

CS1007 lecture #18 notes

tue 2 apr 2002

- news
- interfaces
- events
- listeners
- quick intro to GUIs
- reading: ch 5.4-5.6, 6.6

news.

- midterm #2 TUE APRIL 9
- hw#5 will be posted this week and will be due TUE APRIL 16
- hw#3 tournament results:
 - jmc2010
 - mbc2002
 - jpg2001
- details will be posted on the web page

interfaces (1).

- an *interface* is a group of *abstract methods* that are defined by all classes that implement the interface
- an *abstract method* is one that does not have an implementation, i.e., there is no body of code for the method
- for example:
 - Speaker.java
 - Philosopher.java
 - Dog.java
 - Talking.java

interfaces (2).

- *polymorphism* means “having many forms”
 - lets us use different implementations of a single interface
 - *binding* happens when a particular implementation is locked to an interface
 - this can happen at compile time or at run time
 - an example of a run-time or *dynamic binding* is:
((Philosopher) current) . pontificate () ;
from the earlier example

events (1).

- an *event* represents some action on the part of the user
- user-generated events are entered either through the *mouse* or the *keyboard*
- examples:
 - mouse pressed
 - mouse released
 - mouse clicked
 - mouse entered
 - mouse exited
 - mouse moved
 - mouse dragged

listeners (1).

- a *listener* is a part of a program that captures these events for processing in the program
- frequently, a *listener interface* is created
- for example, java.awt.event.MouseListener:
 - void mousePressed(MouseEvent evt);
 - void mouseReleased(MouseEvent evt);
 - void mouseClicked(MouseEvent evt);
 - void mouseEntered(MouseEvent evt);
 - void mouseExited(MouseEvent evt);
- what is a MouseEvent?
 - Point getPoint();
 - int getX();
 - int getY();
 - int getClickCount();

listeners (2).

- MouseListener examples:
 - Dots.java
 - Dots2.java
 - Dots3.java

listeners (3).

- another example, java.awt.event.KeyListener:
 - void keyPressed(KeyEvent evt);
 - void keyReleased(KeyEvent evt);
 - void keyTyped(KeyEvent evt);
- what is a KeyEvent?
 - char getKeyCode();

listeners (4).

- KeyListener examples:
 - Dots4.java
 - Dots5.java

GUIs (1).

- Graphical User Interface
- topics:
 - components
 - containers
 - layout managers
 - events
 - listeners

GUIs (2).

- *components*
- a component is a building block of any GUI
- here are some examples:
 - Label
 - TextField, TextArea
 - PushButton
 - CheckBox
 - RadioButton
 - ComboBox
 - List
 - PulldownMenu
 - ... and many more!!

GUIs (3).

- *containers*
- a container is a special component that can hold other components
- here are some examples:
 - Applet
 - Frame
 - Panel

GUIs (4).

- *layout managers*
- a layout manager describes where the components are laid out within a given container
- you need to “set” the layout manager for each container
- you can “nest” containers (and their layout managers)
- BorderLayout — simplest layout manager
- looks like this:

north		
west	center	east
south		