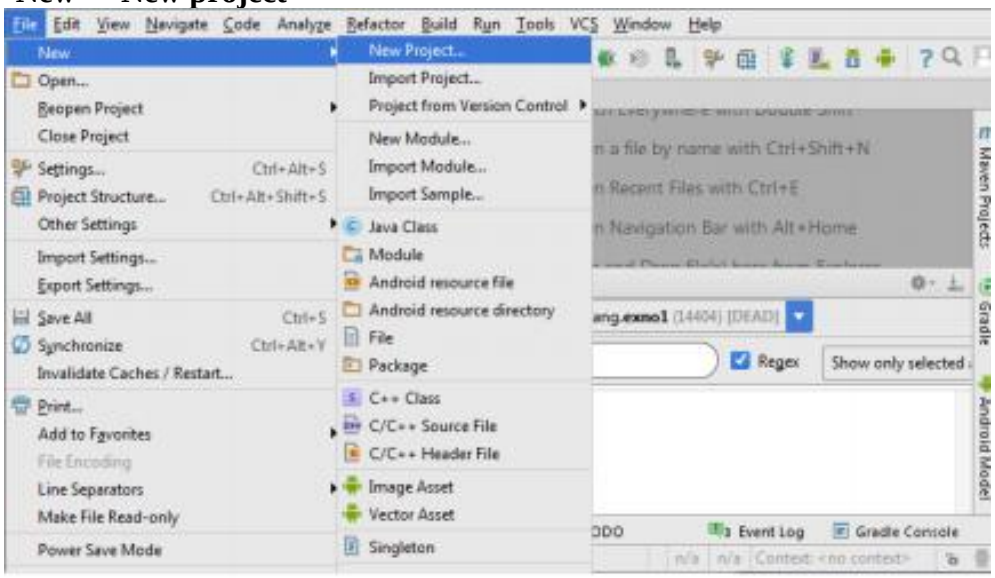
Experiment: 01

Aim: Develop an application that uses GUI components.

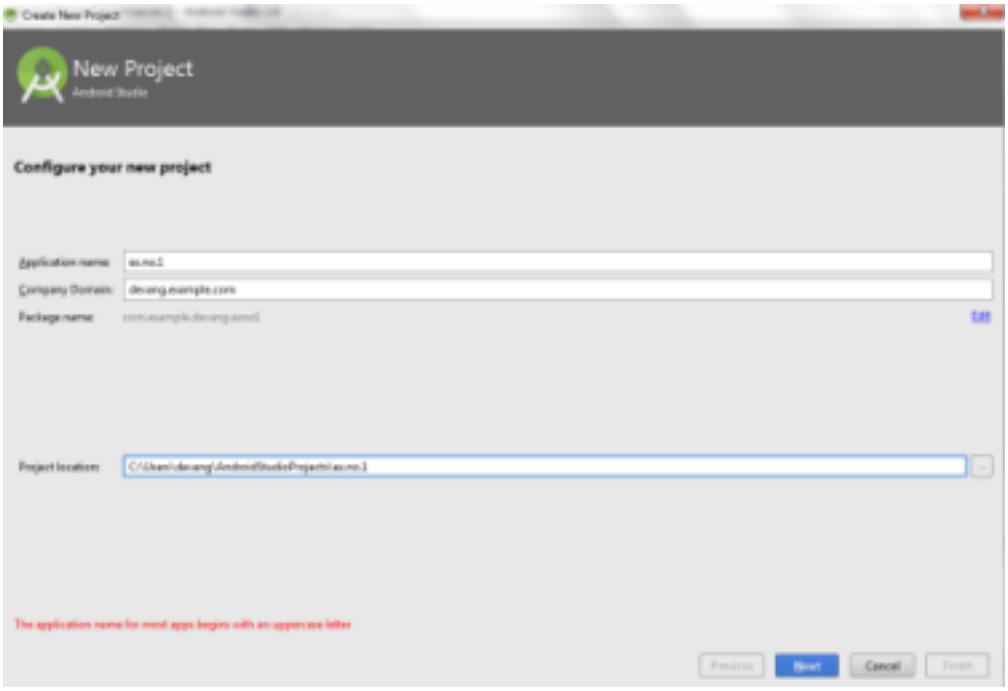
Theory:

