§18.1: Menus and Window Listeners

11 Feb 2008
CMPT166
Dr. Sean Ho
Trinity Western University

TRINITY WESTERN UNIVERSITY

MVC in Swing

- Model:
  - Core content/functionality of program
  - Ideally, should be independent of Swing
- View:
  - JFrame, JPanel, layout manager, widgets
- Controller: Event handler:
  - implements ActionListener, ItemListener {
    - public void actionPerformed(ActionEvent e)
    - public void itemStateChanged(ItemEvent e)

MenuBars, Menus, and MenuItems

- JMenuBar: container for menus
  - JMenuBar bar = new JMenuBar();
  - Set as the menubar for this window (JFrame):
    - this.setJMenuBar(bar);
- JMenu: container for menu items and other menus
  - JMenu fileMenu = new JMenu();
  - bar.add(fileMenu);
- JMenuItem: an action on the menu
  - JMenuItem saveItem = new JMenuItem(“Save”);
  - fileMenu.add(saveItem);
  - saveItem.addActionListener(handler);

Window Events

- We have seen ActionEvents (button press, menu item) and InputEvents such as KeyEvents, MouseEvents
- WindowEvents are sent when the window interacts with the OS windowing system:
  - opening, closing, iconifying, activating a window
- A JFrame can register a window listener to handle these events:
    - myJFrame.setWindowListener(winevents);
- This handler must implement the WindowListener interface:
    - class WinEvents implements WindowListener {

WindowListener interface

- Handler classes implementing the WindowListener interface must provide the following methods:
  - class WinEvents implements WindowListener {

    public void windowOpened(WindowEvent e) {}
  - Also windowClosing, windowClosed, windowIconified, windowDeiconified, windowActivated, windowDeactivated
- Closing: once the close button is clicked
- Closed: after the window is done
- Activated: usually when a window is clicked in
  - Only one window may be active at a time

WindowAdapter class

- Implementing the WindowListener interface means needing to implement all its methods, even if you don't need them
- WindowAdapter is an abstract superclass that implements WindowListener and provides default blank bodies for the methods
- Subclass WindowAdapter and override just the ones you need:
  - class WinEvents extends WindowAdapter {

    public void windowClosed(WindowEvent e) {