These assignment kits contain the forms students need to do the assignments in the textbook *A Discipline for Software Engineering* by Watts S. Humphrey. In using them:

- Provide each student with a copy of the kit for the current lecture.
- Review the assignment kit instructions to ensure that the students understand them.
- Review the chapter and exercise assignments for that kit.
- Urge the students to read the process description, process scripts, and exercise specifications before starting the assignment.
- Emphasize that the students should focus on doing just what is required in a simple and straightforward manner.

The forms provided with each kit are shown on the front page of that kit in *bold italics*. Only the forms and templates are provided. The scripts and instructions are in the textbook.

Lecture 1:	Kit cover sheet (page 40)	
	Kit 1	Exercise 1A
Lecture 2:	Kit 2	Exercise 2A
		Reports R1 and R2
Lecture 3:	Kit 3	Exercise 3A
		Report R3
Lecture 4:	Kit 4	Exercise 4A
Lecture 5:	Kit 5	Exercise 5A
Lecture 6:	Kit 6	Exercise 6A
Lecture 7:	Kit 7	Report R4
Lecture 8:	Kit 8	Exercise 7A
Lecture 9:	Kit 9	Exercise 8A
Lecture 10:	Kit 10	Exercise 9A
Lecture 11	Kit 11	Exercise 10A
Lecture 12	Kit 12	Continue working on exercise 10A
Lecture 13	Kit 13	Report R5
Lecture 14	Kit 14	Continue working on report R5
Lecture 15	No kit required	No assignment

#### Summary Kit Contents

## Forms for the Personal Software Process by Watts S. Humphrey

This document contains the forms for each version of the PSP processes in the textbook *A Discipline for Software Engineering* by Watts S. Humphrey. These forms are arranged in sets of 14 assignment kits. One kit is provided for each lecture where a homework assignment is given. As you do the programming exercises in the textbook, you will need copies of the forms for recording and reporting on your results. To obtain these forms, use the kits as follows:

- Keep a master copy of each assignment kit.
- For each programming exercise, make copies of all the forms specified on the front page of the kit for that assignment.
- The new forms and templates provided with each kit are shown in *bold italics*. The other forms and templates must be obtained from the prior assignment kits.
- The text references for the scripts and the form and template instructions are also provided in the table giving the contents for each kit.
- You will likely find it convenient to keep a master set of all the forms and templates used in the latest process version and to add or to replace items in this master set with each new kit.
- Review the instructions on the front page of the kit to ensure that you understand them.
- Review the exercise specifications in Appendix D of the textbook and the process specifications in Appendix C of the textbook to ensure you understand them.

A summary of the standard assignments and process version contents are given on the first page of each assignment kit.

#### **Process version: PSP0**

## Lecture Number: 1

Assignment:

Text	Read the preface and Chapters 1 and 2.	
Program 1A	Use PSP0 to write program 1A to calculate the mean and standard	
	deviation from a linked list.	

Before writing program 1A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 1 Contents	Instructions	Order to submit assignment
PSP0 Process Scripts		PSP0 Project Plan Summary
C10 PSP0 Script	n/a	Time Recording Log
C11 PSP0 Planning Script	n/a	Defect Recording Log
C12 PSP0 Development Script	n/a	Source program listing
C13 PSP0 Postmortem Script	n/a	Other requested materials
Forms, Templates, and Standards		
C14 PSP0 Project Plan Summary	C15	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Student			Date	
Program			Program #	
Instructor			Language	
Time in Phase (min.)	Plan	Actual	To Date	To Date %
Planning				
Design				
Code				
Compile				
Test				
Postmortem				
Total				
Defects Injected		Actual	To Date	To Date %
Planning				
Design				
Code				
Compile				
Test				
Total Development				-
Defects Removed		Actual	To Date	To Date %
Planning				
Design				
Code				
Compile				
Test				
Total Development				
After Development				

# Table C14 PSP0 Project Plan Summary

Stude Instru	nt ctor					Date Program #
Date	Start	Stop	Interruption Time	Delta Time	Phase	Comments
					ļ	

# Table C16 Time Recording Log

Defect Types 10 Documentation 20 Syntax 30 Build, Package 40 Assignment 50 Interface Environment	60 Checking 70 Data 80 Function 90 System 100					
Student		_			Date	
Instructor					Program #	
Date	Number	Туре	Inject	Remove	Fix Time	Fix Defect
Description:						
Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
		Турс	Inject			
Description:						
	<u> </u>					
Date	Number	Туре	Inject	Remove	Fix Time	Fix Defect
	L					
Description:						
Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
		1)00				
Description:						
Date	Number	Туре	Inject	Remove	Fix Time	Fix Defect
Description	L L					
Description.						
Date	Number	Туре	Inject	Remove	Fix Time	Fix Defect
Description:						
Data	Number	Tuno	Injoct	Pomovo	Fix Time	Fix Defect
		Туре	Inject	Keniove		The Delect
Description:	LJ L				<u> </u>	
		_	_			-
Date	Number	Туре	Inject	Remove	Fix Time	Fix Defect
	L					
Description:						
Date	Number	Туре	Inject	Remove	Fix Time	Fix Defect
Description:	K					

