# Course Project

**Introduction:**

This project will be done over several modules within the semester. There will be several “deliverables” during the semester that you must submit as part of select modules during the semester. This document contains three sections. They are:

* **Introduction** – This section contains high level information about the current assignment. It contains a description of each section as well as an overview of the project itself.
* **Deliverables** – This project is divided into several deliverables which will be uploaded into IvyLearn as several assignments. This section gives you an overview of how the project is divided and when those items are due (which module these deliverables are associated with).
* **Details** – This section contains the actual details of the assignment. It contains information related to the requirements that must be met to successfully complete the project.

**Deliverables:**

The deliverables for this project are divided into two basic types. They are:

1. **Assignments** - There will be 6 preliminary assignments worth 50 points each for a total of 300 points. The final Course Project (the 7th assignment) completes the project is worth 200 points. Since the complete assignment is worth 500 points (including these preliminary assignments as well as the final assignment outlined below), these assignments are worth 40% of this course’s grade. Each one of the preliminary assignments are worth 22% of the course project grade. Each of the Course Project assignments will contain deliverables as outlined in the assignment in IvyLearn. Below is a list of the assignments with some details about the assignment:
   * **M02 Course Project Part 1 - Request document** – This document details the project you are going to create during the course. This document should outline the app you want to create as your course project and should contain details on the four (minimum) activities that your app will contain. For example, one of your activities as outlined below should contain “settings” that you will allow the user to set. What are these settings? While these activities (user interfaces and functionality) should be defined in this document, you can make changes to these activities as you get further into the course. Make sure to communicate these changes, if any, to your instructor in order get approval for those changes. That said, try to stay as close to your original idea as possible.
   * **M03 Course Project - Part 2** – This assignment is a design document. It will detail what the app you are creating as well as the activities you will add and what these activities (think window and associated functionality) will provide. You will be required to include 4 activities minimum. See the section **Details** below for a definition of what these activities must contain / provide your app.

* **M04 Course Project - Part 3a** – This assignment will require you to create the project in Android Studio and create the first activities for your app (does not require you to add the events – just add the activity and the associated widgets). Now that you have identified the activities you need to create; this assignment will be to create the project in Android Studio and put in place the primary activity.
* **M05 Course Project - Part 3b** – This assignment requires that you add the rest of the activities and the widgets associated with these activities.
  + **M06 Course Project - Part 4a** – You need to start working on the events for your app. You should complete all the required events, event listeners and intents for your main activity and your Help Activity at the very least.
  + **M07 Course Project - Part 4b** - You should have completed the events, event listeners and intents for the rest of your activities.
  + **M08 Course Project - Final Submission** – You should complete anything else that needs to be completed in order to have your project fully functional.

**Details**:

This semester, you will be required to complete a course long project. This project is worth 500 points in total broken up into 6 smaller assignments and then the final assignment. The first 6 assignments are worth 50 points each and the final assignment is worth 200 points. This project will be of your choosing. This series of project will result in a completed app that you will create. This app must be approved by your instructor (see “Request Document” above). The project should end with a completed app that is at least 3 times bigger than any one of the exercises associated with the textbook. The minimum requirements for this project include:

* + **Four activities** (windows) along with the events to support the functionality for your app). These activities are:
    - **Main** **Activity** – This is the initial activity that first appears for the user to interact with.
    - **Preferences** – This activity contains preferences that the user can set. These preferences should be stored so that the user does not have to reset these each time a user brings up your app. These settings should have default settings that are displayed when the user first goes into preferences. If the user changes any of these settings, these settings should be retained and any changes should be displayed (along with those settings not changed) when the user returns to the preferences activity.
    - **Secondary Activity** – This activity should be tied directly to the Entry Point Activity. Information should be passed from the entry point activity using an intent and that information should be used with the secondary activity.
    - **Help Activity** – This activity should be displayed when the user hits a button in the “Main Activity”. This activity should be display only. No interactivity is required. At a minimum, this activity should display information about:
      * The app as a whole – What is the purpose of the app?
      * Preferences – How do the preferences affect the app?

Note: As you will see, you will need to use intents to display a different activity.

**Examples**:

This section contains two examples of projects that could fulfill the requirements in the details section above:

Example 1:

Let’s say you decide to do a “Tic Tac Toe” game. You might have the following activities:

1. **Main Activity** – This activity might contain data on player’s names for Player 1 and Player 2 so that the winner’s name is displayed at the end of the game.
2. **Secondary activity** – This activity contains the game board.
3. **Another activity** - This activity displays information (ex. Total wins player 1 and player 2) in a persistent manner (see module 5) such as a SQLite database. This window will be displayed automatically once the game end.
4. **Preferences** – This activity could contain information about how many runs before the data retained in the SQLite database is reset to 0 with a -1 meaning it is never cleaned.
5. **Help** window – This activity will contain information on what is stored in preferences as well as how to set up and play the game

Additional requirements – The following are additional requirements for this app:

* Fragments – You should use Fragments when designing your app to make it easy to modify if you would create additional User Interfaces for this functionality.

Example 2:

You could create a gradebook for faculty to use. You would implement the following activities:

1. **Main Activity** – This activity might contain the selected course the user is creating a gradebook for. For example, maybe SDEV 140 – Introduction to development. As well as the following information for each student:
   1. Student ID
   2. First Name
   3. Last Name
   4. Total current points - this is a calculated field based on information from secondary activity
   5. Current Grade Average (90, 80, 70, etc.) - this is a calculated value based on grades entered in secondary activity
   6. Letter grade based on current grade average as well as preferences (see Preferences below)
2. **Secondary activity** – This activity contains the detail of grades. For example:
   1. Student ID
   2. Student Name
   3. Grade - Each grade student has earned (up to a specified number of grades)
3. **Preferences Activity** – This activity could contain the low end of scores that equate to which letter grade. For example:
   1. 90 – A
   2. 80 – B
   3. 70 – C
   4. 60 – D
   5. Below 60 F

Another faculty member might have the following in preferences instead:

1. 95 – A
2. 85 – B
3. 70 – C
4. 60 – D
5. Below 60 F
6. **Help Activity** will contain information on what is stored in preferences as well general information about the app

Additional requirements – The following are additional requirements for this app:

* Fragments – You should use Fragments when designing your app to make it easy to modify if you would create additional User Interfaces for this functionality.

Again, the above two items are just examples. You can choose to do your own app as long as it adheres to the criteria outlined in the details section of this document.

Notes:

1. See module 3 for information on activities. This information is expanded in future chapters as you continue learning about android development.
2. You will learn about events and event listeners in module 5.
3. You will learn about themes and styles in module 5.
4. See module 7 for information on menus
5. See module 7 for information on fragments.
6. See module 7 for information on Intents.
7. See module 8 for information on persistent data and preferences.