1.Open android studio and select new android project

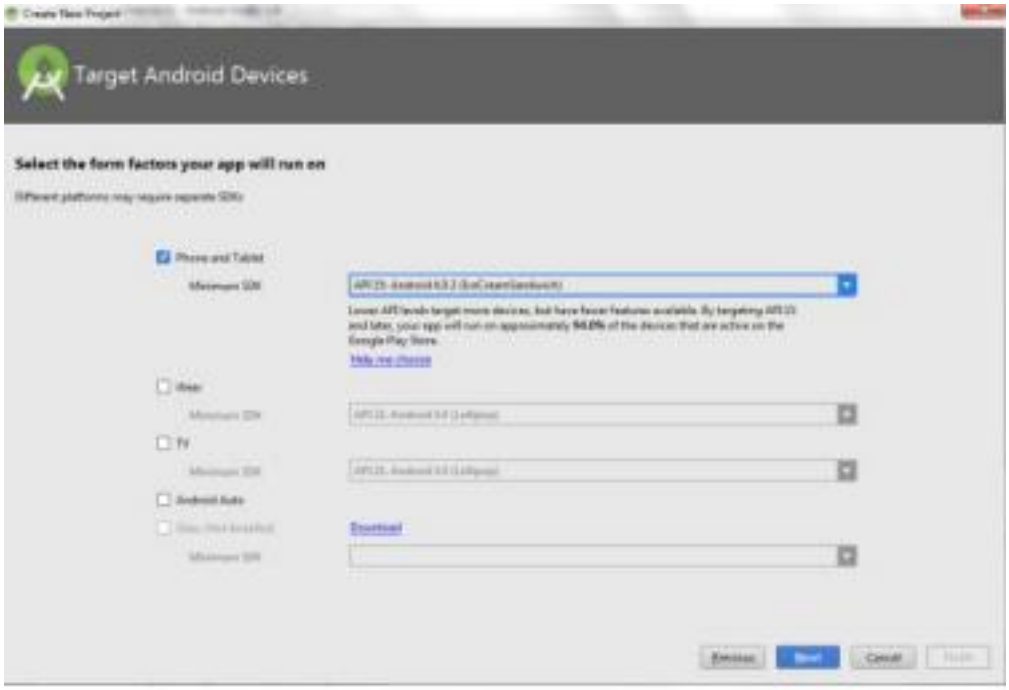
File -> New -> New project



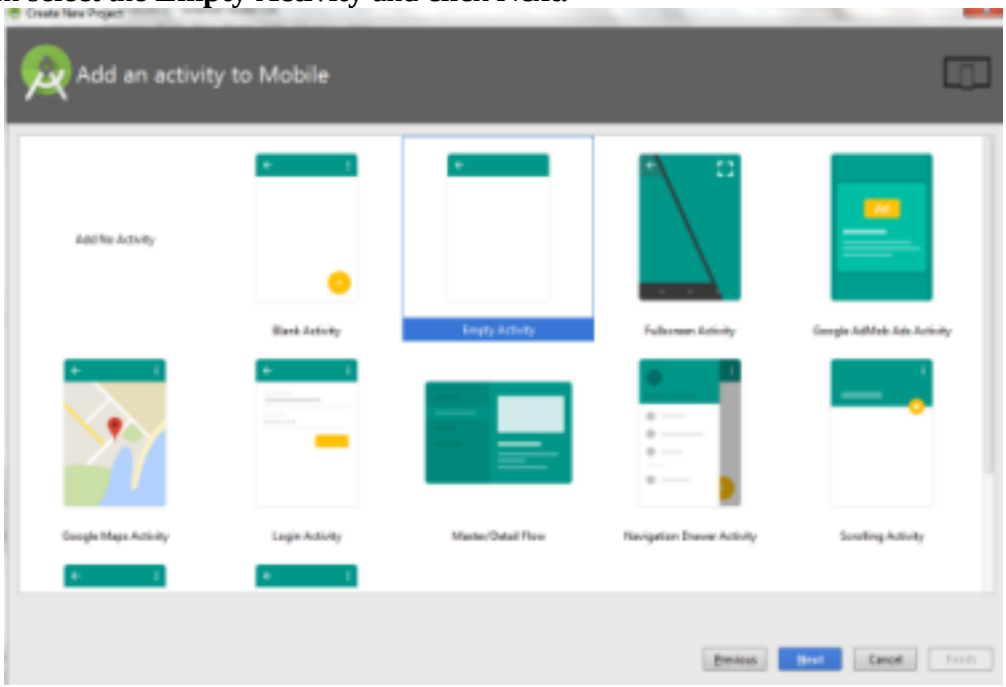
2. Then type the Application name as "**ex.no.1"** and click **Next.**



