Mobile Application Development (COM527) Report

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In this project, I have created 4 **XML Files**, (**activity\_main, fragment\_add, fragment\_list, my\_nav**). The **activity\_main** contains a **<fragment>,** which will be used to display both of the fragments (**fragment\_add, fragment\_list**) in order to appear the button to add a new point of interest, all the information about all the markers in the **ROOM** database, the map and the form to create a new point of interest. The **fragment\_add**, contains 3 **<EditText>** and one **<button>**. One of the **<EditText>** will be used to input the name of the point of interest, the second **<EditText>** will be used to input the type of the point of interest, the third **<EditText>** will be used to input the description and finally the **<button>** when clicked, it will run a series of code. The **fragment\_list**, contains 2 **<TextView>**, the map **<org.osmdroid.views.MapView>** and a floating button. The **<TextView>,** will be used to retrieve the latitude and longitude of the current location of the user. The floating button when clicked, will display the form, so the user can create a new point of interest. The my\_nav, will be used to indicate which is the start destination(**listFragment**) and which fragment it should move into (**addFragment**).

Moving into the classes, I have created 7 classes in this project, (**MainActivity, Marker, MarkerDatabase, MarkerRepository, MarkerViewModel, AddFragment, ListFragment**).

The **MainActivity**, will be used to setup the action bar depending on which fragment it is and to setup the back button on the **fragment\_add.xml.**

The **Marker** will be used to setup which values each entity should have in order to be stored in the database, such as, **ID**, which will be auto generated, **name**, **description** and **type**.

The **MarkerDatabase**, contains the database holder and serves as the main access point for the connection of the app to the relational data.

The **MarkerRepository**, will be used to abstract access to multiple data sources.

The **MarkerViewModel,** will be used to access all the queries from the **Dao,** it serves as a communication between the **MarkerRepository** and the **UI.**  It has the methods to read all the data from the database and add a new Point of Interest using coroutines, in order to perform those tasks in the background. The **AddFragment**, will be used to store the inflator inside the view object and return it. Whenever the **add\_btn** is clicked, it will run the **insertDatatoDatabase()** function, which will get the values from the input of the user to fill the parameters, **name**, **type** and **description** that will be added to the database. Also, it will check if the name, type and description parameters are empty, if they are empty, it will display a message to the user.

The **ListFragment**, will be used as the main logic for this project.

Initially, the **ListFragmen**t will setup the **OpenStreetMap** with 2 markers, the map’s centre, and set the zoom of the map.

The function **requestGPS()**, will request the current location of the user.

The function (**markerGestureListener**) will run whenever the user clicks a marker, it should show the marker’s name in a message.

The function (**onLocationChanged**) will retrieve the current latitude and longitude and display a message with the values of each. Also, whenever the location changes, it will set the map’s centre to the current location and run the function **addMarker.**

The function **addMarker()**, will retrieve the current location and create a Marker with the name of “**Current Location**”.

The function **onRequestPermissionsResult()**, will be used to show a message whenever the users does not give permission to use the GPS capabilities of his device.

**MarkerDao**, will be used as the interface, which contains the methods to access the database (Insert and Query).

Due to the lack of documentation of **OMSDROID**, I had a lot of difficulties to complete the task proposed. After many unsuccessful, attempts to create the final project, I have created this final project as the most successful of those attempts.