Table C18 Defect Recording Log

#### **Process version: PSP0.1**

## Lecture Number: 2

## Assignment:

Text	Read Chapters 3 and 4.
Program 2A	Use PSP0.1 to write program 2A, an LOC counter.
Report R1	LOC counting standard
Report R2	Coding standard

Before writing program 2A or the R1 and R2 reports, read the process and exercise specifications in Appendices C and D.

Assignment Kit 2 Contents	Instructions	Order to submit assignment
PSP0.1 Process Scripts		PSP0.1 Project Plan Summary
C21 PSP0.1 Script	n/a	PIP form, including lessons
		learned
C22 PSP0.1 Planning Script	n/a	Time Recording Log
C23 PSP0.1 Development Script	n/a	Defect Recording Log
C24 PSP0.1 Postmortem Script	n/a	Source program listing
Forms, Templates, and Standards		Report R1
C25 PSP0.1 Project Plan	C26	Report R2
Summary		
C27 Process Improvement	C28	Other requested materials
Proposal (PIP)		
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Student			Date	
Program			Program #	
Instructor			Language	
Program Size (LOC) Base(B)	Plan	A	Actual	To Date
Deleted (D)		(M	leasured)	
Modified (M)		(0	Counted)	
Added (A)		)) 	Counted)	
Reused (R)		(1	-B+D-K)	
Total New & Changed (N)			(A+M)	
Total LOC (T)		( <b>M</b>	(A+M)	
Total New Reused				
Time in Phase (min.) Planning Design Code Compile Test Postmortem Total	Plan	Actual	To Date	To Date %
Defects Injected Planning Design Code Compile Test Total Development		Actual	To Date	To Date %
Defects Removed Planning Design Code Compile Test Total Development		Actual	To Date	To Date %
After Development				

# Table C25 PSP0.1 Project Plan Summary

Student	Date			
Instructor	Program #			
Process	Elements			
PIP Numbe	er Problem Description:			
PROPOSA				
PIP #	Proposal Description	<b>Proposal Description</b>		
Notes and C	Comments:			
	·			
	· · · · · · · · · · · · · · · · · · ·			
	-			
. <u> </u>				

# Table C27 Process Improvement Proposal (PIP)

#### **Process version: PSP0.1**

## Lecture Number: 3

Assignment:

Text	Read the first half of Chapter 5.
Program 3A	Use PSP0.1 to write program 3A, an object LOC counter.
Report R3	Defect analysis report on programs 1A, 2A, and 3A

Before writing program 3A or report R3, read the process and exercise specifications in Appendices C and D.

Assignment Kit 3 Contents	Instructions	Order to submit assignment
PSP0.1 Process Scripts		PSP0.1 Project Plan Summary
C21 PSP0.1 Script	n/a	PIP form, including lessons learned
C22 PSP0.1 Planning Script	n/a	Time Recording Log
C23 PSP0.1 Development Script	n/a	Defect Recording Log
C24 PSP0.1 Postmortem Script	n/a	Source program listing
Forms, Templates, and Standards		Report R1
C25 PSP0.1 Project Plan Summary	C26	Report R2
C27 Process Improvement Proposal	C28	Other requested materials
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

#### Process version: PSP1

## Lecture Number: 4

Assignment:

Text	Read the last half of Chapter 5.
Program 4A	Use PSP1 to write program 4A to calculate the linear regression
	parameters from a linked list.

Before writing program 4A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 4 Contents	Instructions	Order to submit assignment
PSP1 Process Scripts		PSP1 Project Plan Summary
C30 PSP1 Script	n/a	Test Report
C31 PSP1 Planning Script	n/a	PIP form, including lessons
		learned
C32 PSP1 Development Script	n/a	Size Estimating Template
C33 PSP1 Postmortem Script	n/a	Time Recording Log
C36 PROBE Estimating Script	n/a	Defect Recording Log
Forms, Templates, and Standards		Source program listing
C34 PSP1 Project Plan Summary	C35	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Student			Date	
Program			Program #	
Instructor			Language	
Summary LOC/Hour	Plan	A	ctual	To Date
<b>Program Size (LOC):</b> Base(B)	Plan	A	ctual	To Date
Deleted (D)	(Measured)	(M	leasured)	
Modified (M)	(Estimated)	(0	Counted)	
Modified (M)	(Estimated)	(0	Counted)	
Added (A)	(N M)	(T		
Reused (R)	(IN-IVI)	(1-	-B+D-K)	
Total New & Changed (N)	(Estimated)	(C	Counted)	
	(Estimated)	(	(A+M)	
Total LOC (T)	(N+B-M-D+R)	(M	(easured)	
Total New Reused				
Time in Phase (min.) Planning Design Code Compile Test Postmortem Total	Plan	Actual	To Date	To Date %
Defects Injected		Actual	To Date	To Date %
Planning Design Code Compile Test Total Development	- - - -			
Defects Removed		Actual	To Date	To Date %
Planning Design Code Compile Test	- - -			
Total Development After Development	-			

