User Interfaces in Computing

Tim Capes

March 7, 2011
A3 Announcement

A3 is up on the webpage and available for handout.
Midterms results are in the average was above 72 percent. I think this is pretty good so there will be no curve. Marks will be uploaded to CDF shortly.
Midterms Out

Midterms results are in the average was above 72 percent. I think this is pretty good so there will be no curve. Marks will be uploaded to CDF shortly. See me in lecture to pick up your midterm (I’ll leave some time at the end).
What is a User Interface?

A user interface is the system by which people (users) interact with the computer.
What is a User Interface?

A user interface is the system by which people (users) interact with the computer. It can contain both hardware and software components.
User Interface Types

There are two main types of user interfaces:

1. Text-Based User Interface or Command-Line Interface
2. Graphical User Interface (GUI)
User Interface Types

There are two main types of user interfaces:

1. Text-Based User Interface or Command-Line Interface
User Interface Types

There are two main types of user interfaces:

1. Text-Based User Interface or Command-Line Interface
2. Graphical User Interface (GUI)
Text-Based User Interface

This method relies primarily on the keyboard.
Text-Based User Interface

This method relies primarily on the keyboard. A typical example of this is UNIX.
Text-Based User Interface

This method relies primarily on the keyboard. A typical example of this is UNIX. The main advantages of a Text-Based User Interface are:

1. Easier to customize options
2. Typically capable of more powerful tasks

The main disadvantages of a Text-Based User Interface are:

1. Relies heavily on recall rather than recognition.
2. Navigation is often more difficult
This method relies primarily on the keyboard. A typical example of this is UNIX. The main advantages of a Text-Based User Interface are:

1. Easier to customize options
Text-Based User Interface

This method relies primarily on the keyboard. A typical example of this is UNIX. The main advantages of a Text-Based User Interface are:

1. Easier to customize options
2. Typically capable of more powerful tasks
Text-Based User Interface

This method relies primarily on the keyboard. A typical example of this is UNIX. The main advantages of a Text-Based User Interface are:

1. Easier to customize options
2. Typically capable of more powerful tasks

The main disadvantages of a Text-Based User Interface are:
Text-Based User Interface

This method relies primarily on the keyboard. A typical example of this is UNIX. The main advantages of a Text-Based User Interface are:

1. Easier to customize options
2. Typically capable of more powerful tasks

The main disadvantages of a Text-Based User Interface are:

1. Relies heavily on recall rather than recognition.
Text-Based User Interface

This method relies primarily on the keyboard. A typical example of this is UNIX. The main advantages of a Text-Based User Interface are:

1. Easier to customize options
2. Typically capable of more powerful tasks

The main disadvantages of a Text-Based User Interface are:

1. Relies heavily on recall rather than recognition.
2. Navigation is often more difficult
Customizing Options

Consider for example the UNIX command ls which was covered in tutorial near the beginning of the term.
Customizing Options

Consider for example the UNIX command `ls` which was covered in tutorial near the beginning of the term.

1. Typing `ls` will list files and directories in the usual fashion.
Customizing Options

Consider for example the UNIX command `ls` which was covered in tutorial near the beginning of the term.

1. Typing `ls` will list files and directories in the usual fashion.
2. Typing `ls -l` will list files with lots of information about the files.
Customizing Options

Consider for example the UNIX command `ls` which was covered in tutorial near the beginning of the term.

1. Typing `ls` will list files and directories in the usual fashion.
2. Typing `ls -l` will list files with lots of information about the files.
3. Typing `ls -F` will append characters describing the file type
Consider for example the UNIX command `ls` which was covered in tutorial near the beginning of the term.

1. Typing `ls` will list files and directories in the usual fashion.
2. Typing `ls -l` will list files with lots of information about the files.
3. Typing `ls -F` will append characters describing the file type
4. Typing `ls -R` will recursively list subdirectories
Consider for example the UNIX command `ls` which was covered in tutorial near the beginning of the term.

1. Typing `ls` will list files and directories in the usual fashion.
2. Typing `ls -l` will list files with lots of information about the files.
3. Typing `ls -F` will append characters describing the file type.
4. Typing `ls -R` will recursively list subdirectories.
5. There are many other options, and you can use combinations (for example `ls -R -l`).
Consider for example the UNIX command `ls` which was covered in tutorial near the beginning of the term.

