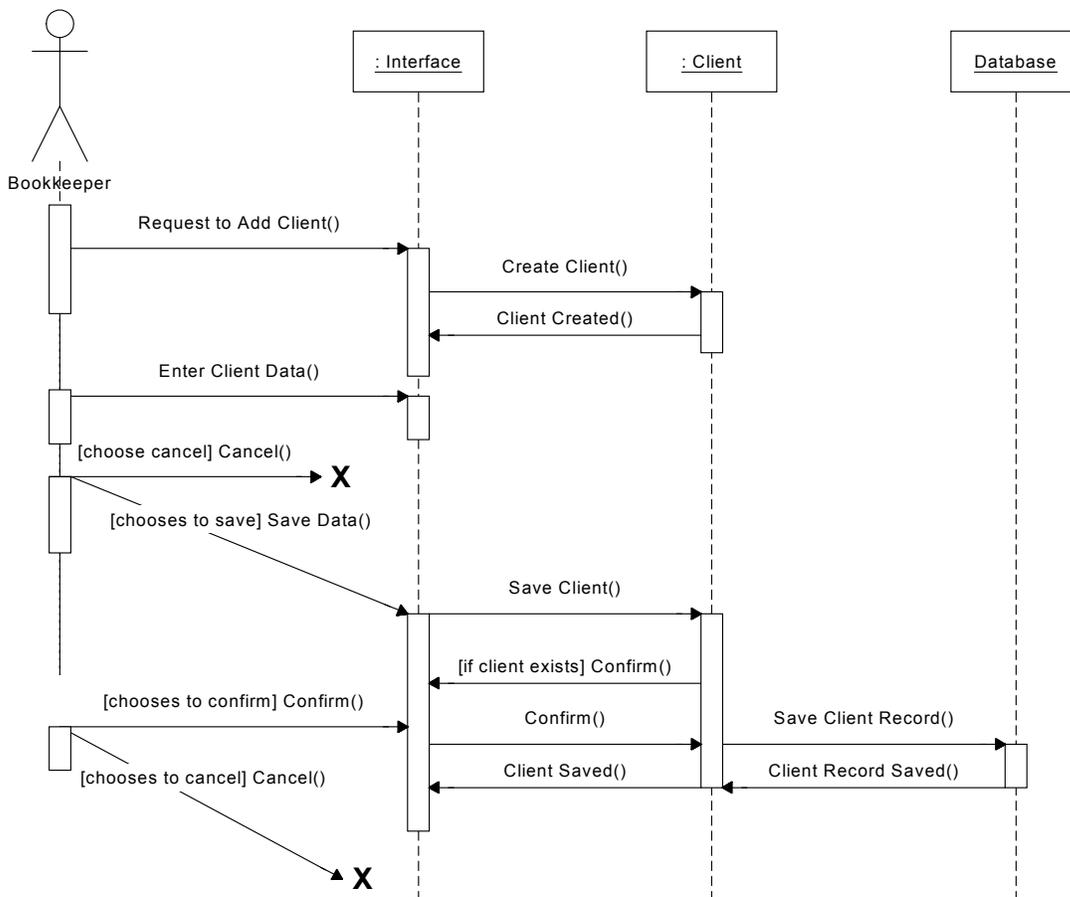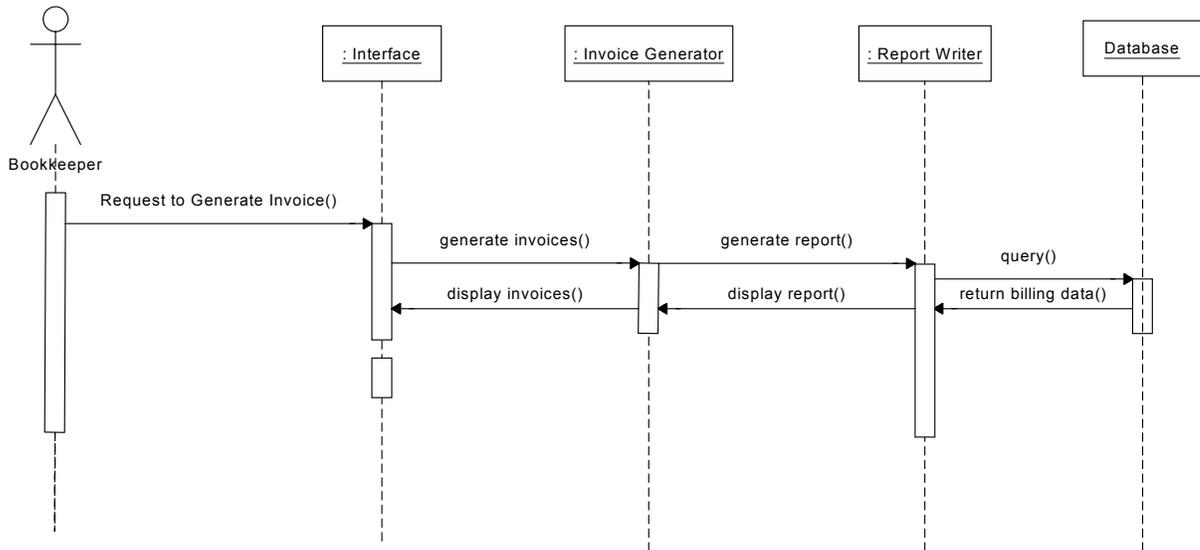
<u>Sequence Diagram for Edit Client use case</u>
