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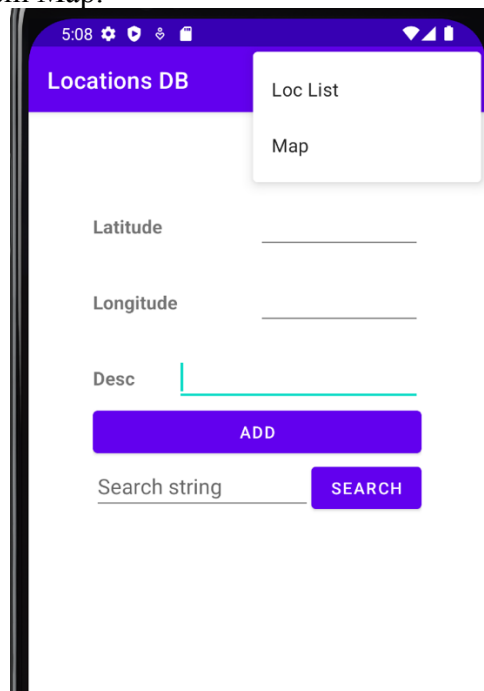**Semester**: Spring 2023

CMP354 - Mobile Application Development
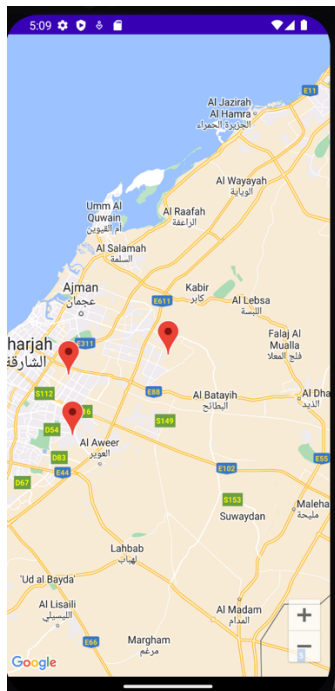## Lab11

Topics:
- Maps
- Placing Markers
- Saving in the database

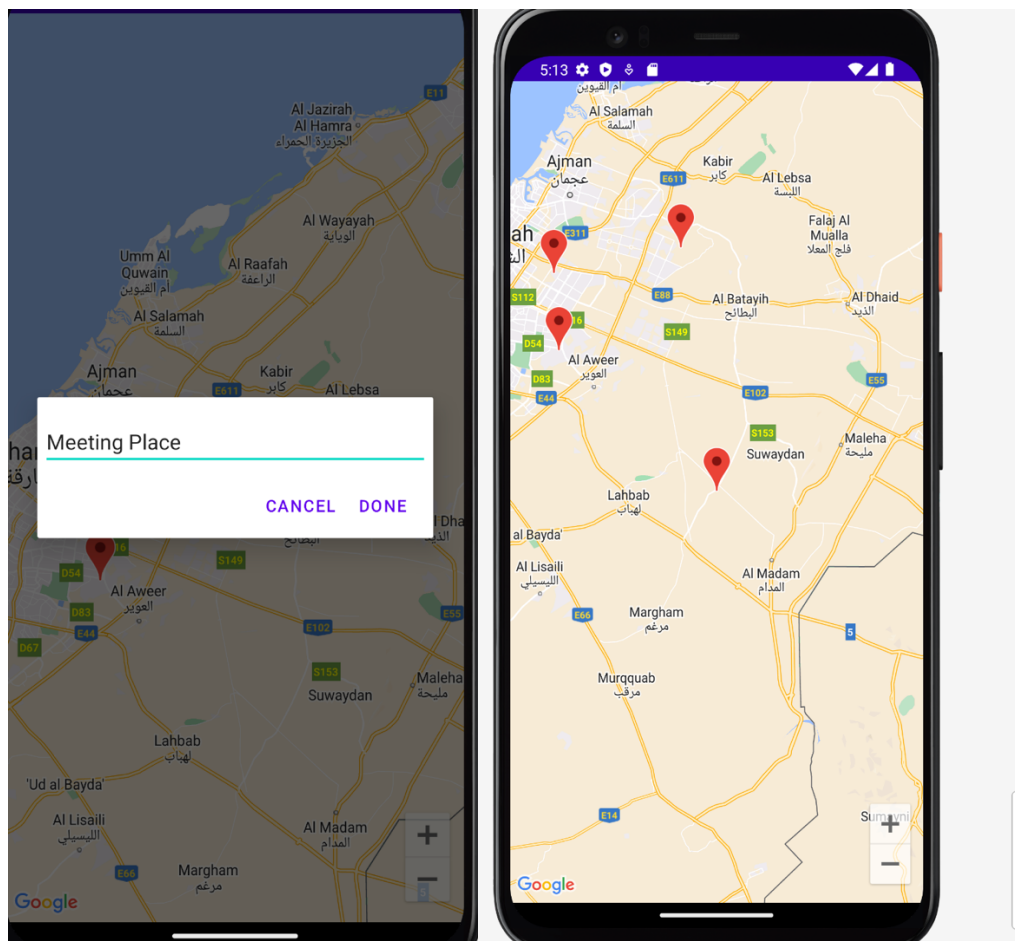Update Lab10 App with the followings:
1. Add another menu item Map.

