Learning Summary Report

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Overview

As is often said, you only get out of something what you put in. That said, even though this is only a Pass level portfolio, I'm still quite proud of the work that's gone into it, the experiences I've gained from it and the fun I had learning it.

Evidence – Portfolio Pieces

I have completed the following assignments and the evidence is presented as part of the portfolio pieces:

Assessment	Mark	Completed
Core Tasks	P	x
Extension Tasks	C	
Custom Application	D	
Research Report	HD	

Learning Summary

Intended Learning Outcomes (and how they've been met!):

1. *Explain the key differences between development of systems to run on mobile devices and on typical personal computing or internet-based environments, and apply this knowledge in the design of mobile device software.*
    - 1.1P – Discusses the differences between Mobile and PC development.
    - 6.1P – Utilises the unique context of mobile devices to create use cases that take advantage of these.
    - 7.1P – Extends this by actually designing features, forcing one to think before they plan ahead. (And then said foundation is used in Tasks 8 & 9!)

2. *Design effective applications for a mobile device by taking into consideration the underlying hardware-imposed restrictions such as screen size, memory size and processor capability.*
    - 2.1P – Introduces the concept of 'separation of concerns' and how there can be a need for different layouts to take advantage of portrait or landscape views.
    - 3.1P – Explores the lifecycle of Android apps which is designed to make the most of the devices limited resources.
    - 10.1P – Explores how Android devices use multithreading and the certain rules around how this is consistently achieved.

3. *Build, test and debug graphical applications for mobile devices by using the standard libraries that are bundled as part of the developers' toolkit for the mobile device.*
    - 1.1P, 1.2P – Introduces the IDE: Android Studio and other basics.
    - 3.2P – Explains the purpose of String externalisation and other quicks that come standard to mobile development to make the overall process much easier.
    - 5.2P – Culmination of the 'Favourite Food' tasks, showing tools for sending data between activities.
    - 9.1P – Culmination of the 'Sun Calculator' tasks, using tools learned in past tasks (eg Parcelables and Recycler Views) and then combining them in new ways for further effects.

4. ***For COS80019 students, there is an extra ULO:*** *Independently research topics in mobile application architecture and/or security and/or performance.*
    - ***Not Applicable!***

Mobile Application Development Process

When developing mobile applications, the process is largely similar to any other program. One starts with the key ideas – (What's the need being met? What's the problem being solved?), from there gathers data (your Scenarios, User Stories, Features etc) culminating in sketches, designs and prototypes. Then the coding starts, and through testing and iterations a product is eventually developed.

These steps can vary greatly depending on the project's scale, though I feel where special focus must be on what makes the app a mobile app beyond something developed for PC or web. Focus on the limits and unique features of the device (limited screen space, hardware etc) and how to best use that is key.

Comparison and Contextual Placement

Mobile development is quite charming to me, compared to developing for PC. I know this was made clear in week one, but I'm still amazed at how conscious one has to be of the comparatively limited resources and abilities.

Not since Object-Oriented Programming do I think I've had so many "ah-ha" or "so *that's* how that's done" in a unit. For my creativity it's been absolutely refreshing to work on something so similar and yet so different.

And yet there's still the common ground of IDEs, Debugging and the fact you'll never need to re-invent the wheel when one looks online for help. As ever, software development is taking bits of everyone else's wheels to make your own.

Challenges in Mobile Development

I think the largest challenge for me this semester was that I could only get work done on campus! (My laptop isn't strong enough to run android studio at more than a crawl, regrettably)

While I was able to commit the time necessary at first, my morale suffered in the middle of the semester as the weight of the commutes started adding up. The late lectures didn't help, especially since if I stayed to the end I'd often get home around midnight. (Thanks to public transport and car avaliablitiy). I burnt out 2/3 through, which is when it became clear I had to drop my aspirations for a Distinction, and in 'not pushing myself' here I am submitting a pass portfolio. Ah well.

Explorations

Task 10.1 touched on multithreading, an area I'd forgotten how much I enjoyed. Managing the logistics of multiple threads, particularly when constrained to a mobile device is very fascinating to me, so that was a pleasant surprise.
I'd also like to explore file I/O some more and eventually get around to developing one of the concepts I had for a Distinction app, if only because I'm taken with how useful the idea could be.