

# Software Development for Mobile Devices

## Formative Assignment - 05 (Graded as Pass / Fail, Individual Work)

**Due: Week 8,** (Submit Start of lab)



### Objectives

This assignment task has the following objectives,

1. Create an application that demonstrates competence at using lists.
2. Create a sketch, and refine it further to create a hi-fi prototype. Undertake a heuristic usability on this hi-fi prototype.

### Core Tasks

#### Task 1

Extend the Sun rise/set calculator code (provided on BB) to allow the user to select a location from a pre-defined list of geographical locations.

- (a) You are expected to present to the user the list of Australian city names by reading the data file (provided on BB). You are free to choose an appropriate UI design for the context.
- (b) You should also update the data file with 2 other Australian cities of your choice.
- (c) The report should contain screen shot(s) of the app that you designed and built. You should also have the code snippet that highlights how list data is loaded, and how the list item selection shows the appropriate information (about sunrise and sun-set).

Data file name: `au_locations.txt`

Data file format (CSV): City Name, Latitude/Longitude, Time zone

Note: You can use the time zone provided to directly initialise the timezone object. For example: `TimeZone.getTimeZone("Australia/Adelaide")` will return a TimeZone object for Adelaide time zone. The time zone strings are provided in the data file in a format that will work in Android.

**Task 2**

The task should be completed based on the information presented below.

**Idea:** An app. that will show the Sun Rise, Set time and weather forecast at a given location for any valid date (past/present/future).

**Motivation:** This app. will provide useful information for photographers, bush walkers, and people that undertake prayers/spiritual practices based on the sun rise/set times.

**Features (User's expectations):**

- Show sun rise/set times for a date/location.
- Can add new custom locations (or) select from pre-built set of locations.
- Generate a table of sun rise/set times for a date range.
- Share information via SMS and email.
- Can detect current location.
- Integrated into Google maps.
- Can detect current location.
- View sun rise/set times for various locations on a map.
- View weather forecast (current, and near future)

**Note:** Features are identified before scenarios are developed (as per the development method suggested). Features are often fuzzy and very high-level -- they express broad intentions.

**Scenarios:**

- (i) Brad is planning a short 3 day holiday in Wellington, NZ (travelling next month). He wants to take a few photographs of the sun set over the harbour and wants to make sure his flight times give him sufficient opportunities to take these pictures.
- (ii) Sachin has to undertake a religious fast for 40 days from sun rise to sun set starting in mid-May. Unfortunately, he is travelling during this time to 3 different countries across the world (China, US and India). Sachin works for a large mining company and the locations that he is travelling to are very remote placed in these countries. He generates a table of sun rise/set times for each of his locations, emails them and print the email message ahead of this journey time.

- (iii) Li wants to walk on the beach tomorrow morning to reflect on the purpose of life (she was just promoted in her job). She checks the sun rise time in Sydney before going to bed.
- (iv) Justin and Mary are off camping. They reach the camp site and realise that they are a little bit behind schedule. They need to start off at day break to get to the top of the mountain as planned. They use the built-in GPS facility to find the sun rise/set times for their location. As they have a faint mobile signal, they send the sun-rise time to their friends that are also climbing the mountain from another direction. They add a short note to the message saying they are looking forward to beating them to the top of the mountain.

### **Sub-Task A - User Stories**

Based on the information provided, write at least 4 user stories. You must follow the format suggested in the lecture notes.

### **Sub-Task B - Reflection on User Stories Vs Scenarios**

Briefly indicate your preference between detailed scenarios and user stories as the basis for developing the full app? (For example, you can talk about aspects such as -  
- Is there any information that user stories lack? Is there too much information provided within the scenario?)

### **Sub-Task C - Create a complete hi-fidelity prototype using Fluid-UI (or similar tool)**

Develop sketches of the app. based on the scenarios presented — we recommend using Fluid-UI as the tool, but you can also use other prototyping tools.

In the report:

- (a) print all screens with an identifier (e.g. Screen-01).
- (b) you should provide a short comment for each screen, explaining your design motivations.
- (c) you should also clearly indicate which features (from the list outlined above) are available in each screen.
- (d) For each of the user scenarios (outlined above), indicate which sequence of screens the user has to navigate (e.g. Screen-01 -> Menu Option X -> Screen-03 etc.). You are free to use any appropriate method to describe the navigation.

You should also be able to demonstrate your design using the Fluid-UI player.

See: <https://www.fluidui.com/>

## 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 05)
- 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 report is 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.

**Note:** You must attempt and complete all tasks in this assignment in order to be eligible to pass this unit.

## 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.

## FAQ

### What happens if a student is unable to submit the assignment?

If you are unable to submit due to medical reasons, then a doctors certificate will have to be shown. In exceptional circumstances, an email submission is permitted (with prior agreement with convenor). In normal conditions, ***all students are expected to make a submission by the due date, else the assignment is graded as a fail.***

### What happens if assignment submission is graded as a 'fail'?

You will have to repeat the task and submit in the following weeks lab session. Students can repeat the task and submit for feedback twice. If your submission is graded as 'fail' twice then you may fail this unit.

## **Cross Reference for Assignment 5**

The following checklist will help you check that you have covered key points required in order to pass this formative assessment.

### **Task 1**

- Data shows Australian cities and few additional cities added by the student
- App works as expected (based on the screen shots)
- Code snippets show how data is loaded, how list items are selected and how data is shown (sun rise/set times).

### **Task 2**

- (A) At least 4 user stories are provided
- (B) Reflection between user stories and scenarios shows some depth of understanding of the strengths and limitations
- (C) Report contains hi-fidelity prototypes designed using Fluid UI or similar & the students is able to demonstrate it in the lab (using Fluid UI player or similar technique).
- (D) Report explains the design choices for each screen, and also how the four user scenarios work (in terms of navigation).
- (E) Design must permit all four user scenarios.
- (F) Design must cover all key features expected.