2. Menu Map opens Maps activity that reads all locations from the database and displays the markers on the map.

3. On long click of the map a custom dialogue opens to allow user to enter the description. Place a marker. Save the location along with the description in the database.

Note: submit java codes, screenshots and _APK_.

MapsActivity.java

```java
package com.example.lab_11_gps_db;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentActivity;

import android.app.Activity;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.database.Cursor;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.widget.EditText;

import com.example.lab_11_gps_db.databinding.ActivityMapsBinding;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;

public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {

    private GoogleMap mMap;
    private ActivityMapsBinding binding;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        binding = ActivityMapsBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());

        SupportMapFragment mapFragment = (SupportMapFragment)
getSupportFragmentManager().findFragmentById(R.id.map);
        mapFragment.getMapAsync(this);
    }

    @Override
    public void onMapReady(@NonNull GoogleMap googleMap) {
        mMap = googleMap;
        mMap.getUiSettings().setZoomControlsEnabled(true);

        DatabaseConnector dbconnector = new DatabaseConnector(MapsActivity.this);
        dbconnector.open();
```

```java
        Cursor result = dbconnector.getAllEntries();
        result.moveToFirst();
        int x = result.getCount();
        for (int i = 1; i<=x;++i){
            int latiIndex = result.getColumnIndex("LATITUDE");
            int longiIndex = result.getColumnIndex("LONGITUDE");
            int descIndex = result.getColumnIndex("DESCRIPTION");

            LatLng sydney =  new LatLng(Float.valueOf(result.getString(latiIndex)),
Float.valueOf(result.getString(longiIndex)));
            String ads = result.getString(descIndex) + "\n";
            mMap.addMarker(new MarkerOptions().position(sydney).title(ads));
