Computer Science

Loughborough University

Mobile Application Development (COB155) Coursework Specification

Dr. Tao Chen

This coursework represents 100% of the total assessment of the module.

The Task

For this project, you will propose, specify, and develop a Hybrid Android Application. The app functionalities are implemented using native Android APIs, and the user guide is implemented using web technologies and wrapped in a native shell.

Students will work on their own. Every student is required to propose their own app idea, specify the application's functionalities, and develop the app. The app will have to be in accordance with the Ethical Policy Framework; see `https://www.lboro.ac.uk/committees/ethics/` for more detailed information. Therefore, the app should **not** involve any of the following:

- Experiments with human participants
- Activity falling under the Human Tissues Act
- Funding by philanthropic gifts
- Military applications
- Animal testing
- Possible conflict with ethical principles partially or wholly outside the above.

Requirements

Please note that 3rd party Java libraries are allowed; but please clearly declare them in the feedback form. However, Kotlin is not allowed as the module is mainly Java based. Also, to ensure fair marking, the IDE for the coursework should be Android Studio.

Propose and Specify an App (10%)

You will need to:

1. Propose an application and draft a specification (no more than two pages) of what the application does, what problem it solves and how it is supposed to achieve this (e.g., is there an API which provides some necessary data).
2. Create mock screens for all user-facing screens. Hand-drawn sketches are OK, but they must be in a digital format.

The proposal needs to be submitted on Learn by **4pm on Wednesday of Week 5**. Only those whose proposals contain problems would be contacted. In these cases, the proposals need to be revised in order to achieve the full mark. If you receive no further contact, then please presume that your proposal is well enough to proceed and the 10% would be automatically given in full. **Please see past years' example on LEARN**

Develop the App (80%)

1. (10%) Develop your application, make sure it implements the functionalities that you have specified. If the app is using a login mechanism, then there needs to exist a test user with username "eee" with password "eee" .

2. (40%) Marks are awarded for implementing any subset of the following features. You can achieve **at most 40%** of the marks for implementing some of these features. Marks are awarded for quality, completeness, originality and functionality.

    a. (4%) Have a minimum of two distinct screens (excluding the user guide and potential login screens).
    b. (3%) Work properly with the app lifecycle (including rotate screen changes).
    c. (2%) Use permissions and use them responsibly.
    d. (2%) Use intents to move inside your app.
    e. (2%) Use intents to move to an outside app.
    f. (6%) Create and use your own content provider.
    g. (2%) Use SharedPreferences.
    h. (4%) Create and use a local database.
    i. (4%) Use firebase for storing and retrieving data.
    j. (2%) Receive Broadcast events and make use of them in meaningful ways.
    k. (2%) Extend and use an existing View class.
    l. (2%) Implement and use a ShareActionProvider.
    m. (6%) Implement and use your own service.
    n. (2%) Use the AlarmManager.
    o. (4%) Use Notifications.
    p. (3%) Capture touch gestures and make reasonable use of them.

3. (10%) Create a user guide of the app using web technologies, and include it as a WebView in a separate activity in your app; the user guide has to be included in the assets of the app (rather than being accessed over the web). The user guide should be fully responsive, containing images and texts as necessary.

4. (20%) The remaining 20% of the marks are awarded on code style, originality, readability, quality and for smoothness of user interface.

Feedback Form on Learn (10%)

The Learn website of the module contains a feedback form in the *Coursework* section. This form asks which of the features are implemented in the app, to what extent are they implemented/used and in which component of the source code are they primarily implemented. Moreover, the form asks which of the originally specified functionality is implemented and to which extent. The form also gives the students the opportunity to cite APIs, libraries and third party code (e.g., from `https://stackexchange.com/` or other websites) used in the app. The marks for this component will be awarded for accuracy and completeness of the answers.

Final Submission

Please submit one .zip file that contains a single folder starting with your student id as a name (e.g. B123456). Inside this folder you need to have:

- a folder with a copy of your (possibly updated) specification including the mock screens,
- the Android Studio folder of your project,
- an .apk file of your app,
- a folder with sources of all the websites you created for this app.

The .zip file is to be submitted on Learn by **4pm on Wednesday of Week 11**. The feedback form is to be completed on Learn by **4pm on Wednesday of Week 11**.