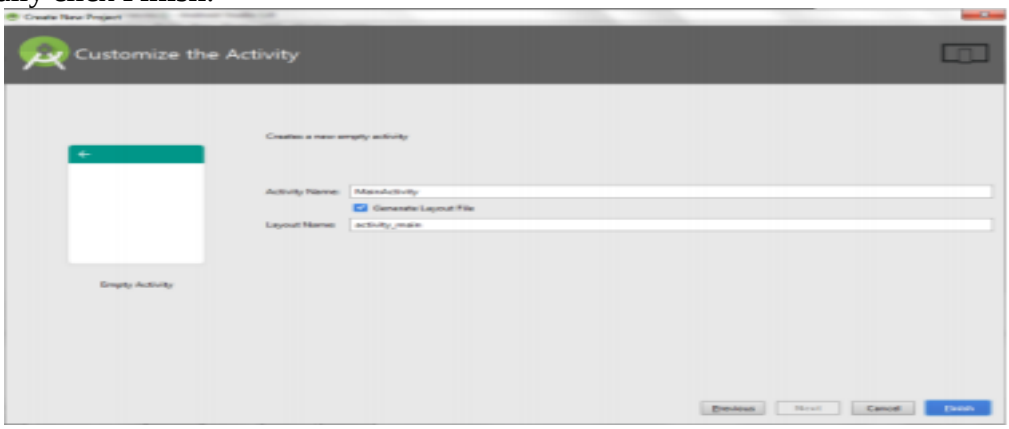
3. Then select the **Minimum SDK** as shown below and click **Next**.



4. Then select the **Empty Activity** and click **Next.**



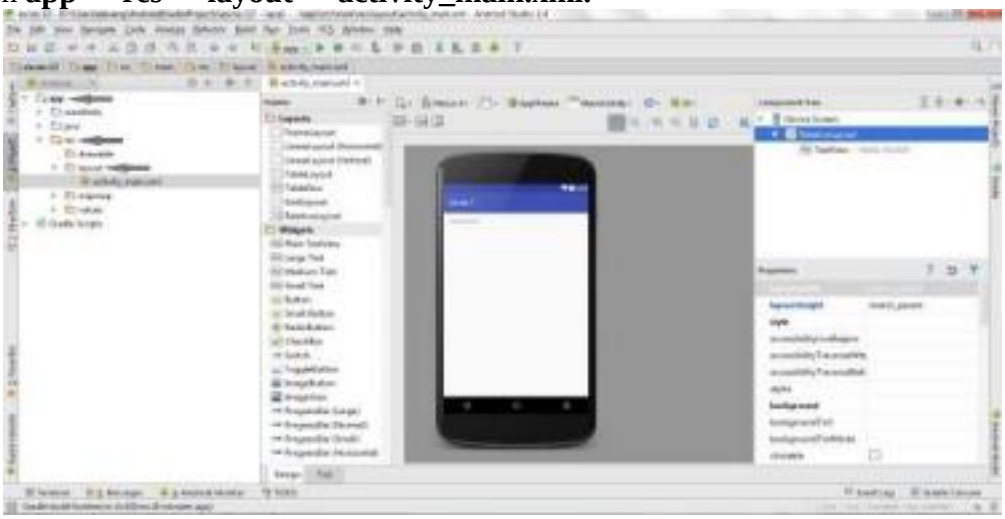
5. Finally click F**inish**.



