

ANDROID DEVELOPMENT – S6

LISBON, FEBRUARY 2025

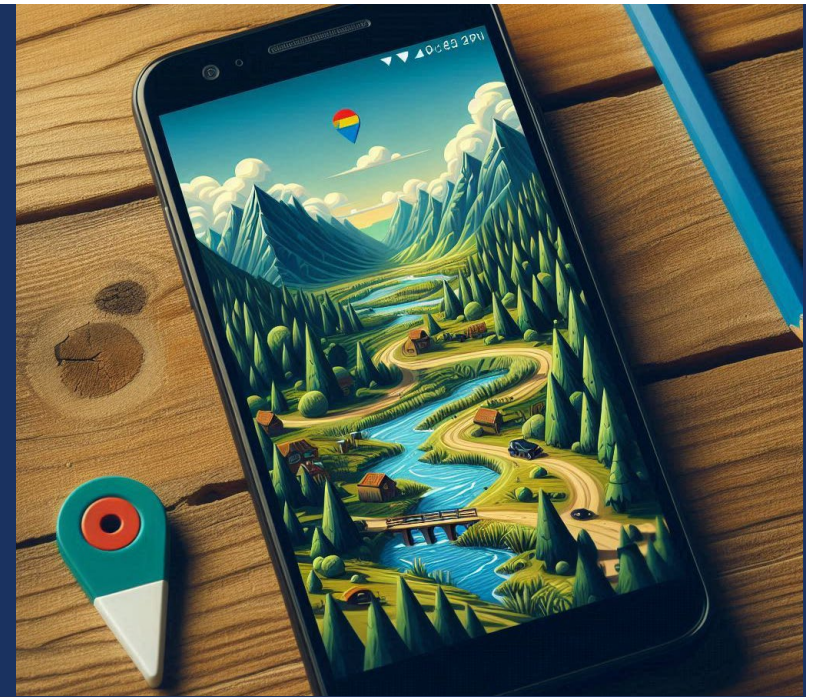
ERASMUS+



ANDROID DEVELOPMENT

SESSION 6

MAPS



MAPS



Set up your Google Cloud and get an API Key



Add Google Maps SDK Dependencies (build.gradle)



Add permissions and metadata (AndroidManifest.xml)



Create a Layout with MapView (XML)



Initialize MapView in Your Activity (Java)

GOOGLE CLOUD (API)



Set up your Google Cloud

- Set up your Google Cloud account
- Create a project
- Enable SDK
- Get an API key



Maps SDK for Android

[Google](#)

Maps for your native Android app.

ATIVAR

Vamos começar na Plataforma Google Maps

Você já pode começar a desenvolver! Aqui está a chave de API que você precisa para sua implementação. A chave de API pode ser referenciada na seção "Credenciais".

Sua chave de API

AIzaSyBsoY5hE-eR586h6sn1T0j_J21_Y1I2mKY



- ☒ Ativar todas as APIs do Google Maps neste projeto ?
- ☒ Criar alertas de orçamento para informar sobre meus gastos e enviar notificações quando eu estiver perto de ultrapassar o crédito mensal de US\$ 200 do Google Maps ?

ACESSAR A PLATAFORMA GOOGLE MAPS

DEPENDENCIES (GRADLE)

Add Google Maps SDK Dependencies

- Update the build.gradle(app) file with the Google Maps SDK dependency

```
dependencies {  
    implementation ("com.google.android.gms:play-services-maps:19.0.0")  
}
```

```
dependencies {  
     implementation (libs.play.services.maps)  
}
```

PERMISSIONS (MANIFEST)

AndroidManifest.xml

- Add permissions and metadata

```
<uses-permission android:name="android.permission.INTERNET"/>
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>

<application>
  <meta-data
    android:name="com.google.android.geo.API_KEY"
    android:value="YOUR_API_KEY"/>
  </application>
```

LAYOUT

Create a Layout with MapView (XML)

```
<com.google.android.gms.maps.MapView  
    android:id="@+id/mapView"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"/>
```

CODE

Initialize MapView in Your Activity (Java)

- In MainActivity.java, initialize the MapView and handle its lifecycle methods

```
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import com.google.android.gms.maps.MapView;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.MapView;

public class MainActivity extends AppCompatActivity implements OnMapReadyCallback {
    private MapView mapView; 8 usages
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        mapView = findViewById(R.id.mapView);
        mapView.onCreate(savedInstanceState);
        mapView.getMapAsync(callback: this);
    }
}
```

```
@Override no usages
public void onMapReady(GoogleMap googleMap) {
    MapsInitializer.initialize(context: this);
    // Customize your map here
}

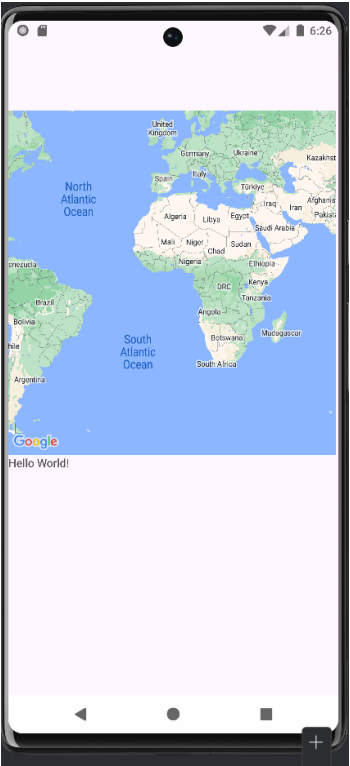
@Override
protected void onResume() {
    super.onResume();
    mapView.onResume();
}

@Override
protected void onPause() {
    super.onPause();
    mapView.onPause();
}

@Override
protected void onDestroy() {
    super.onDestroy();
    mapView.onDestroy();
}

@Override 3 usages
public void onLowMemory() {
    super.onLowMemory();
    mapView.onLowMemory();
}

@Override
protected void onSaveInstanceState(Bundle outState) {
    super.onSaveInstanceState(outState);
    mapView.onSaveInstanceState(outState);
}
}
```



CURRENT LOCATION

Get the current location: Use the FusedLocationProviderClient to get the device's current location.

Update the map: Once you have the location, update the map to show the current location with a marker.

```
public void onMapReady(GoogleMap map) {  
    googleMap = map;  
    getDeviceLocation();  
}
```

```
private void getDeviceLocation() { 2 usages  
    fusedLocationClient.getLastLocation()  
        .addOnSuccessListener(activity: this, new OnSuccessListener<Location>() {  
        @Override no usages  
        public void onSuccess(Location location) {  
            if (location != null) {  
                LatLng currentLocation = new LatLng(location.getLatitude(), location.getLongitude());  
                googleMap.moveCamera(CameraUpdateFactory.newLatLngZoom(currentLocation, zoom: 15));  
                googleMap.addMarker(new MarkerOptions().position(currentLocation).title("Current Location"));  
            }  
        }  
    });  
}
```

MARKER

```
public void onMapReady(GoogleMap map) {  
    googleMap = map;  
  
    LatLng lisboa = new LatLng(latitude: 38.742321, longitude: -9.132716);  
    LatLng lisboa2 = new LatLng(latitude: 38.743153, longitude: -9.133683);  
  
    map.addMarker(new MarkerOptions().position(lisboa).title("Lisboa!!"));  
    map.addMarker(new MarkerOptions().position(lisboa2).title("Lisboa!!"));  
    map.moveCamera(CameraUpdateFactory.newLatLngZoom(lisboa, zoom: 16));  
}
```





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THANK YOU

OBRIGADO

SEE YOU TOMORROW!