CS260 Intro to Java & Android 06.AndroidEvents

Fall 2011

Event-handling

- Events are created through user interaction
- Events are captured from a View object interacted with by the user

Example: When a button is touched, the method onTouchEvent () is called on the touched object

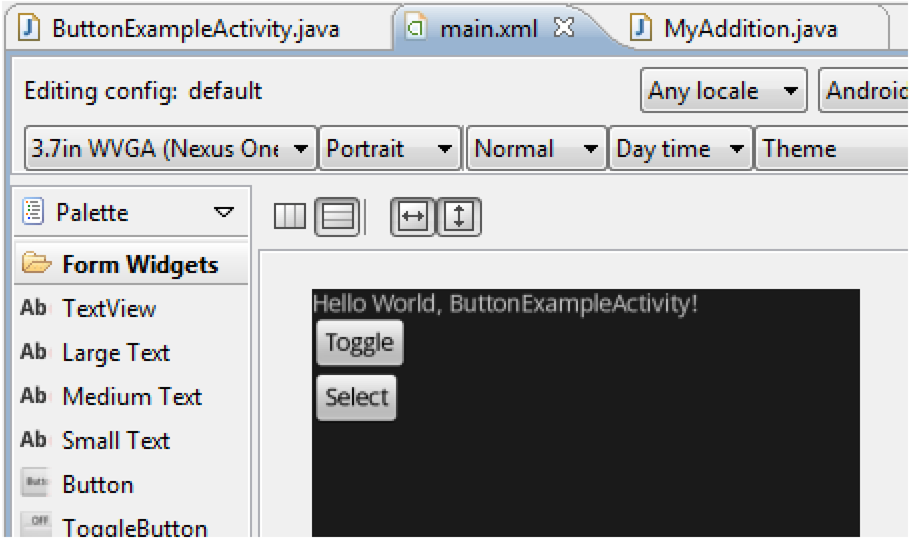
Quick Review

- Java Object
- Java Class
- Java Inheritance
- Java Interface

http://download.oracle.com/javase/tutorial/java/concepts/index.html

ButtonExample

- Create a project called ButtonExample that looks exactly like the following
- Button names in main.xml are btnToggle and btnSelect



Editing config: default

Hello World, ButtonExampleActivity!

Button Events

- Method #1 for handling a button click

```
mButtonToggle = (Button) findViewById (R.id.btnToggle);
mButtonToggle.setOnClickListener (new View.OnClickListener ()
{
  public void onClick (View view)
  {
    Log.d ("ButtonExample","Button Toggle");
  }
});
```

What might a Button look like?

```
class Button
{
  private View.OnClickListener listener;

  publc Button ()
  {
    listener = null;
  }

  public void setOnClickListener (View.OnClickListener L)
  {
    listener = L;
  }

  private void handleEvent (Event e)
  {
    paintButton();
    if( listener != null)
    {
      listener.onClick (this);
    } …
```

Button Events

- Method#2 for handling a button click

```
public class ButtonExampleActivity extends Activity
                                implements View.OnClickListener

mButtonSelect = (Button) findViewById (R.id.btnSelect);
mButtonSelect.setOnClickListener (this);


public void onClick (View view)
{
  Log.d ("ButtonExample", "Button Select");
}
```