1. Typing `ls` will list files and directories in the usual fashion.
2. Typing `ls -l` will list files with lots of information about the files.
3. Typing `ls -F` will append characters describing the file type
4. Typing `ls -R` will recursively list subdirectories
5. There are many other options, and you can use combinations (for example `ls -R -l`)

You would need 128 buttons to allow any combination of the 7 typical options on 1 mouse-click.
What happens when you need too many buttons to do something is that the most commonly used features are still available, but combinations that are unpopular are often excluded from the User Interface.
More powerful tasks

What happens when you need too many buttons to do something is that the most commonly used features are still available, but combinations that are unpopular are often excluded from the User Interface. So for example ls -R might not easily be available in a GUI, but is present in a command line interface.
Recall vs Recognition

In a text-based interface in order to use a command you need to recall how to type it. To open JES we would need to remember the name of the program (and its command) and type jes into the command line.
Recall vs Recognition

In a text-based interface in order to use a command you need to recall how to type it. To open JES we would need to remember the name of the program (and its command) and type jes into the command line.

In a graphics-based interface you need to recognize a symbol in order to open the program you want.
Recall vs Recognition

In a text-based interface in order to use a command you need to recall how to type it. To open JES we would need to remember the name of the program (and its command) and type jes into the command line.

In a graphics-based interface you need to recognize a symbol in order to open the program you want. For example, we might recognize that a green bookworm with glasses is the JES program, even if we didn’t know the exact name of the program, we can recognize the logo and click on it to open that program.
Graphical User interfaces rely much more heavily on the mouse.

The main advantages are:
1. Less expert knowledge is required to use it (more user friendly)
2. Easier to navigate.. can look through folders quickly in a guess and check manner.

The main disadvantages are:
1. Typically decreased options (less powerful)
2. Typically less customizable. Not easy to use one button for tons of different variations.

Graphical User Interfaces are more common than text-based interfaces in modern computing.
Graphical User interfaces rely much more heavily on the mouse. A typical example of this type of interface is any version of the Windows Operating System.
GUIs

Graphical User interfaces rely much more heavily on the mouse. A typical example of this type of interface is any version of the Windows Operating System. The main advantages are:

1. Less expert knowledge is required to use it (more user friendly)
Graphical User interfaces rely much more heavily on the mouse. A typical example of this type of interface is any version of the Windows Operating System. The main advantages are:

1. Less expert knowledge is required to use it (more user friendly)
2. Easier to navigate.. can look through folders quickly in a guess and check manner.
GUIs

Graphical User interfaces rely much more heavily on the mouse. A typical example of this type of interface is any version of the Windows Operating System. The main advantages are:

1. Less expert knowledge is required to use it (more user friendly)
2. Easier to navigate.. can look through folders quickly in a guess and check manner.

The main disadvantages are:

1. Typically decreased options (less powerful)
GUls

Graphical User interfaces rely much more heavily on the mouse. A typical example of this type of interface is any version of the Windows Operating System. The main advantages are:

1. Less expert knowledge is required to use it (more user friendly)
2. Easier to navigate. can look through folders quickly in a guess and check manner.

The main disadvantages are:

1. Typically decreased options (less powerful)
2. Typically less customizable. Not easy to use one button for tons of different variations.
GUIs

Graphical User interfaces rely much more heavily on the mouse. A typical example of this type of interface is any version of the Windows Operating System. The main advantages are:

1. Less expert knowledge is required to use it (more user friendly)
2. Easier to navigate.. can look through folders quickly in a guess and check manner.

The main disadvantages are:

1. Typically decreased options (less powerful)
2. Typically less customizable. Not easy to use one button for tons of different variations.

Graphical User Interfaces are more common than text-based interfaces in modern computing.
Modern Interfaces

Most modern interfaces are typically variations or combinations of these two.
Modern Interfaces

Most modern interfaces are typically variations or combinations of these two. Web-Based Interfaces are a type of GUI (although they rely on typing addresses) while Touchscreens are a type of GUI in which the touchscreen replaces the mouse.