

Object Oriented Programming with Java

COMS M0103
2004

Lecture 16 -- Dialogs

Tim Kovacs
kovacs@cs.bris.ac.uk

Frederik Vercauteren
frederik@cs.bris.ac.uk

Overview

This lecture covers various kinds of dialogs

Dialogs are (generally) small, simple frames which give and/or get information from the user

Java provides some (e.g. file chooser) and you can create custom ones

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1 Dialog Boxes

Modal Dialog Box

- Prevents use of the rest of the GUI
- E.g. when opening a file

Modeless Dialog Box

- Does not prevent use of rest of GUI
- E.g. a toolbar

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1 JOptionPane Dialogs

A class of pre-fabricated dialogs with 3 parts:

- Icon
- Message
- One or more option buttons

Normally the message is a string, but, confusingly, it *can* also be an icon or even an array of objects



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1 JOptionPane Types

Dialog Type:

- Message - show message and wait for user to click 'ok' button
- Confirmation - show message and wait for yes/no/cancel
- Option - show message and list of options to choose from
- Input - show message and text field or combo box

Dialogs created by calling static methods of JOptionPane:

```
showXXXDialog(...)
```

where xxx is dialog type (e.g. showInputDialog)

A dialog needs a parent - a frame that it belongs to. This can be *null*.

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1 Message Dialogs

```
static void showMessageDialog(Component Parent,  
Object message)
```

```
static void showMessageDialog(Component Parent,  
Object message,String title, int MessageType)
```

```
static void showMessageDialog(Component Parent,  
Object message,String title, int messageType,  
Icon icon)
```

MessageType sets the icon and is one of:

```
ERROR_MESSAGE           QUESTION_MESSAGE  
INFORMATION_MESSAGE     PLAIN_MESSAGE  
WARNING_MESSAGE
```

The exact icon used depends on the look-and-feel in use

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1 Confirm Dialogs

```
showConfirmDialog(Component Parent, Object message, String title, int optionType, int messageType, Icon icon)
```

optionType is one of:

```
DEFAULT_OPTION      YES_NO_CANCEL_OPTION
YES_NO_OPTION       OK_CANCEL_OPTION
```

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1 Return Values

```
showMessageDialog - none
showConfirmDialog - integer representing chosen option
showOptionDialog  - integer representing chosen option
showInputDialog   - string the user supplied or selected
```

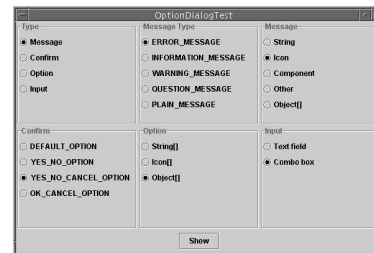
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1 Making JOptionPane Dialogs

1. Choose dialog type (message, confirmation, option, input)
2. Choose icon (error, warning, question, none or custom)
3. Choose message (string, icon, component or array)
4. For confirmation dialog choose option type (yes/no, yes/no/cancel.)
5. For option dialog choose options and the default option
6. For input dialog choose between text field and combo box
7. Locate the appropriate showXXXDialog method to call in JOptionPane API

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1 OptionDialogTest.java



Message Type: sets icon

Message: sets type of message (string, icon etc). String is most useful!

Confirm: only applies to 'input' dialogs

Option: only applies to 'option' dialogs

Input: only applies to 'input' dialogs

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2 Custom Dialogs

JOptionPane provides dialogs but we can also make them:

1. Derive a class from JDialog
2. In constructor call JDialog constructor:

```
public JDialog(JFrame owner, String title, boolean modal)
```
3. Add user interface components
4. Add event handlers
5. Set size of box

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```
class AboutDialog extends JDialog {
    public AboutDialog(JFrame owner) {
        super(owner, "About DialogTest", true);
        Container contentPane = getContentPane();
        contentPane.add(new JLabel("Hello"), BorderLayout.CENTER);