# Table C34 PSP1 Project Plan Summary

Student	Date Program #
Test Name/Number Test Objective Test Description	
Test Conditions	
Expected Results	
Actual Results	
Test Name/Number	
Test Objective	
Test Description	
Test Conditions	
Expected Results	
Actual Results	

# Table C37 Test Report Template

Student		Date	
Instructor		Program #	
BASE PROGRAM BASE SIZE (B) => => => => =>	· => => => => =>		LOC
LOC DELETED (D) $=> => => =>$	> => => => => => =>		
LOC MODIFIED (M) $\Rightarrow \Rightarrow \Rightarrow \Rightarrow \Rightarrow$	> => => => => => =>		
BASE ADDITIONS: TYPE	METHODS RE	L. SIZE	LOC
TOTAL BASE ADDITIONS (BA) =	> => => => => =>	>	
NEW OBJECTS: TYPE <sup>1</sup>	METHODS RE	L. SIZE	LOC (NewReuse*)
	·		
TOTAL NEW OBJECTS (NO) => =>	· => => => => =>		
REUSED PROGRAMS			LOC
	· · · · · · · · · · · · · · · · · · ·		
· · · ·	· · · ·		
REUSED TOTAL (R) => => => =>	> => => => => =>		
Projected LOC:	P = BA + NO		
Regression Parameter:	$oldsymbol{eta}_{0}$		
Regression Parameter:	$\beta_1$		
Estimated New and Changed LOC:	$N = \beta_0 + \beta_1 * (P+M)$		
Estimated Total LOC:	$\mathbf{T} = \mathbf{N} + \mathbf{B} - \mathbf{D} - \mathbf{M} + \mathbf{R}$		
Estimated Total New Reused (sum of * LOC	C):		
Prediction Range:	Range		
Upper Prediction Interval:	UPI = N + Range		
Lower Prediction Interval:	LPI = N - Range		
Prediction Interval Percent:			

# Table C39 Size Estimating Template

<sup>1</sup>L-Logic, I-I/O, C-Calculation, T-Text, D-Data, S-Set-up

#### **Process version: PSP1.1**

## Lecture Number: 5

Assignment:

Text	Read Chapter 6.
Program 5A	Use PSP1 to write program 5A to do numerical integration using
	Simpson's rule.

Before writing program 5A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 5 Contents	Instructions	Order to submit assignment
PSP1.1 Process Scripts		PSP1.1 Project Plan Summary
C41 PSP1.1 Script	n/a	Test Report
C42 PSP1.1 Planning Script	n/a	PIP form, including lessons
		learned
C43 PSP1.1 Development Script	n/a	Size Estimating Template
C44 PSP1.1 Postmortem Script	n/a	Task Planning Template
C36 PROBE Estimating Script	n/a	Schedule Planning Template
Forms, Templates, and Standards		Time Recording Log
C45 PSP1.1 Project Plan	C46	Defect Recording Log
Summary		
<u> </u>		
C47 Task Planning Template	C48	Source program listing
C47 Task Planning Template C49 Schedule Planning Template	C48 C50	Source program listing Other requested materials
C47 Task Planning Template         C49 Schedule Planning Template         C37 Test Report Template	C48 C50 C38	Source program listing Other requested materials
C47 Task Planning Template         C49 Schedule Planning Template         C37 Test Report Template         C39 Size Estimating Template	C48 C50 C38 C40	Source program listing Other requested materials
C47 Task Planning Template         C49 Schedule Planning Template         C37 Test Report Template         C39 Size Estimating Template         C27 Process Improvement Proposal	C48 C50 C38 C40 C28	Source program listing Other requested materials
C47 Task Planning Template         C49 Schedule Planning Template         C37 Test Report Template         C39 Size Estimating Template         C27 Process Improvement Proposal         C29 Coding Standard	C48 C50 C38 C40 C28 n/a	Source program listing Other requested materials
C47 Task Planning Template         C49 Schedule Planning Template         C37 Test Report Template         C39 Size Estimating Template         C27 Process Improvement Proposal         C29 Coding Standard         C16 Time Recording Log	C48 C50 C38 C40 C28 n/a C17	Source program listing Other requested materials
C47 Task Planning Template         C49 Schedule Planning Template         C37 Test Report Template         C39 Size Estimating Template         C27 Process Improvement Proposal         C29 Coding Standard         C16 Time Recording Log         C18 Defect Recording Log	C48 C50 C38 C40 C28 n/a C17 C19	Source program listing Other requested materials

