COMP47330 Practical Android Programming

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Moodle

- Self enrollment
  - comp330
  - Please use the student forum
  - Lecture note will be posted each week

Course Intensity

- This is a very practical course

- You should know Java*

- You'll have to do individual practicals and assignments

- * - Java help can be obtained from CSSC http://csi.ucd.ie/cssc

Material Covered
(in no particular order)

- Platform Overview
- Internals, Security
- Activities, Intents, Layouts
- Resources, Storage
- Services, Content Providers
- Publishing Apps, Best Practices
- Software Licenses, Copyrights, Code Reuse
- Marketing and PR Recommendations
- Graphics on Android

Overall Assessment

- 40% - Continuous assessment
- 20% - Critical analysis of the project
- 40% - Project

Project

- Project is worth 40%
- The project is to create an Android app through design to a reasonable minimum viable project that could or is placed on the Google Android play store.
- You do not have to place you APP on the play store .
- Individual projects are the norm but there is a specific group project should you be interested.
- Projects will start at the half way point of the course and after that there will be no assignments.

Project Assessment

- Apps are going to be evaluated for:
    - Novelty (0-10)
    - Usefulness/Entertainment (0-20)
    - Functionality (0-30)
    - Design (0-30)
    - Speed (0-10)

Communication

- All notifications will go to News Forum
- For all course-related discussions/questions, please use Student Forum so others can benefit from the QA as well
- A demonstrator will be available there regularly to answer your questions
- For other course-related queries, contact Anara Sandygulova (anara.sandygulova@ucdconnect.ie)

Typical Android Handset

- Phone
- Networking
- Location
- Multimedia
- Accelerometer, compass, gyro
- Browser
- 2D/3D graphics
- Storage

What is Android?

- Android is a mobile operating system based on a modified Linux kernel

- Android is Free and Open Source OS
  - (licensed under Apache 2.0 and GPL 2 since Oct 2008, including network & telephony stacks)

- Purchased by Google in 2005, Android is now developed by Open Handset Alliance
  - (but de-facto by Google, which is controlling the development process and doing the lion's share of work)

Android Software Stack

- Android Applications
- Application framework including Java *compatible* libraries based on Apache Harmony
- Middleware, libraries, API written in C/C++
- Dalvik Virtual Machine
- Linux Kernel

Android Software Stack Cont'd

- Parts of Android written in C/C++

- Surface manager

- OpenCore media framework

- SQLite

- OpenGL ES

- WebKit

- SGL

- SSL

Android Software Stack Cont'd

- Overall Android 2.x has more than 12 mln lines of code. This includes (in mln)
  - 3 XML
  - 2.8 C
  - 2.1 Java
  - 1.75 C++
- New version have similar amounts and have even optimised the code to be smaller.

Dear iPhone 6 users: Welcome to 2012!

iPhone 6
(released 9/2014)
4.7-inch screen
750p resolution
NFC payments
Notification actions
Widgets
3rd-party keyboards
Typing suggestions
Cross-app communication
Cloud photo backup
Battery stats

Nexus 4
(released 11/2012)
4.7-inch screen
760p resolution
NFC payments
Notification actions
Widgets
3rd-party keyboards
Typing suggestions
Cross-app communication
Cloud photo backup
Battery stats

Enjoy your "new" device!

In 2016, you guys will love: Wireless charging, water resistance, IR blasters,
multi-user support, selectable default apps, split-screen apps,
app installs from a browser, and virtual buttons!

If you need help with your iPhone's new features, just ask an Android user. We've had this stuff for years.

<3, Ron

Practical 1

- Install Android SDK and run Hello World
- For most of you this should be easy but sometimes your system may have a weird problems so remember.
  - Demonstration session 16:00 to 18:00 on Wed (B003) and Fri (B002)
  - Discussion Forum

Installation

- Eclipse + ADT plugin
- Android SDK Tools
- Android Platform-tools
- A version of the Android platform
- A version of the Android system image for the emulator
- Eclipse ADT with Android ADK
  - http://developer.android.com/sdk/index.html#download
- Genymotion
  - http://www.genymotion.com/