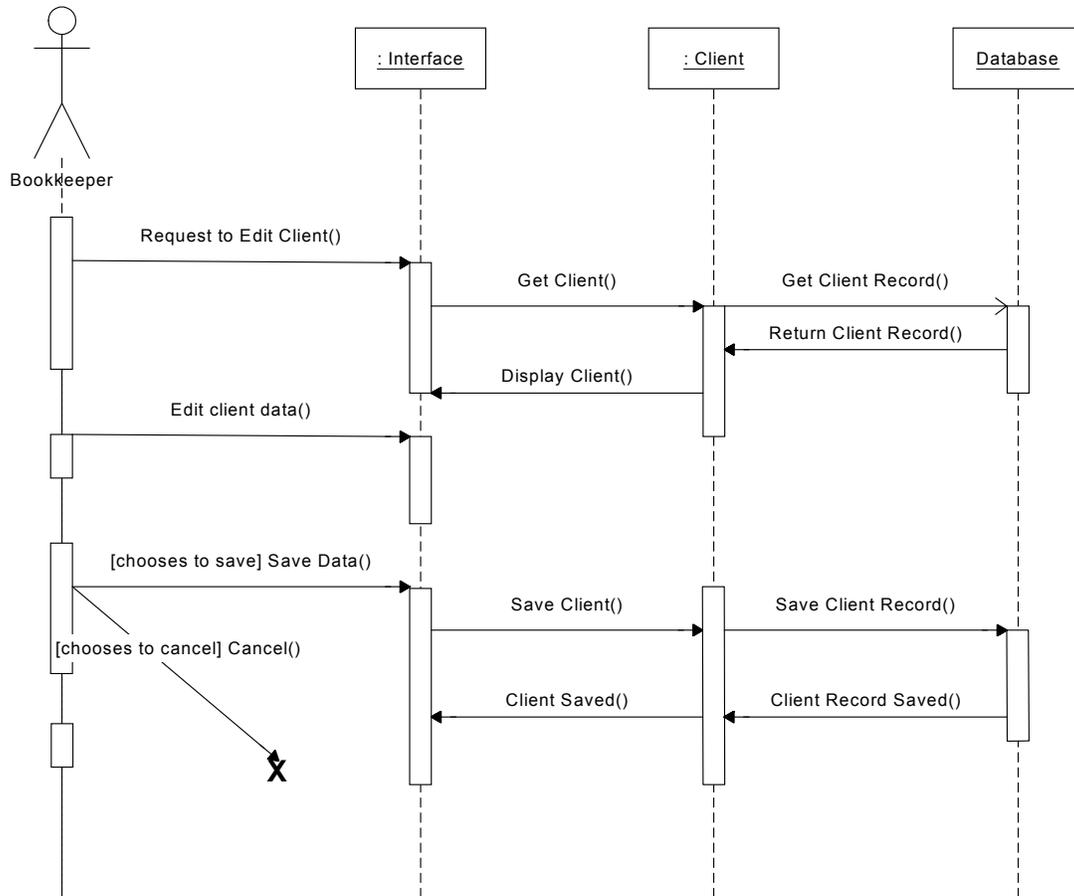
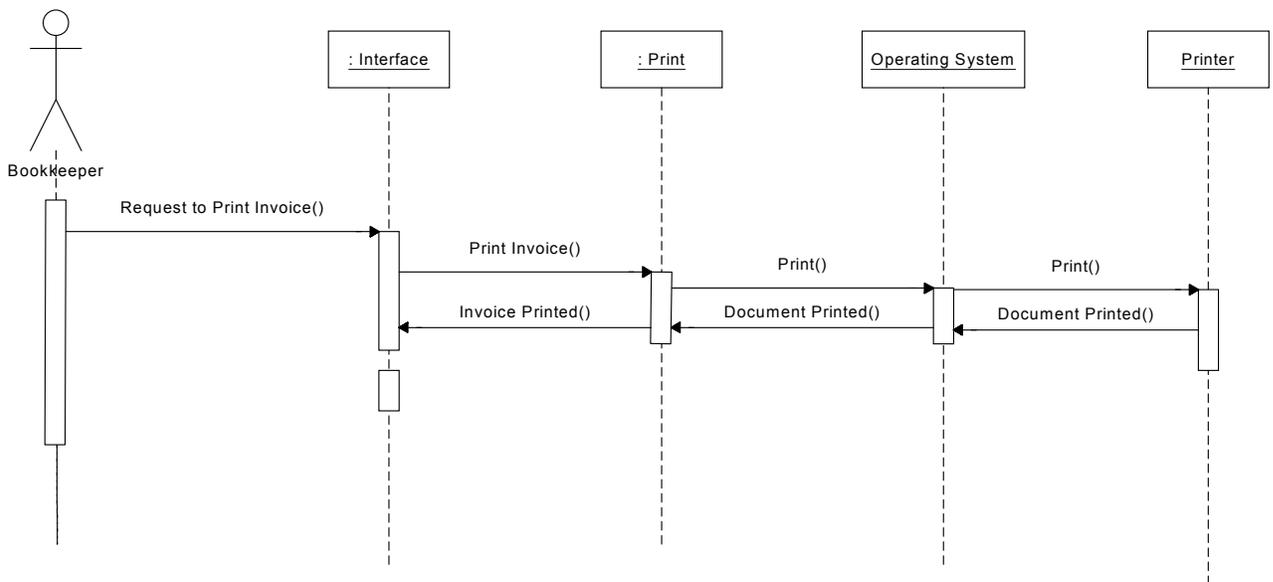## Sequence Diagram for Add Matter use case