Student Program Instructor			Date Program # Language	
Summary LOC/Hour Planned Time Actual Time CPI(Cost_Parformance_Index)	Plan	Act	ual	To Date
% Reused % New Reused				(Planned/Actual)
<b>Program Size (LOC):</b> Base(B)	Plan	Act	ual	To Date
- Deleted (D)	(Measured)	(Meas	sured)	
Modified (M)	(Estimated) (Counted)			
Added (A)	(Estimated)	(Cou	nted)	
Reused (R)	(N-M) (T-B+D-R)			
Total New & Changed (N)	(Estimated)	(Cou	M)	
Total LOC (T)	(Estimated)			
Total New Reused	(N+B-M-D+R)	(Meas	sured)	
Time in Phase (min.) Planning Design Code	Plan	Actual	To Date	To Date %
Compile				
lest Postmortem -	·			
Total				
-	(co	ontinued)		

# Table C45 PSP1.1 Project Plan Summary

Student Program Instructor		Date Program # Language	
<b>Defects Injected</b> Planning Design	Actual	To Date	To Date %
Compile Test Total Development			
<b>Defects Removed</b> Planning Design Code	Actual	To Date	To Date %
Compile Test Total Development After Development			

# Table C45 PSP1.1 Project Plan Summary (continued)

Stu Dro	dent					I	Date			
Pro						1	nstruct	or		
	Task			Plan				Actual		
#	Name	Hours	Planned Value	Cumulative Hours	Cumulative Planned Value	Date Monday	Date	Earned Value	Cumulative Earned Value	
		_								
						ļ				
						ļ				
Tot	als									

# Table C47 Task Planning Template

Studer Projec	t Date Instructor							
			DI			A =4== = 1		1
Week	Date	Direct	<u>Plan</u> Cumulativ	Cumulative	Direct	Actual Cumulative	Cumulativ	Adjusted
No.	Monday	Hours	e Hours	Planned	Hours	Hours	e Earned	Earned
				Value			Value	Value
		1						

# Table C49 Schedule Planning Template

#### **Process version: PSP1.1**

## Lecture Number: 6

Assignment:

Text	Read Chapter 7.
Program 6A	Use PSP1.1 to write program 6A to calculate the linear regression
	prediction interval.

Before writing program 6A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 6 Contents	Instructions	Order to submit assignment
PSP1.1 Process Scripts		PSP1.1 Project Plan Summary
C41 PSP1.1 Script	n/a	Test Report
C42 PSP1.1 Planning Script	n/a	PIP form, including lessons learned
C43 PSP1.1 Development Script	n/a	Size Estimating Template
C44 PSP1.1 Postmortem Script	n/a	Task Planning Template
C36 PROBE Estimating Script	n/a	Schedule Planning Template
Forms, Templates, and Standards		Time Recording Log
C45 PSP1.1 Project Plan Summary	C46	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

#### Lecture Number: 7

## Assignment:

Text	Read Chapter 8.
Report R4	Write report R4, the midterm analysis report.

Before writing report R4, read the process and exercise specifications in Appendices C and D.

Assignment Kit 7 Contents	Instructions	Order to submit assignment
		Report R4
		PIP form, including lessons
		learned

#### **Process version: PSP2**

## Lecture Number: 8

Assignment:

Text	Read Chapter 9.
Program 7A	Use PSP2 to write program 7A to determine the correlation of two
	sets of data, using a linked list.

Before writing program 7A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 8 Contents	Instructions	Order to submit assignment
PSP2 Process Scripts		PSP2 Project Plan Summary
C51 PSP2 Script	n/a	Test Report
C52 PSP2 Planning Script	n/a	PSP2 Design Review
C53 PSP2 Development Script	n/a	Code Review Checklist
C54 PSP2 Postmortem Script	n/a	PIP form, including lessons
		learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
C55 PSP2 Project Plan Summary	C46	Schedule Planning Template
C57 PSP2 Design Review	n/a	Time Recording Log
Checklist		
C58 Code Review Checklist	n/a	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Student Program Instructor			Date Program #	
	DI			
Summary LOC/Hour Planned Time Actual Time CPI(Cost-Performance Index)	Plan 	Ac	tual  	To Date
% Reused % New Reused <i>Test Defects/KLOC</i> <i>Total Defects/KLOC</i> <i>Yield %</i>				
<b>Program Size (LOC):</b> Base(B)	Plan	Ac	tual	To Date
Deleted (D)	(Measured)	(Mea	isured)	
Modified (M)	(Estimated)	(Estimated) (Counted)		
Added (A)	(Estimated)	(Cou		
Reused (R)	(Fstimated)	(Co	unted)	
Total New & Changed (N)	(Estimated)	(A:	+M)	
Total LOC (T)	(N+B-M-D+R)	(Mea	(sured)	
Total New Reused Upper Prediction Interval (70%) Lower Prediction Interval (70%)				
Time in Phase (min.) Planning Design Design review Code Code Code review Compile Test Postmortem Total Total Total Time UPI (70%)	Plan	Actual	To Date	To Date %
Total Time LPI (70%)	(co	ntinued)		