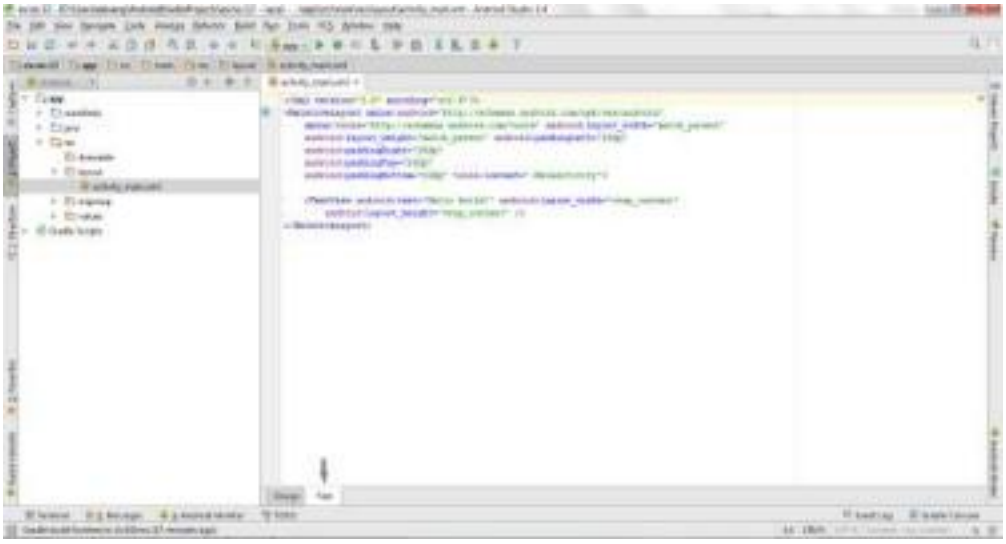
6. It will take some time to build and load the project.
7. After completion it will look as given below.

Designing layout for the Android Application:

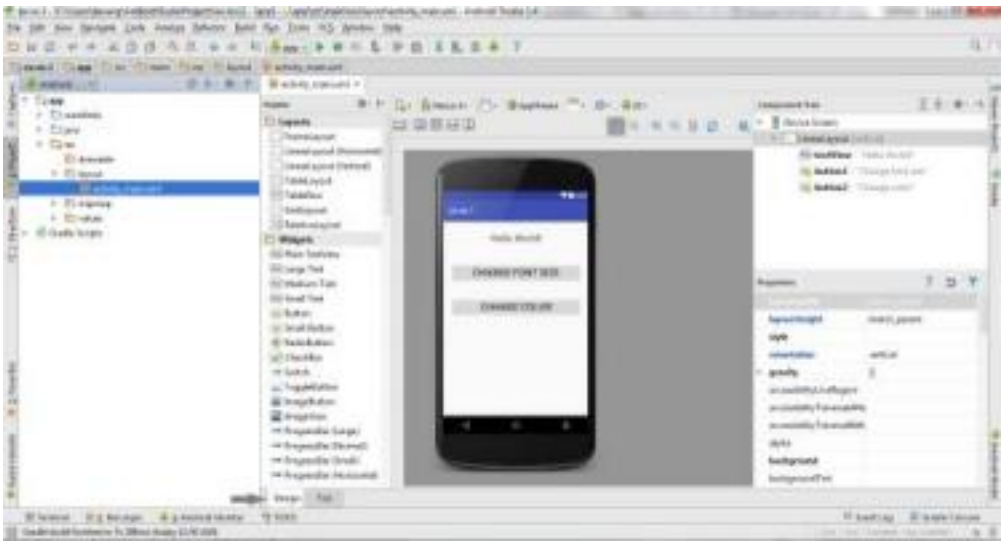
1. Click on **app -> res -> layout -> activity_main.xml.**