Sequence Diagram for Edit Matter use case

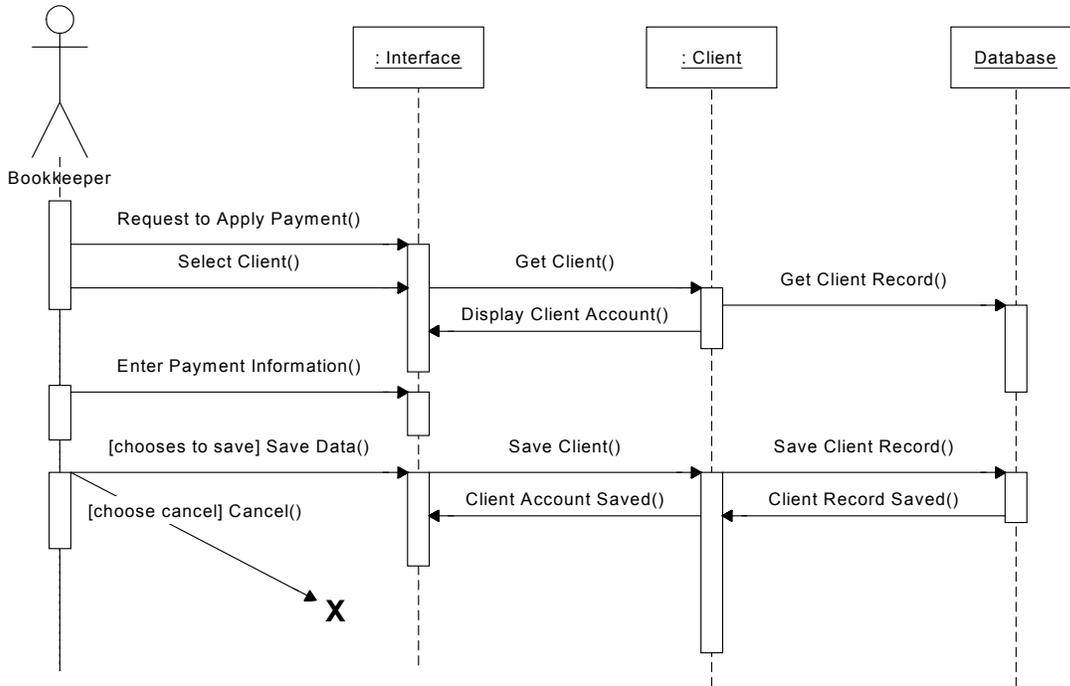## Sequence Diagram for Generate Invoice use case
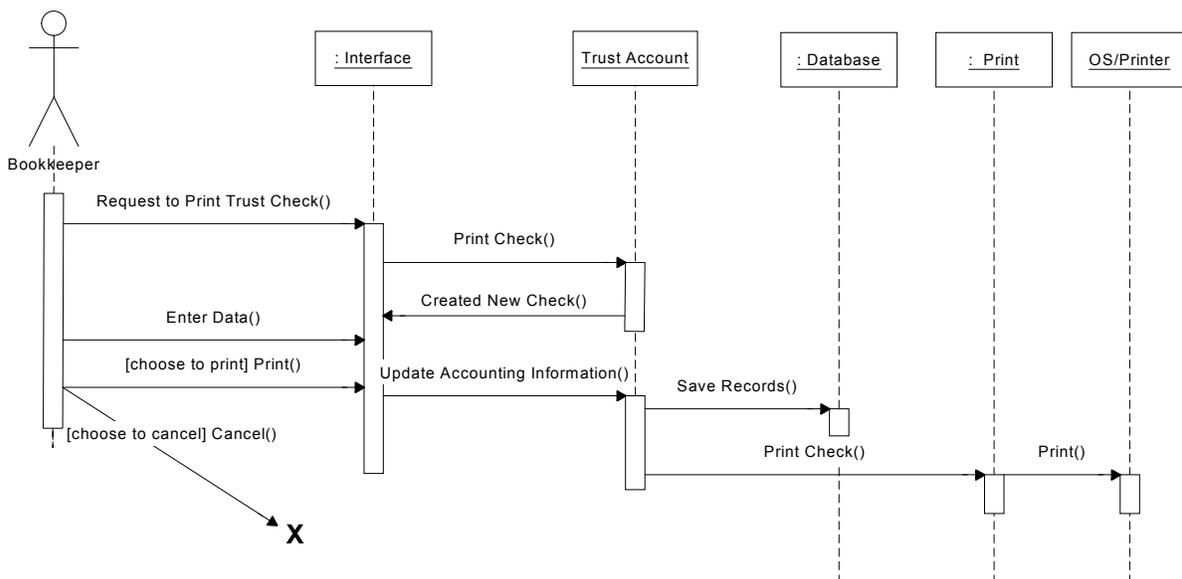(also applicable to Print Statement)