# Table C55 PSP2 Project Plan Summary

Student Program Instructor			Date Program # Language	
<b>Defects Injected</b> Planning	Plan	Actual	To Date	To Date %
Design				
Design review				
Code				
Code review				
Test				
Total Development				
<b>Defects Removed</b> Planning	Plan	Actual	To Date	To Date %
Design				
Design review				
Code				
Code review				
Compile				
Test				
Total Development				
After Development				
Defect Removal Efficiency Defects/Hour - Design review	Plan	A	ctual	To Date
Defects/Hour - Code review				
Defects/Hour - Compile				
Defects/Hour - Test				
DRL(DLDR/UT)				
DRL(CodeReview/UT)				
DRL(Compile/UT)				

# Table C55 PSP2 Project Plan Summary (continued)

# Table C57 C++ PSP2 Design Review Checklist

#### PROGRAM NAME AND #:

Purpose	To guide you in conducting an effective design review		
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next.		
Complete	Ensure that the requirements, specifications, and high-level design are completely covered by the design: - all specified outputs are produced - all needed inputs are furnished - all required includes are stated		
Logic	Verify that program sequencing is proper: - that stacks, lists, etc. are in the proper order - that recursion unwinds properly Verify that all loops are properly initiated, incremented, and terminated		
Special Cases	Check all special cases: - empty, full, minimum, maximum, negative, zero - out of limits, overflow, underflow - ensure "impossible" conditions are absolutely impossible - handle all incorrect input conditions		
Functional use	Verify that all functions, procedures, or objects are fully understood and properly used Verify that all externally referenced abstractions are precisely defined		
Names	Verify that: - all special names and types are clear or specifically defined - the scopes of all variables and parameters are self-evident or defined - all named objects are used within their declared scopes		
Standards	Review the design for conformance to all applicable design standards		

## Table C58 C++ Code Review Checklist

Purpose	To guide you in conducting an effective code review.		
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next.		
Complete	Verify that the code covers all the design.		
Includes	Verify that includes are complete		
Initialization	Check variable and parameter initialization: - at program initiation - at start of every loop - at function/procedure entry		
Calls	Check function call formats: - pointers - parameters - use of '&'		
Names	Check name spelling and use: - is it consistent? - is it within declared scope? - do all structures and classes use '.' reference?		
Strings	Check that all strings are - identified by pointers and - terminated in NULL.		
Pointers	Check that - pointers are initialized NULL - pointers are deleted only after new, and - new pointers are always deleted after use.		
Output Format	Check the output format: - line stepping is proper - spacing is proper		
{} Pairs	Ensure that the {} are proper and matched		
Logic Operators	Verify the proper use of ==, =,   , and so on. Check every logic function for proper ().		
Line by Line Check	Check every LOC for - instruction syntax and - proper punctuation.		
Standards	Ensure that the code conforms to the coding standards.		
File Open and Close	Verify that all files are - properly declared, - opened, and - closed.		

## PROGRAM NAME AND #:

#### **Process version: PSP2**

## Lecture Number: 9

Assignment:

Text	Read appendix B and do the examples.
Program 8A	Use PSP2 to write program 8A to sort a linked list.

Before writing program 8A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 9 Contents	Instructions	Order to submit assignment
PSP2 Process Scripts		PSP2 Project Plan Summary
C51 PSP2 Script	n/a	Test Report
C52 PSP2 Planning Script	n/a	PSP2 Design Review
		Checklist
C53 PSP2 Development Script	n/a	Code Review Checklist
C54 PSP2 Postmortem Script	n/a	PIP form, including lessons
		learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
C55 PSP2 Project Plan Summary	C46	Schedule Planning Template
C57 PSP2 Design Review	n/a	Time Recording Log
Checklist		
C58 Code Review Checklist	n/a	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

#### **Process version: PSP2.1**

## Lecture Number: 10

Assignment:

Text	Read Chapter 10.
Program 9A	Use PSP2.1 to write program 9A to do a Chi-squared test for a
	normal distribution.

