Developing Mobile Application Module Guide

Dr Ebbi Shaghouei
School of Computing, Creative Technologies and Engineering
Caedmon CAE214
0113 812 5165
E.Shaghouei@leedsmet.ac.uk

Contents

Module overview

This module aims to cover the programming concepts for developing mobile Apps. Practical development for resource constrained mobile devices present interesting programming challenges. Lectures discuss these challenges by considering the design and the architecture of the Android framework. A structured set of lab exercises implement the concepts and "best practice" discussed in the lectures. The lab exercises increase in complexity and form a portfolio of exercises.

More advanced topics follow the base architecture and introduce lifecycle-aware components. These topics are challenging and require proficiency in Object Orientation and Java.

The assessment includes the lab exercises, a lab test, and a presentation explaining the code for a complete mobile App bringing together the concepts from the portfolio of lab exercises, and the advanced topics, please see the details in the assessment brief.

Learning outcomes

On completion of this module, you should be able to:

a) Critically evaluate a range of mobile application development techniques.
b) Deal with complex software issues systematically and creatively and showing originality.
c) Be able to apply and critically evaluate programming approaches, which are appropriate to the production of applications for a mobile device.

Delivery and feedback

The delivery is a series of lectures with associated seminars and lab sessions. The IDE used is Android Studio, and Git provides version control to commit to a collaborative server. There is weekly feedback with code review during the seminar sessions.

Contact schedule

Wk.	Lecture	Seminar / Lab
1	○ Android architecture, Manifest, Activity Class, Views, XML layouts	○ First App, Android Studio, Git, Development lifecycle, Debug, Activity, Views
2	○ Resource Constrained devices, Activity Manager, State transition	○ First App, Activity LC, ○ Overriding state transition
3	○ Development lifecycle, Debug, Bundle Objects, Serialising State	○ Activity and Intent, ○ Rotation bug fix
4	○ Event Listeners ○ Event handler	○ Activity, Intent, Extras ○ Events Listeners and Event handlers
5	○ Design consideration, Decoupling Intent	○ Decoupling intent ○ Intent Extras

6	○ Design consideration, Decoupling Fragments	○ Decoupling Fragments, Fragment Bundle ○ Fragment transaction
7	**o** Lifecycle-aware components	○ RecyclerView, Prototype “Todo” App
8	○ Review	○ Review
9 - 10	○ Assignment Submission, Presentation	

Assessment

Please refer to the separate assignment specification document for full details; the following is a brief overview.

The assessment includes:

a) A portfolio of lab exercises in an interim submission.
b) Design and implementation of an App for the final submission.
c) A single presentation with questions that include concepts covered in both the lab exercises and the final App.
d) A lab test with multiple choice questions.

Resources

Books

Author/ Editor	Bill Phillips, Chris Stewart, and Kristin Marsicano
Title	Android Programming: The Big Nerd Ranch Guide
Edition	Latest (Java version)

Websites

Description	Module Website
Creator	Ebbi Shaghouei
URL	https://ebbi.github.io

Description	Android Developer Docs
Creator	Google

URL	https://developer.android.com/index.html

Description	Software Development Forum
Creator	StackOverflow
URL	http://www.stackoverflow.com