Sequence Diagram for Print Invoice use case
(also applicable to Print Statement)

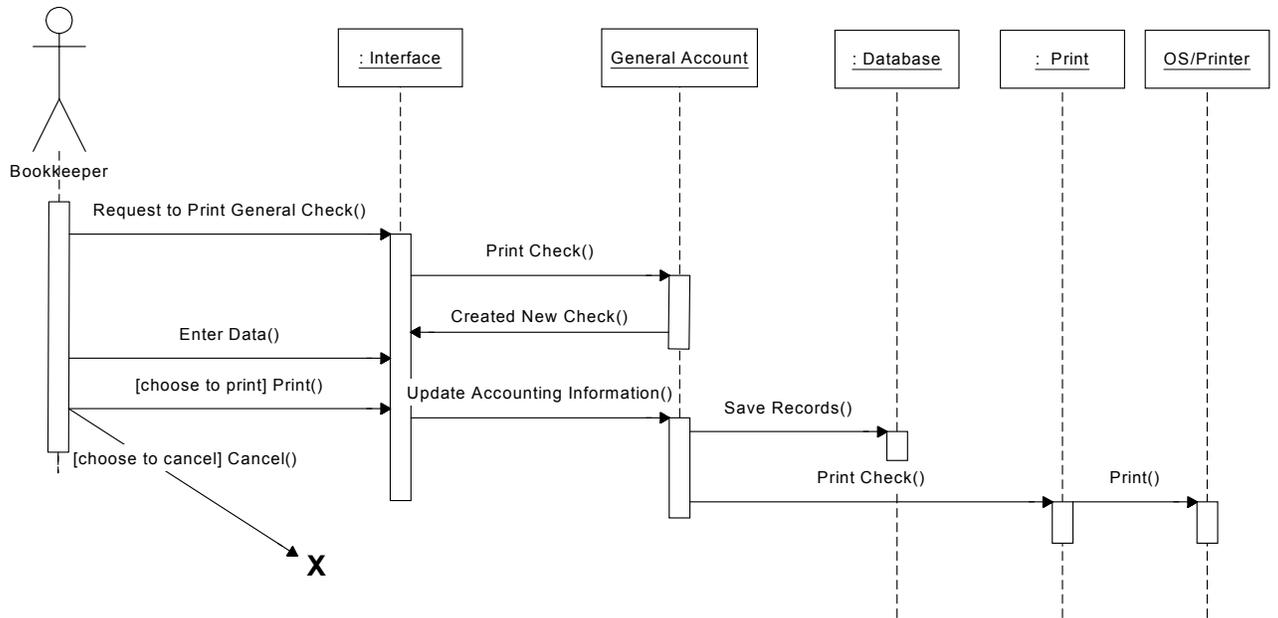## Sequence Diagram for Apply Payment use case

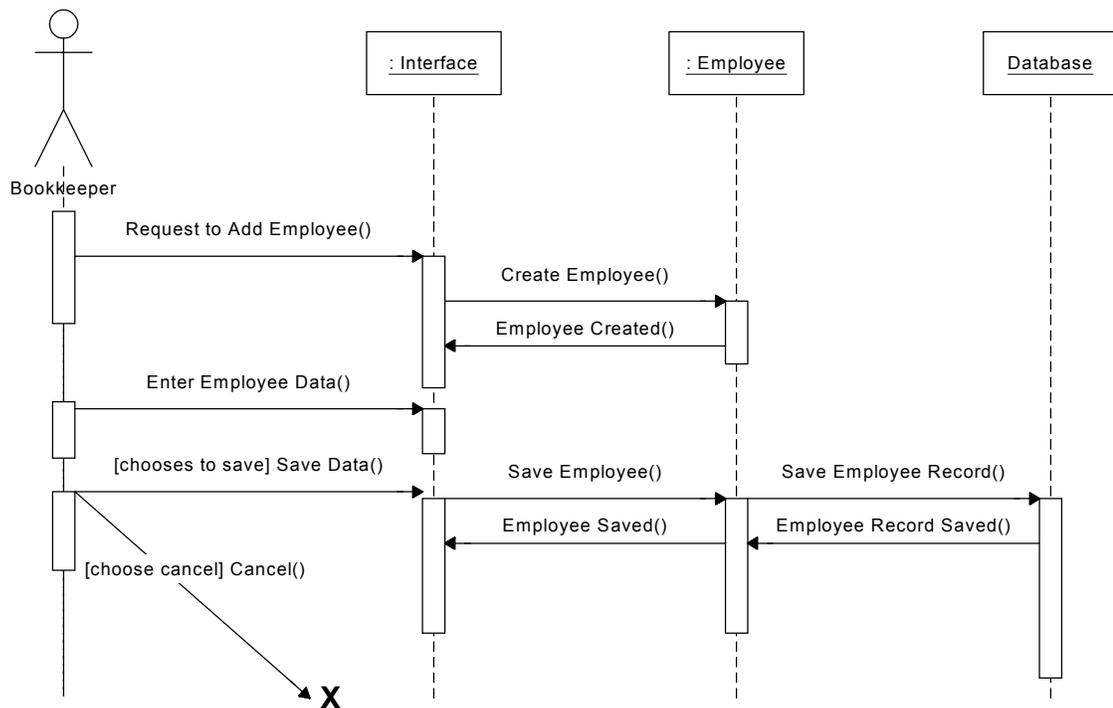## Sequence Diagram for Print Trust Check use case

