Software Development for Mobile Devices

Formative Assignment - 08 (Graded as Pass / Fail, Individual Work)

Due: Week 12, (Submit Start of Lab)

Objectives

This assignment task has the following objectives,

1. Draw a navigation flow model and reflect on its value.
2. Understand the importance of recycling resources when data intensive building mobile apps.

Attempt tasks in this assignment only if you are aiming for a Credit or higher grade.

Extension Tasks (for Credit or Higher Grades)

Attempt the following tasks only if you are aiming for a Credit or higher grade.

Task 1 - Performance Optimisation

Modify the movie review application provided with this handout to improve its performance and usability. Specifically,

1. Optimise the code so that the list does not lag/jitter when the user scrolls up.
2. Add a message to inform the user while the movie data is loaded into memory. Currently it shows a blank screen. The message that you show must make use of the AsyncTask framework and Progress Dialog to show the user progress of the load task.

Short Report on Performance Optimisation

Once the optimisation and usability related modifications are complete, explain the design principles that underpin the optimisations as well as the changes made for usability improvement.

Your short report must contain the following sections:

- Introduction (What does this report contain? What are the key design principles that you will discuss in this report)
- Performance Optimisation (What was the problem as observed? What is the root cause of the problem? What was the design approach used to correct the problem? Code snippets can be used to illustrate the problem/solution)

- Usability Improvement (What was the problem as observed? What was the cause of the problem? How was the problem corrected? Code snippets can be used to illustrate the problem/solution).
- References
- Appendix (Commented code snippets as needed to support the report)

Note: This report must be less than 1500 words (including code snippets and images). Each code snippet/image counts for 250 words -- they must be captioned with a border.

Task 2 - The Final Sun time App

Refine the Sun time application by incorporating an Action Bar and Fragments. It must offer the following features:

- The action bar can use either tabs (with a View pager) or a drop-down list. You are free to choose the exact nature of the functionality within the tabs/down-down list in the action bar.
- Show sun rise/set times for a date/location
- Support major Australian locations (data file provided for earlier assignments)
- Generate a table of sun rise/set times for a date range
- Share Sun rise/set time for a particular date/location (using the Share action intent). Sharing must be via an icon on the action bar.
- Incorporate maps (how and what you use the maps is intentionally left open-ended)

Your submission must:

(a) list out the fragments in your application

(b) present screen shots that highlight how you satisfy the above features

(c) present source code snippets related to how the fragments are swapped / incorporated in your application.

Task 3 - Navigation Flow Modelling (COS80019 / Masters Students Only)

Draw a navigation model (using the notation presented in the lectures) for **one of** the following apps: IMDb, LinkedIn, Eventbrite, AFL, Facebook, Dictionary.com, Any Reddit client, any internet banking apps, Carsales.com, WhatsApp, Dropbox, Evernote, Realestate.com.au (or any other app of your choice that is not a game and has some complexity in UI).

Note: All apps in the list have a similar complexity, so pick a random one (to reduce time spent deciding which one).

- You need to model at least 4 - 6 activities.
- The model must capture global and contextual navigation elements.
- The model must identify any dialogs used within the application
- The navigation model must be supported by screen shots of the app as well.

In the submitted report include the navigation model, screen shots of app, and briefly present an argument for the value of navigation models (over sketches). Also, comment on the limitations and gaps in the navigation models. The write up needs to be less than a page.

Grading and Extension Tasks

- Students aiming for a Pass grade need to attempt all core tasks. This assignment does not have any core tasks.
- Students aiming for a Credit, or higher grade (D/HD) need to attempt all extension task. This assignment has multiple extension tasks.

Demonstration

You may be asked to demonstrate your assignment in the lab. You should be able to do this and explain your code when asked in the lab session.

Submission

You are required to submit a printed report:

- The header (or) footer of the document must contain your name, student id, and unit code.
- The document must have a title (e.g. Submission for Assignment 07)
- Evidence that shows you completed each task must be presented in a separate section.
- The document does NOT need a table of contents (or) a cover page.

The reports are assessed and returned to you in the lab with feedback. You are expected to incorporate the feedback (esp. if changes are required) and submit the changed reports as part of the final portfolio.