PROG3150 Lecture 2

Mobile Application Development

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Agenda

- Has everyone got their IDE up and running?
- Asynchronous Programming
- User Interface definition languages

Asynchronous Programming

- Fundamental to responsiveness on Mobile platforms
- Keep all 'long' running tasks off the UI thread
- Warning... some emulators will let you get away with things that will fail on actual devices

The WinForms Way (sync)

```
if (question1.ShowDialog()== DialogResult.OK){
    if (question2.ShowDialog()== DialogResult.OK)
        execute_task1();
    else
        execute_task2();
}
else
    execute_task3();

execute_task4();
```

The Android Way

```
AlertDialog question1 = new AlertDialog.Builder(this)
  .setPositiveButton(R.id.OK, new OnClickListener(){
      public void onClick(View arg0) {
          do_question2();
      }})
  .setNegativeButton(R.id.Cancel, new OnClickListener(){
      public void onClick(View arg0) {
          execute_task3();
      }})
      }
  .create();
question1.show();
```

Android Way Part 2

```
AlertDialog question2 = new AlertDialog.Builder(this)
  .setPositiveButton(R.id.OK, new OnClickListener(){
      public void onClick(View arg0) {
          execute_task1();
      }})
  .setNegativeButton(R.id.Cancel, new OnClickListener(){
      public void onClick(View arg0) {
          execute_task2();
      }})
      }
  .create();
question2.show();
```

Android Way Part 3

```
public interface OnListener {
  public void onReadyForTask4();
}

...in each of tasks 1,2,3

((OnListener)getActivity()).onReadyForTask4();

...in the owner activity

public void onReadyForTask4(){
    execute_task4();
}
```

The Windows 8 Way

```
MessageDialog md1 = new MessageDialog();
md1.Commands.Add(new UICommand("OK", new
                 UICommandInvokedHandler(md1OKHandler));
md1.Commands.Add(new UICommand("Cancel", new
                UICommandInvokedHandler(doTask3Handler));
await md1.ShowAsync();
execute_task4();

...in md1OKHandler

MessageDialog md2 = new MessageDialog();
md2.Commands.Add(new UICommand("OK", new
                UICommandInvokedHandler(doTask1Handler));
md2.Commands.Add(new UICommand("Cancel", new
                UICommandInvokedHandler(doTask2Handler));
await md2.ShowAsync();
```

The Others....

- BB7 has both modal (Dialog.ask() static function) and non-modal (DialogClosedListener)
- BB10 each dialog has a ::run method with its own message loop
- WP7 MessageBox.Show() static function
- iPhone?

UI Description Languages

- Android uses XML
- WP7/8 uses XAML (Silverlight)
- Windows 8 uses XAML
- BB10 uses QML
- BB7 is completely programmatic
- iPhone uses a WinForms type approach – Interface Builder creates code in the background

Task for next week

- A storyboard for your app