        JButton ok = new JButton("Ok");
        ok.addActionListener(new
            ActionListener() {
                public void actionPerformed(ActionEvent evt) {
                    setVisible(false);
                }
            });
        JPanel panel = new JPanel();
        panel.add(ok);
        contentPane.add(panel, BorderLayout.SOUTH);

        setSize(250, 150);
    }
}
```

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2 Custom Dialog Example

Best to create a dialog once and show/hide it as necessary

```
if (dialog == null) // first time
    dialog = new AboutDialog(this)
dialog.show()
```

See event handler for hiding of dialog

See DialogTest.java from Core Java Ch. 9



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3 Data Exchange in Dialogs

See DataExchangeTest.java from Core Java Ch. 9

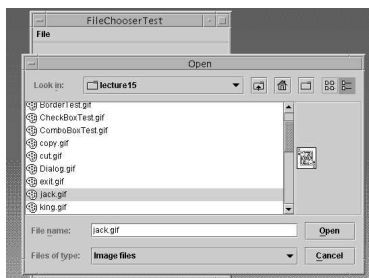
A password entry dialog which demonstrates how to

- display information for the user
- get text from the user

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4 File Dialogs

Lets the user list and select files (for open/save)



FileChooserTest.java

JFileChooser is always modal

Call showOpenDialog() instead of show()

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4 File Dialogs

1. Make a JFileChooser object
`JFileChooser chooser = new JFileChooser();`
2. Set current directory
`chooser.setCurrentDirectory(new File("."));`
3. Optionally provide a default file name
`chooser.setSelectedFile(new File(filename));`
4. Optionally allow selection of multiple files:
`chooser.setMultiSelectionEnabled(true);`
5. To display only some types of files set a *file filter* - discussed later.
6. Optionally specify that directories can be selected:
`setFileSelectionMode(XXX)` where XXX is one of:
`JFileChooser.FILES_ONLY` (default)
`JFileChooser.DIRECTORIES_ONLY`
`JFileChooser.FILE_AND_DIRECTORIES`

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4 File Dialogs

7. Show dialog with either

```
int result = chooser.showOpenDialog(parent);
int result = chooser.showSaveDialog(parent);
```

these return:

```
JFileChooser.APPROVE_OPTION or
JFileChooser.CANCEL_OPTION
```

8. Get selected file(s) with `File getSelectedFile()`

or `File [] getSelectedFiles()`

If you want only name of selected file:

```
String filename =
chooser.getSelectedFile().getPath();
```

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4 File Filters

Display only certain file types eg .gif image files

Supply an object implementing

`javax.swing.filechooser.FileFilter`

interface by extending `FileFilter` and overriding 2 methods:

```
public class GifFilter extends FileFilter {
    public boolean accept(File f) {
        return f.getName().toLowerCase().endsWith(".gif")
            || f.isDirectory();
    }
    public String getDescription() {
        return "GIF image";
    }
}
```

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4 File Filters

Create filter object and use `setFileFilter`:

```
chooser.setFileFilter(new GifFilter());
```

You can add alternative filters to an object:

```
chooser.addChoosableFileFilter(new  
GifFilter());  
chooser.addChoosableFileFilter(new  
JpegFilter());
```

Option to show all files types is available by default. To disable:

```
chooser.setAcceptAllFileFilterUsed(false);
```

If you reuse a file chooser for different file types call

```
chooser.resetChoosableFilters();
```

to clear any old filters before adding new ones.

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4 File Dialog Examples

See `FileChooserTest.java` for advanced example

- shows icons next to certain types of files
- shows *thumbnail* preview of gif files

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5 Color Chooser

Lets user select a colour - eg for drawing, or frame background

See `ColorChooserTest.java` which demonstrates different ways to use `JColorChooser`

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Test Yourself

- Colour Dialogs
- File Dialogs
- File Filters
- Modal Dialog Box
- Modeless Dialog Box
- Thumbnail

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