Sequence Diagram for Print General Check use case

Sequence Diagram for Add Employee use case

Sequence Diagram for Edit Employee use case
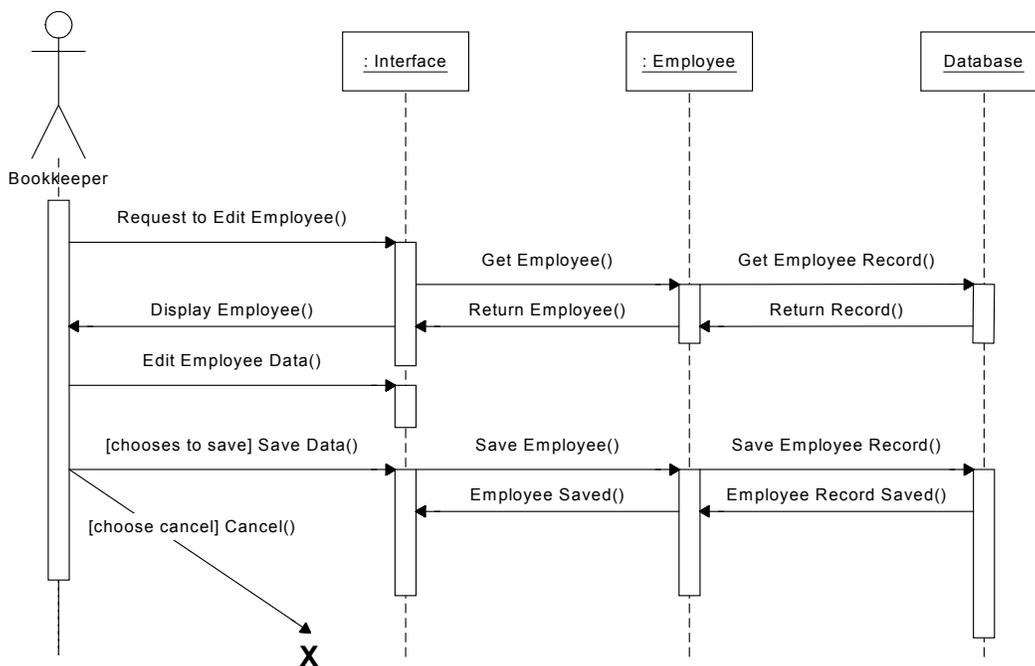
<u>Sequence Diagram for Pay Employees use case</u>
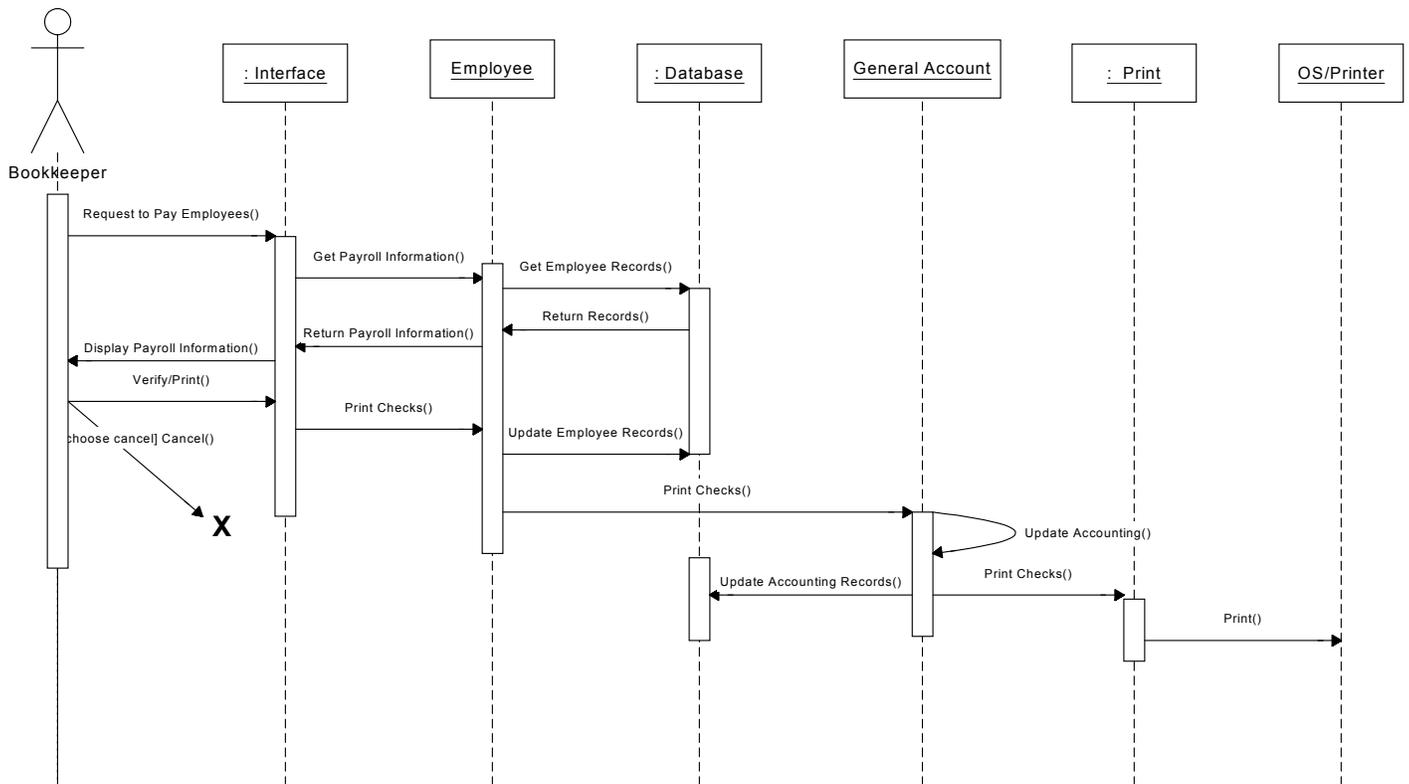
Sequence Diagram for Record Employee Time use case
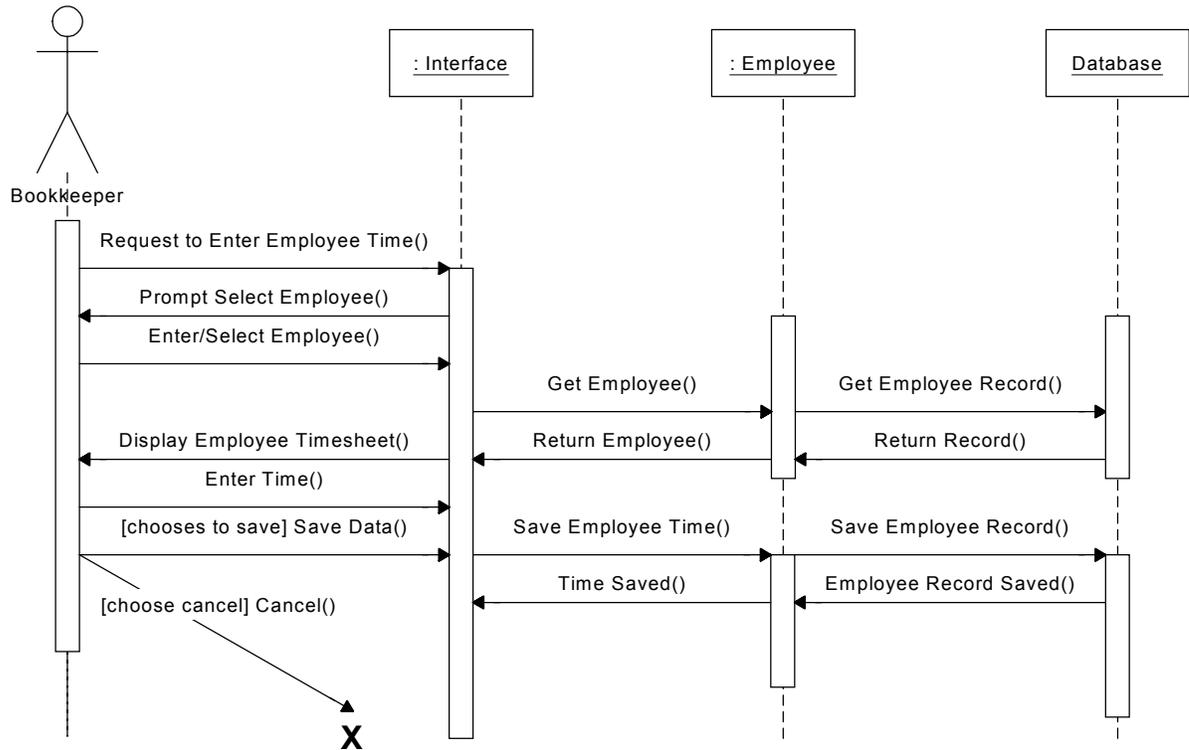
Sequence Diagram for Record Billable Time use case