            float zoomLevel = 10.0f;
            mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(sydney, zoomLevel));
            result.moveToNext();

        }

        mMap.setOnMapLongClickListener(new GoogleMap.OnMapLongClickListener() {
            @Override
            public void onMapLongClick(@NonNull LatLng latLng) {
                DatabaseConnector db = new DatabaseConnector(MapsActivity.this);
                db.open();
                AlertDialog.Builder builder = new AlertDialog.Builder(MapsActivity.this);
                LayoutInflater inflater = getLayoutInflater();
                View viewInflated = inflater.inflate(R.layout.alert_dialog_text_entry, null);
                EditText et_note = (EditText) viewInflated.findViewById(R.id.et_note);
                builder.setCancelable(true);
                builder.setView(viewInflated);
                builder.setPositiveButton("Done", new DialogInterface.OnClickListener(){
                    @Override
                    public void onClick(DialogInterface dialog, int id){
                        db.insertEntry(String.valueOf(latLng.latitude), String.valueOf(latLng.longitude),
et_note.getText().toString());
                        mMap.addMarker(new
MarkerOptions().position(latLng).title(et_note.getText().toString()));
                        mMap.moveCamera(CameraUpdateFactory.newLatLng(latLng));
                    }

                });

                builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener(){
                    @Override
                    public void onClick(DialogInterface dialog, int id){
                        dialog.cancel();
                    }
                });

                builder.create();
```
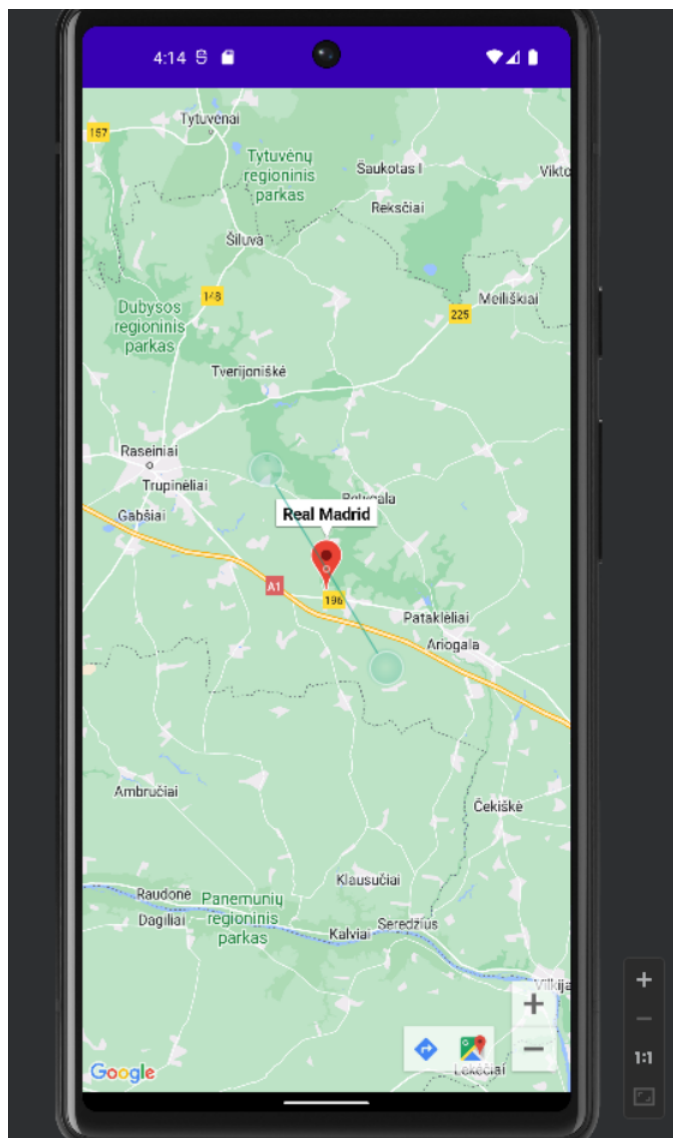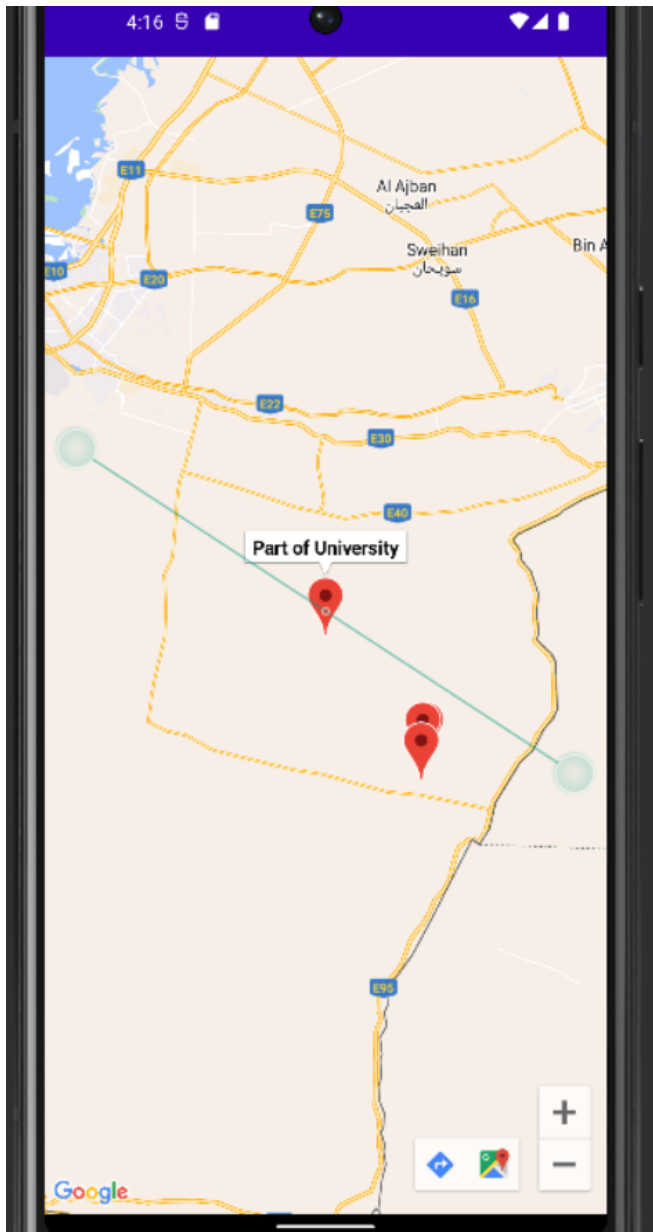
```
        builder.show();


      }
});}
}
```

Screenshots

AUS	
23.5	55.3
University	
23.537934356382728	55.30260253697634
uni	
23.538185792792934	55.30912935733795
Real Madrid	
55.3	23.32
Part of University	
23.766555401059282	55.10743159800768