Button Events

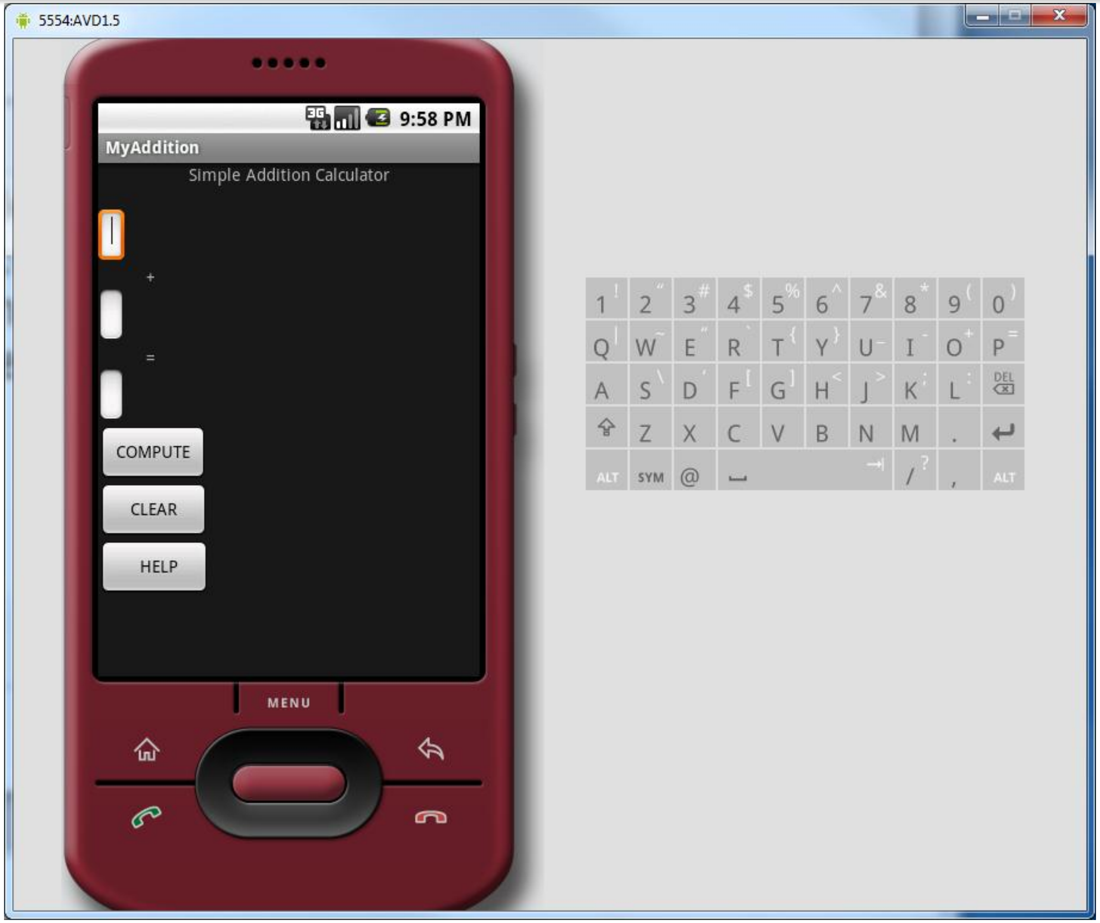
```
public void onClick (View view)
 {
   Log.d ("ButtonExample", "Button Select");

   if (mButtonSelect == view)
   {
     // do something else
   }
 }
```

Problem

- You are to design a simple calculator that does addition of two digit numbers. The calculator is displayed on the next slide and details are given on slides thereafter.

Calculator


5554:AVD1.5
9:58 PM
MyAddition
Simple Addition Calculator
+
=
COMPUTE
CLEAR
HELP
MENU

Class Calculator

- Has private members
  1. EditText mEditNumber1
  2. EditText mEditNumber2
  3. EditText mEditSum
  4. Button mButtonCompute
  5. mButtonClear
  6. mButtonHelp

main.xml ids

- main.xml has ids
  1. btnClear
  2. btnCompute
  3. btnHelp
  4. editNumber1
  5. editNumber2
  6. editSum

Step to Complete Calculator

1. Create all private instance variables
2. Set each instance variable equal to its' associated widget
3. Button widgets need to set the appropriate onClickListener
4. Add functionality to the onClick method such that when the Clear button is pressed, all text in each EditText field is cleared

e.g. mEditNumber1.setText ("");

Step to Complete Calculator

1. Program the Compute button such that you will add the two numbers entered by the user and output the result in mEditSum

```
int num1, num2;

try
{
  num1 = Integer.parseInt (mEditNumber1.getText ().toString());
}
catch (NumberFormatException e)
{
  // we will eventually pop up an alert dialog
  num1 = 0;
}
```

Step to Complete Calculator

1. Create all private instance variables
2. Set each instance variable equal to its associated widget
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4. Add functionality to the onClick method such that when the Clear button is pressed, all text in each EditText field is cleared

e.g. mEditNumber1.setText (“”);

Challenge

- If you get this far with time to spare, try and figure out how to display an alert if the user enters Invalid Input