(Record time using timer)
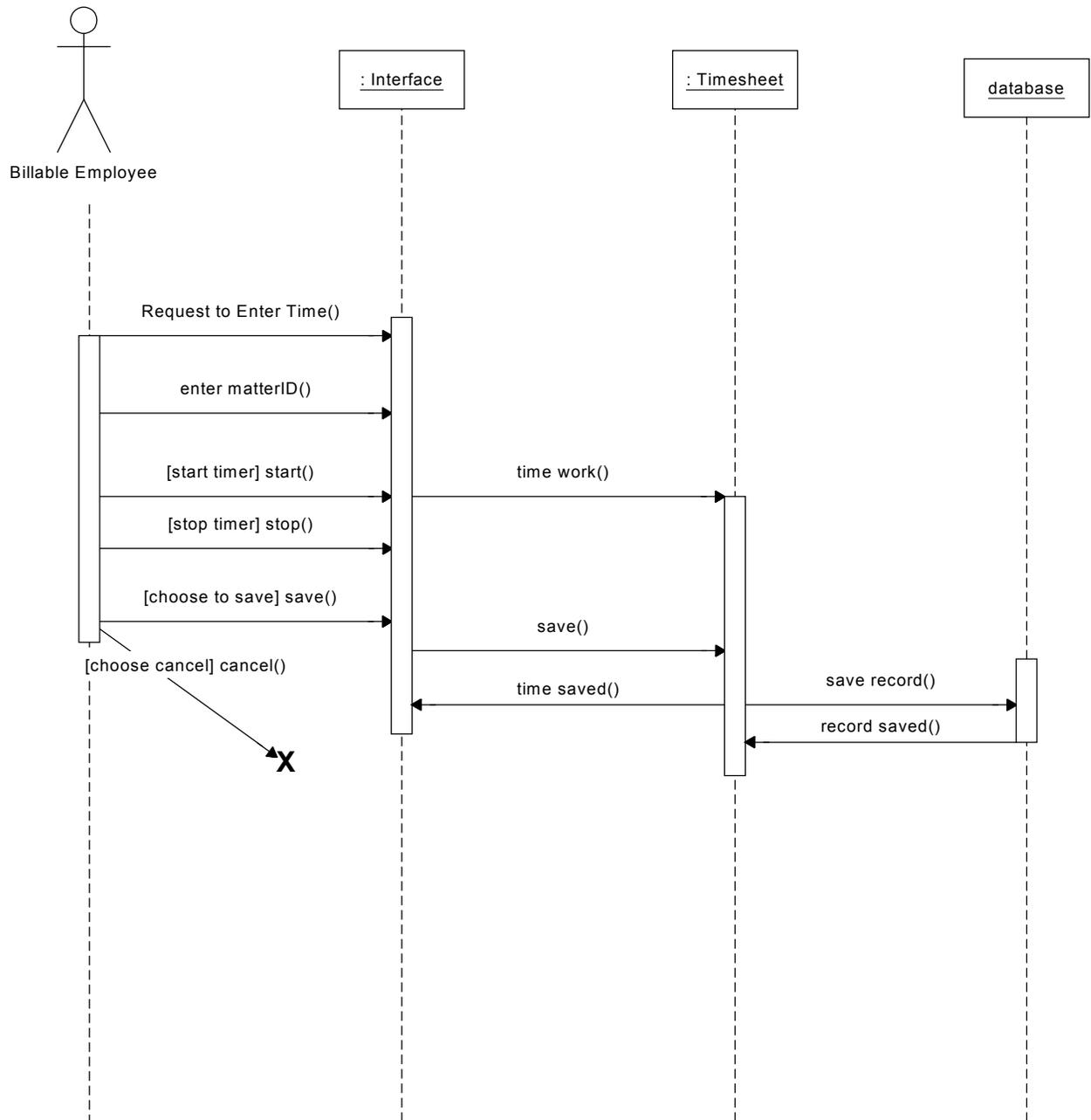
Sequence Diagram for Record Billable Time use case
(Record time on timesheet)
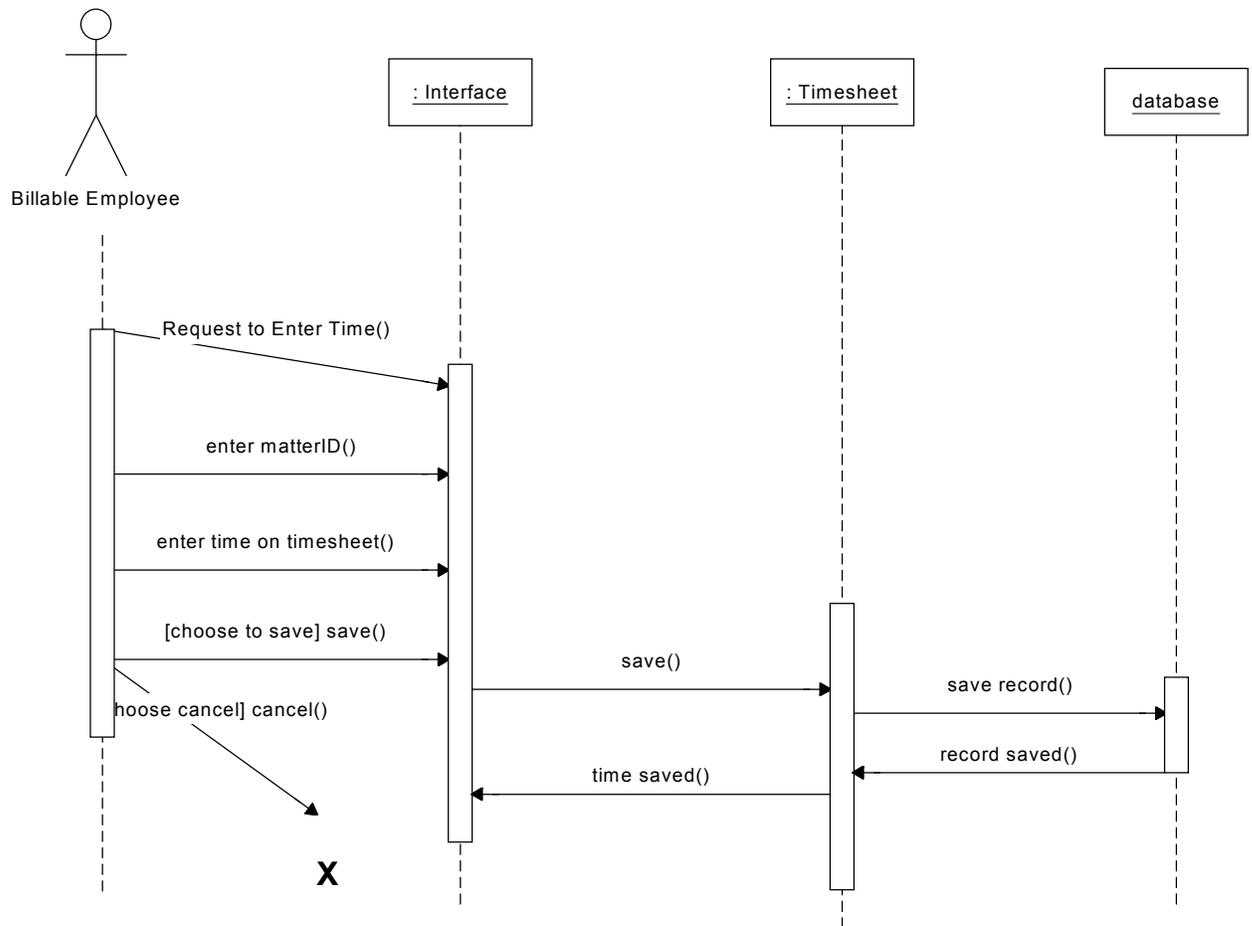
Sequence Diagram for Record Expenses use case