Before writing program 9A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 10 Contents	Instructions	Order to submit assignment
PSP2.1 Process Scripts		PSP2.1 Project Plan Summary
C59 PSP2.1 Script	n/a	Test Report
C60 PSP2.1 Planning Script	n/a	PSP2.1 Design Review
		Checklist
C61 PSP2.1 Development Script	n/a	Code Review Checklist
C62 PSP2.1 Postmortem Script	n/a	PIP form, including lessons
		learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
C63 PSP2.1 Project Plan	C64	Schedule Planning Template
Summary		
C65 PSP2.1 Design Review	n/a	Operational Scenario
Checklist		Template
C66 Operational Scenario	C67	Functional Specification
Template		Template
C68 Functional Specification	C69	State Specification Template
Template		
C70 State Specification Template	C71	Logic Specification Template
C72 Logic Specification Template	C73	Time Recording Log

(continued)

Assignment Kit 10 Contents	Instructions	Order to submit assignment
C58 Code Review Checklist	n/a	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

# Assignment Kit # 10 (continued)

Student Program Instructor				Date Program # Language	
<b>Summary</b> LOC/Hour Planned Time		Plan	Ac	tual	To Date
Actual Time CPI(Cost-Perform	ance Index)				(Planned/Actual)
% Reused % New Reused Test Defects/KLO Total Defects/KLO Yield % % Appraisal COQ % Failure COQ COQ A/F Ratio					
<b>Program Size (Le</b> Base(B)	0C):	Plan	Ac	tual	To Date
Deleted (D)		(Measured)	(Mea	usured)	
Modified (M)		(Estimated) (Counted) (Estimated) (Counted)		unted)	
				unted)	
Added (A)		(N-M)	(T-B+D-R) (Counted)		
Reused (R)		(Estimated)			
Total New & Char	nged (N)	(Estimated) (A+M)		+M)	
Total LOC (T)				(murad)	
Total New Reused	1	(IN+D-MI-D+K)	(14164	(Suice)	
Upper Prediction	Interval (70%) Interval (70%)		_		
Time in Phase (m Planning Design Design review Code Code review Compile Test Postmortem Total Total Time UPI (7	<b>iin.</b> ) 70%)	Plan	Actual	To Date	To Date %
Total Time LPI (7	0%)	(co	ntinued)		

# Table C63 PSP2.1 Project Plan Summary

Student Program Instructor			Date Program # Language	
<b>Defects Injected</b> Planning	Plan	Actual	To Date	To Date %
Design				
Design review				
Code				
Code review				
Compile				
Test				
Total Development				
<b>Defects Removed</b> Planning	Plan	Actual	To Date	To Date %
Design				
Design review				
Code				
Code review				
Compile				
Test				
Total Development				
After Development				
Defect Removal Efficiency	Plan	A	ctual	To Date
Defects/Hour - Design review				202000
Defects/Hour - Code review				
Defects/Hour - Compile				
Defects/Hour - Test				
DRL(DLDR/UT)				
DRL(CodeReview/UT)				
DRL(Compile/UT)				

# Table C63 PSP2.1 Project Plan Summary (continued)

# Table C65 C++ PSP2.1 Design Review Checklist

Purpose	To guide you in conducting an effective design review		
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next.		
Complete	<ul> <li>Ensure that the requirements, specifications, and high-level design are completely covered by the design:</li> <li>all specified outputs are produced</li> <li>all needed inputs are furnished</li> <li>all required includes are stated</li> </ul>		
State machine	<ul> <li>Verify the state machine design:</li> <li>The structure has no hidden traps or loops.</li> <li>It is complete - that is, all possible states have been identified.</li> <li>It is orthogonal - that is, for every set of conditions there is one and only one possible next state.</li> <li>The transitions from each state are complete and orthogonal. That is, from every state, a unique next state is defined for every possible combination of state machine input values.</li> </ul>		
Logic	Verify that program sequencing is proper: - that stacks, lists, etc. are in the proper order - that recursion unwinds properly Verify that all loops are properly initiated, incremented, and terminated		
Special Cases	Check all special cases: - empty, full, minimum, maximum, negative, zero - out of limits, overflow, underflow - ensure "impossible" conditions are absolutely impossible - handle all incorrect input conditions		
Functional use	Verify that all functions, procedures, or objects are fully understood and properly used Verify that all externally referenced abstractions are precisely defined		
Names	Verify that: - all special names and types are clear or specifically defined - the scopes of all variables and parameters are self-evident or defined - all named objects are used within their declared scopes		
Standards	Review the design for conformance to all applicable design standards		

#### PROGRAM NAME AND #:

# Table C66 Operational Scenario Template

Student	Date
Program	Program #
Instructor	Language

Construct operational scenarios to cover the normal and abnormal program uses, including user errors:

Scenario #		User Objective:	
Scenario Objective:			
Source:	Step	Action:	Comments

# Table C68 Functional Specification Template

Student	Date
Program	Program #
Instructor	Language

Object/class name	Parent Classes	Attributes
Method declaration	Method external specif	ication