2. Now click on **Text** as shown below.



3. Now click on Design and your application will look as given below.



4. So now the designing part is completed.

Implementation:

JAVA:

```
public void updateButtonOnCLickCurrent(View view) {
    locationListener = new LocationListener() {
        @Override
        public void onLocationChanged(@NonNull Location location) {
            try {
                LatLng latLng = new LatLng(location.getLatitude(), location.getLongitude());
                mMap.clear();
                mMap.addMarker(new MarkerOptions().position(latLng).title("Current Position"));
```

```
                mMap.moveCamera(CameraUpdateFactory.newLatLng(latLng));
                databaseReference.child("latitude").push().setValue(location.getLatitude());
                databaseReference.child("longitude").push().setValue(location.getLongitude());
                //Send notification
                notifyNow();
            }
            catch(Exception e){
                e.printStackTrace();}
        }
        @Override
        public void onStatusChanged(String s, int i, Bundle bundle) {}
        @Override
        public void onProviderEnabled(String s) {}
        @Override
        public void onProviderDisabled(String s) {}
    };
    locationManager = (LocationManager) getSystemService(LOCATION_SERVICE);
    if (ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_FINE_LOCATION)
!= PackageManager.PERMISSION_GRANTED && ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
        return;
    }
    try {
        locationManager.requestLocationUpdates(LocationManager.NETWORK_PROVIDER,
MIN_TIME, MIN_DIST, locationListener);
        locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER , MIN_TIME,
MIN_DIST, locationListener);
    }
    catch (Exception e){
        e.printStackTrace();
    }
}
```

XML:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:map="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MapsActivity">
        <Button
            android:id="@+id/button2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="0.5"
            android:onClick="updateButtonOnCLickCurrent"
```

```
        android:text="@string/current" />
</RelativeLayout>
```

Output:

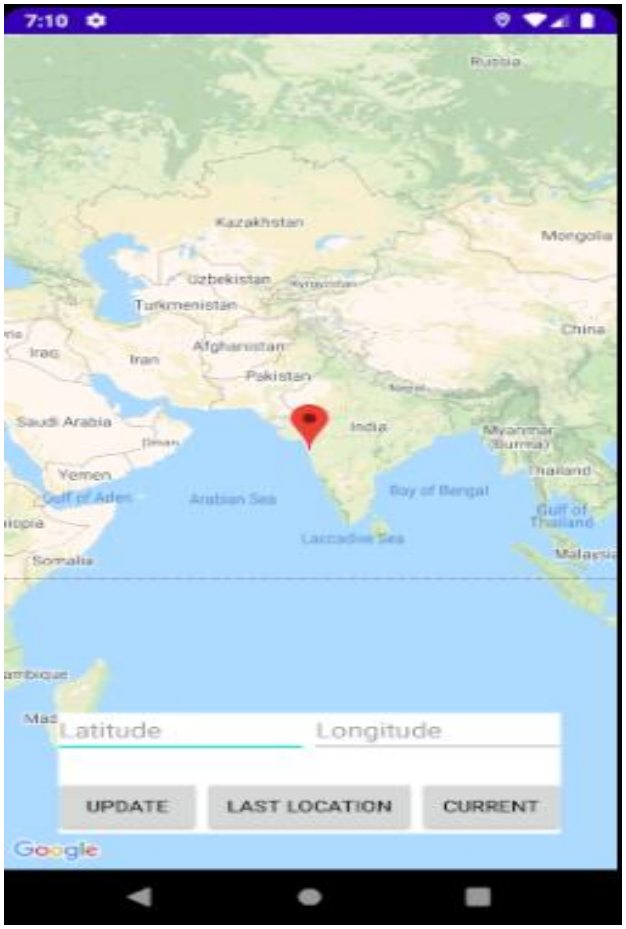


Figure 1: Example of Button

Conclusion:

From this experiment, we learnt how to create GUI components in android. We used android studio where we created an empty activity , in the xml activity , we created a Button with onClick functionality. The onclick function was added to the MainActivity.java file to execute its function. The button was used to calculate the current location of the user.