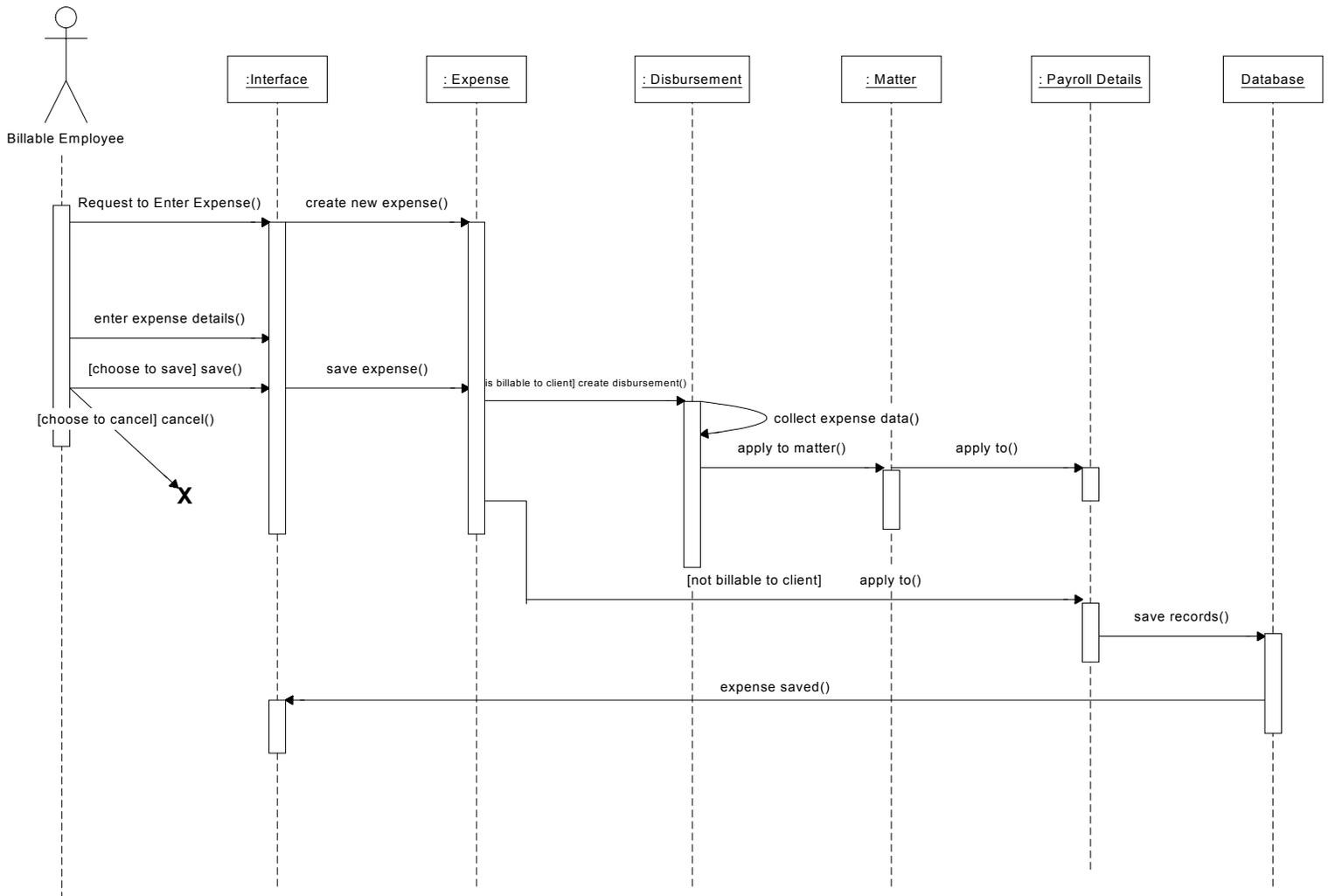
Sequence Diagram for Set Polling Interval and Poll Data use cases
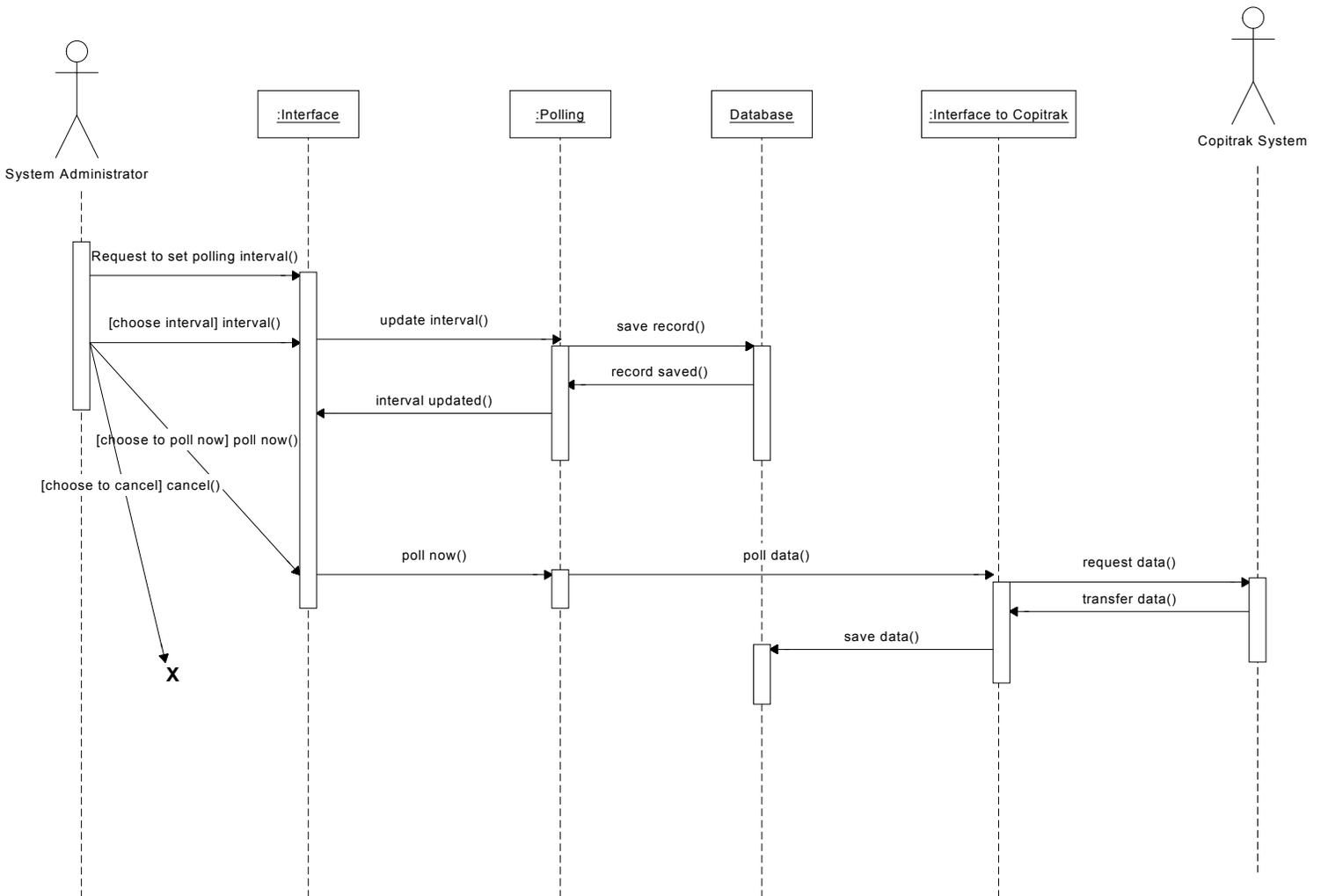
Sequence Diagram for Backup System use case