# Table C70 State Specification Template

Student Program Instructor Object	Routine	Date Program # Language
State #1	description	attributes
next state #1 next state #2	transition conditions	

ĺ	next state # n		
State #2		description	attributes
	next state #1	transition conditions	-
ĺ	next state #2		
ĺ			
Í	next state # n		

•••

S	tate #n	description	attributes
Ţ	next state #1	transition conditions	
ļ	next state #2		
	next state # n		

Student		Date
Program		Program #
Instructor		Language
Object	Function	
INCLUDES:		
TYPE DEFINITION	DNS:	
Declaration:		
Reference:		
logic reference numbers	Program logic, in pseudocode	

# Table C72 Logic Specification Template

#### **Process version: PSP3**

#### Lecture Number: 11

## Assignment:

Text	Read Chapter 11.
Program	Use PSP3 to write program 10A to calculate the multiple regression
10A	parameters and prediction intervals, using a linked list.

Before writing program 10A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 11 Contents	Instructions	Order to submit assignment
PSP3 Process Scripts		PSP3 Project Plan Summary
C74 PSP3 Script	n/a	Cycle Summary Forms
C75 PSP3 Planning Script	n/a	Test Report
C76 High Level Design Script	n/a	PSP3 Design Review
		Checklist
C77 High Level Design Review	n/a	Code Review Checklist
Script		
C78 PSP3 Development Script	n/a	Issue Tracking Log
C79 PSP3 Postmortem Script	n/a	PIP form, including lessons
		learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
C80 PSP3 Project Plan Summary	C81	Schedule Planning Template
C82 Cycle Summary	C83	Operational Scenario
		Template
C84 PSP3 Design Review	n/a	Functional Specification
Checklist		Template
C85 Issue Tracking Log	C86	State Specification Template

(continued)

# Assignment Kit # 11 (continued)

Assignment Kit 11 Contents	Instructions	Order to submit assignment
C66 Operational Scenario	C67	Logic Specification Template
Template		
C68 Functional Specification	C69	Time Recording Log
Template		
C70 State Specification Template	C71	Defect Recording Log
C72 Logic Specification Template	C73	Source program listing
C58 Code Review Checklist	n/a	Other requested materials
C47 Task Planning Template	C48	
C49 Schedule Planning Template	C50	
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Student Program Instructor			Date Program # Language	
Summary LOC/Hour Planned Time	Plan	Ac		To Date
CPI(Cost-Performance Index)				
% Reused % New Reused Test Defects/KLOC Total Defects/KLOC Yield % Appraisal COQ				(Planned/Actual)
% Failure COQ				
COQ A/F Ratio <b>Program Size (LOC):</b> Base(B)	Plan	A	ctual	To Date
	(Measured)	(Me	asured)	
Deleted (D)	(Estimated)	(Co	unted)	
Modified (M)		_ ``	· · · · · · · · · · · · · · · · · · ·	
Added (A)	(Estimated)	(Co	unted)	
	(N-M)	(T-B	B+D-R)	
Reused (R)	(Estimated)	(Co	unted)	
Total New & Changed (N)				
Total LOC (T)	(Estimated)	(A	1+M)	
Total New Reused	(N+B-M-D+R)	(Mea	asured)	
Upper Prediction Interval (70%)				
Lower Prediction Interval (70%)		_		
Time in Phase (min.)	Plan	Actual	To Date	To Date %
Flammig High-level design				
High-level design High-level design review				
Detailed design				
Detailed design review				
Code				
Code review				
Compile				
lest				
rostmortem Total				
Total Time UPI $(70\%)$				
Total Time LPI (70%)				
	(co	ntinued)		
	(eo			

# Table C80 PSP3 Project Plan Summary

Student			Date	
Instructor			Program # Language	
			Lunguage	
Defects Injected Planning	Plan	Actual	To Date	To Date %
High-level design				
High-level design review				
Detailed design				
Detailed design review				
Code				
Code review				
Compile				
Test				
Total Development				
Defects Removed	Plan	Actual	To Date	To Date %
Planning				
High-level design				
High-level design review				
Detailed design				
Detailed design review				
Code				
Code review				
Compile				
Test				
Total Development				
After Development				
1				
Defect Removal Efficiency	Plan	A	Actual	To Date
Defects/Hour - Design review				
Defects/Hour - Code review				
Defects/Hour - Compile				
Defects/Hour - Test				
DRL(DLDR/UT)				
DRL(CodeReview/UT)				
DRL(Compile/UT)				