System Administrator

:Interface

: Backup

Database

Media

Request Backup()

request backup()

choose data()

choose medium()

[choose backup] backup()

backup data()

get data()

return data()

[choose to cancel] cancel()

transfer data()

X

backup complete()
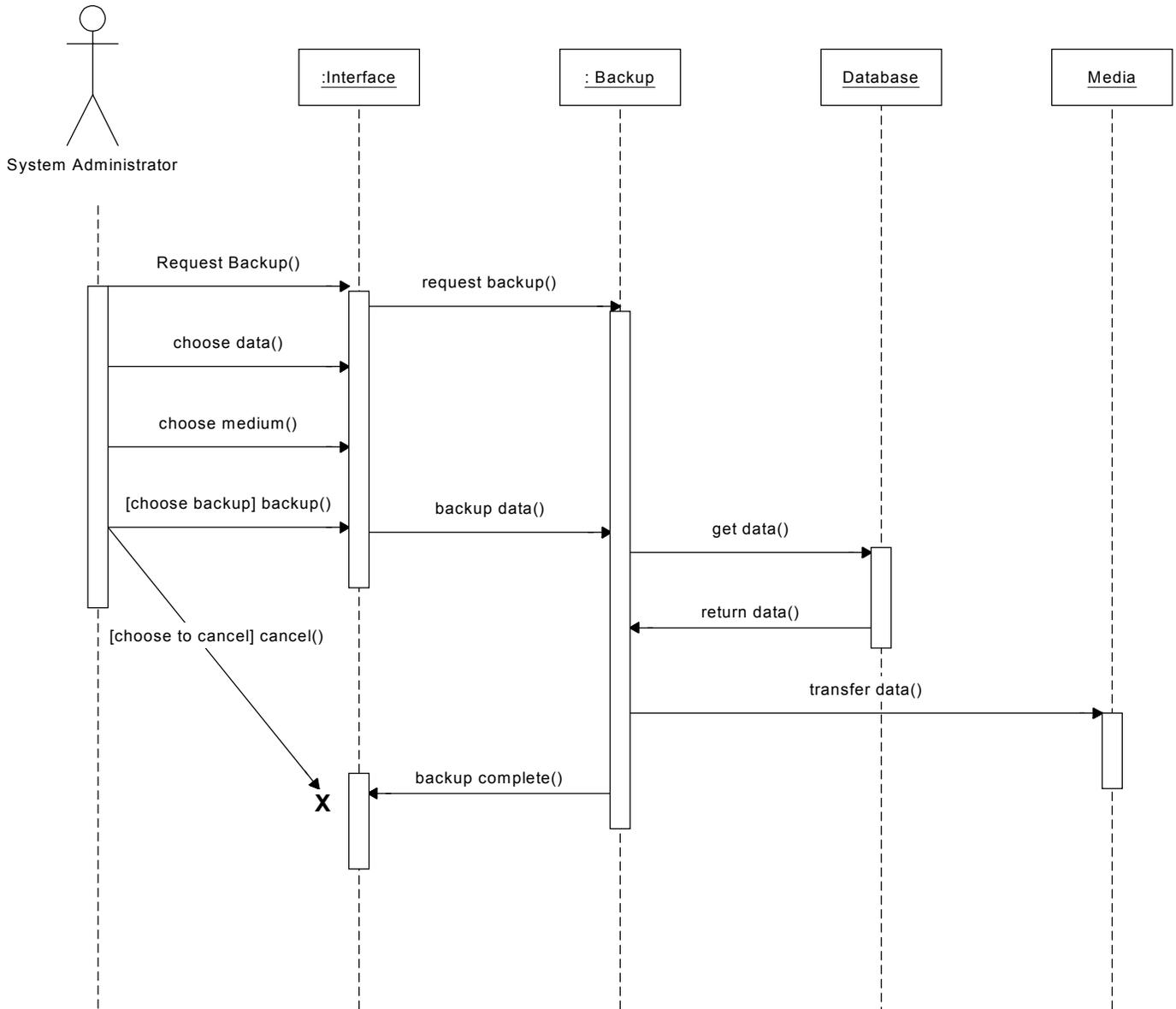
State Diagrams

This appendix covers State Diagrams (statecharts). The purpose of these diagrams is to model the way the system response to events can vary depending upon the passage of time and the events that have occurred. For this system, the primary state diagram of interest is in tracking a matter from initiation to completion. However a couple other objects of interest are shown here with state diagrams, specifically the login and polling objects.

State Diagram for Matter Object

State Diagram for Login Object

[System Shutdown]

[System Operational]

Waiting

getLogin( )

getPassword( )

verify ( )

accept( )

launchMainInterface( )

Authorizing

reject( )

[System Shutdown]
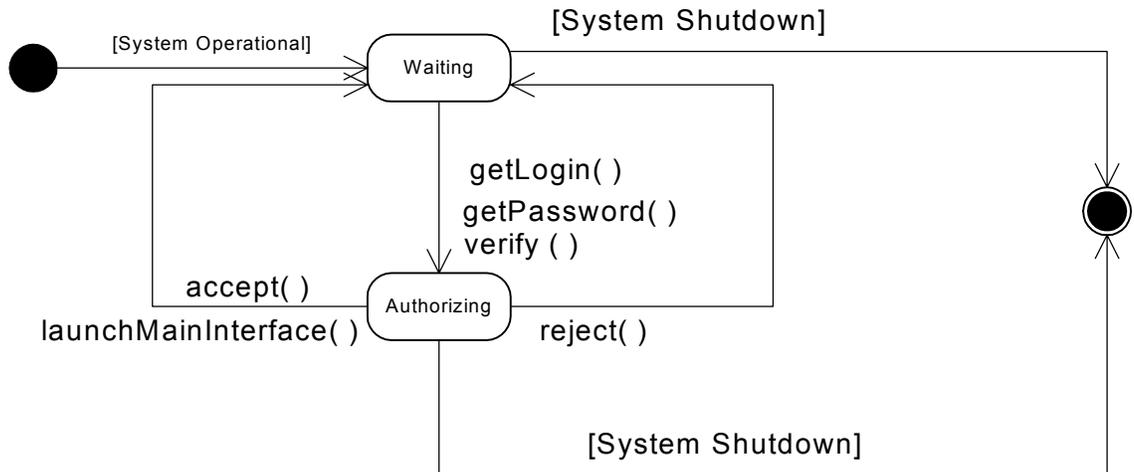
State Diagram for Polling Object

[System Operational]

waiting

[System Shutdown]

poll( )

Activating Interface to Copitrak

getData( )

createLog( )

Processing

[Completed]

Goldman Greenberg Associates
Timesheet

TIME

1. TELEPHONE CONVERSATION WITH/RE
2. MEETING WITH/RE
3. ATTEND AT OFFICE OF/RE

4. PREPARATION OF/FOR
5. REVIEW OF
6. DICTATION OF/RE
7. RESEARCH RE

100 LONG DISTANCE CALL
101 PHOTOCOPY

CODES/DESCRIPTION

1. CLIENT
2. OPPOSING LAWYER
3. FIRM/STAFF LAWYER (Add Code)
4. CLOSING OF TRANSACTION
5. ACCOUNTANT

6. BROKER
7. LENDER/BANK
8. GOVERNMENT OFFICIAL
9. COURT PROCEEDING
0. OTHER (use Add Code or complete details section)

1. COMMUNICATION
2. FILE DOCUMENTS
3. AGREEMENT
4. LEASE
5. SEARCH RESULTS

6. CLOSING
7. WILL/TRUST/PROBATE
8. PLEADINGS
9. REPORT
0. OTHER (use Add Code or complete details section)

ADDITIONAL CODES
(to be used for "other" or where more info is required)

201 – WITH DAVID
203 – WITH MICHAEL
205 – WITH SPENCER
207 – WITH LEANNE
209 – WITH KELLY
211 – WITH MICHAEL
213 – WITH MARK V.
215 – RE: CRTPROCD
217 – RE: CLOSING
219 – WITH RACHEL
221 – WITH MARK T.
223 – WITH SOPHIE

202 – WITH JAMES
204 – WITH ROBERT
206 – WITH LEO
208 – WITH RONALD
210 – WITH GERRY
212 – WITH AGENT
214 – WITH INSUR AGT
216 – WITH CONVYNCER
218 – WITH LLORD
220 – WITH TENANT
222 – WITH CLIENT
225 – WITH TRUSTEE

DATE (M/D/Y)	FILE NO.	B/NB	CLIENT/MATTER	TIME	CODE	ADD CODE	TIME	DETAILS
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	

Team Meetings

Note on group meetings: Due to the very tight time constraints of this project (2 weeks) the group communication as much through email and online chat as in meetings. Those communications are not reflected here.

Team Meeting #1

Date: October 21, 2002
Place: Bahen Centre

Summary:

How do we define the requirements:

We need to get going on interviews with members of the firm. We do have a lot of information on requirements from the existing interviews so we can start working from those. It would be good to go to the next interview with requirements to show them.

Interview Questions:

We discussed possible interview questions. We agreed to formulate more questions and email them to each other as soon as possible so that we could move to get interviews underway this week

We will each work on extracting requirements from the existing interviews as well so we have something to show them at the next interview.

Team Meeting #2

Date: October 28, 2002

Place: Bahen Centre

Summary:

Interviews are done and preliminary requirements and use cases have been defined. We went over the use cases to make sure the ones we have are valid and to consider other possibilities.

We will split up the use cases and each write a summary of the for our use cases. We have also spit up some of the writing of non-functional requirements. We will meet again in one week.

Team Meeting #3

Date: November 4, 2002

Place: Bahen Centre

Summary:

Use cases are done. Use case diagrams have also done.   The functional and non-functional requirements have been analysed. We reviewed the material we have compiled to date and began the analysis for the class diagrams, sequence diagrams and state diagrams.

We have agreed to split up these diagrams and exchange them via email. All other meetings until the project is due will be via email.