# Table C80 PSP3 Project Plan Summary (continued)

Instructor       Language         Instructor       Language         Cycles       To Date       1       2       3       4       5       Total         Program Size (LOC):       Base(B)       Image: Comparison of the state of the	Student					Date Program	#	
Instructor       Date       1       2       3       4       5       Total         Program Size (LOC):       Base(B)	Instructor					I iogram I anguag	·π	
Cycles         To Date         1         2         3         4         5         Total           Program Size (LOC):			<u> </u>	<u>-</u>		Languag	<u> </u>	
Program Size (LOC):         Base(B)         Deleted (D)	Cycles	To Date	1	2	3	4	5	Total
Base(B)	Program Size (LOC):							
Deleted (D)	Base(B)							
Modified (M)	Deleted (D)							
Added (A)	Modified (M)							
Reused (R)	Added (A)							
Total New & Changed (N)	Reused (R)							
Total LOC (T)	Total New & Changed (N)							
Total New Reused	Total LOC (T)							
Time in Phase (min.)	Total New Reused							
Design	Time in Phase (min.)							
Design Review	Design							
Code	Design Review							
Code Review	Code							
Compile	Code Review							
Test	Compile							
Total   Defects Injected   Design   Design Review   Code   Code Review   Compile   Test   Total   Defects Removed   Design   Design Review   Code   Code   Total   Design   Design   Design   Defects Removed   Total   Total   Design   Design   Design   Design   Total   Total   Total   Total	Test							
Defects Injected	Total							
Design	Defects Injected							
Design Review	Design							
Code   Code Review   Compile   Test   Total   Defects Removed   Design   Design Review   Code   Code   Code Review   Code Review   Compile   Test   Test   Total	Design Review							
Code Review	Code							
Compile   Test   Total   Defects Removed   Design   Design Review   Code   Code   Code Review   Compile   Test   Total	Code Review							
Test	Compile							
Total	Test							
Defects Removed       Design       Design Review       Code       Code Review       Compile       Test       Total	Total							
Design    Design Review    Code    Code Review    Compile    Test    Total	Defects Removed							
Design Review    Code    Code Review    Compile    Test    Total	Design							
Code	Design Review							
Code Review	Code							
Compile Test Total	Code Review							
Test Total	Compile							
Total	Test							
	Total							

# Table C82 Cycle Summary Plan \_\_\_\_\_

# Table C84 C++ PSP3 Design Review Checklist

## PROGRAM NAME AND #:

Purpose	To guide you in conducting an effective design review		
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next. As you encounter issues that must be deferred, record them in the issue tracking log.		
Complete	Ensure that the requirements, specifications, and high-level design are completely covered by the design: - all specified outputs are produced - all needed inputs are furnished - all required includes are stated		
State machine	<ul> <li>Verify the state machine design:</li> <li>The structure has no hidden traps or loops.</li> <li>It is complete - that is, all possible states have been identified.</li> <li>It is orthogonal - that is, for every set of conditions there is one and only one possible next state.</li> <li>The transitions from each state are complete and orthogonal. That is, from every state, a unique next state is defined for every possible combination of state machine input values.</li> </ul>		
Logic	<ul> <li>Verify that program sequencing is proper:         <ul> <li>that stacks, lists, etc. are in the proper order</li> <li>that recursion unwinds properly</li> <li>Verify that all loops are properly initiated, incremented, and terminated</li> <li>Use defined methods such as: execution tables, trace tables, or mathematical verification</li> </ul> </li> </ul>		
Special Cases	Check all special cases: - empty, full, minimum, maximum, negative, zero - out of limits, overflow, underflow - ensure "impossible" conditions are absolutely impossible - handle all incorrect input conditions		
Functional use	Verify that all functions, procedures, or objects are fully understood and properly used Verify that all externally referenced abstractions are precisely defined		
Names	Verify that: - all special names and types are clear or specifically defined - the scopes of all variables and parameters are self-evident or defined - all named objects are used within their declared scopes		
Standards	Review the design for conformance to all applicable design standards		

Student Program Instructor		Date Program # Language	
Issue #: Description:	Date:	Phase:	
Resolution: Date:			
Issue #: Description:	Date:	Phase:	
Resolution: Date:			
Issue #: Description:	Date:	Phase:	
Resolution: Date:			
Issue #: Description:	Date:	Phase:	_
Resolution: Date:			
Issue #: Description:	Date:	Phase:	_
Resolution: Date:			

# Table C85 PSP Issue Tracking Log

## Lecture Number: 12

## Assignment:

Text	Read Chapter 12.
Program	Finish developing program 10A.
10A	

#### Lecture Number: 13

## Assignment:

Text	Read Chapter 13.
Report R5	Write report R5, the final report.

## Before writing report R5, read the exercise specifications in Appendix D.

Assignment Kit 13 Contents	Instructions	Order to submit assignment
		Report R5
		PIP form, including lessons
		learned

## Lecture Number: 14

## Assignment:

Text	Read Chapter 14.
Report R5	Finish writing report R5.