

FUNDAÇÃO INSTITUTO DE EDUCAÇÃO DE BARUERI

Instituto Técnico de Barueri “Brasília Flores de Azevedo”

Tecnologias Emergentes

Tutorial Geolocalização

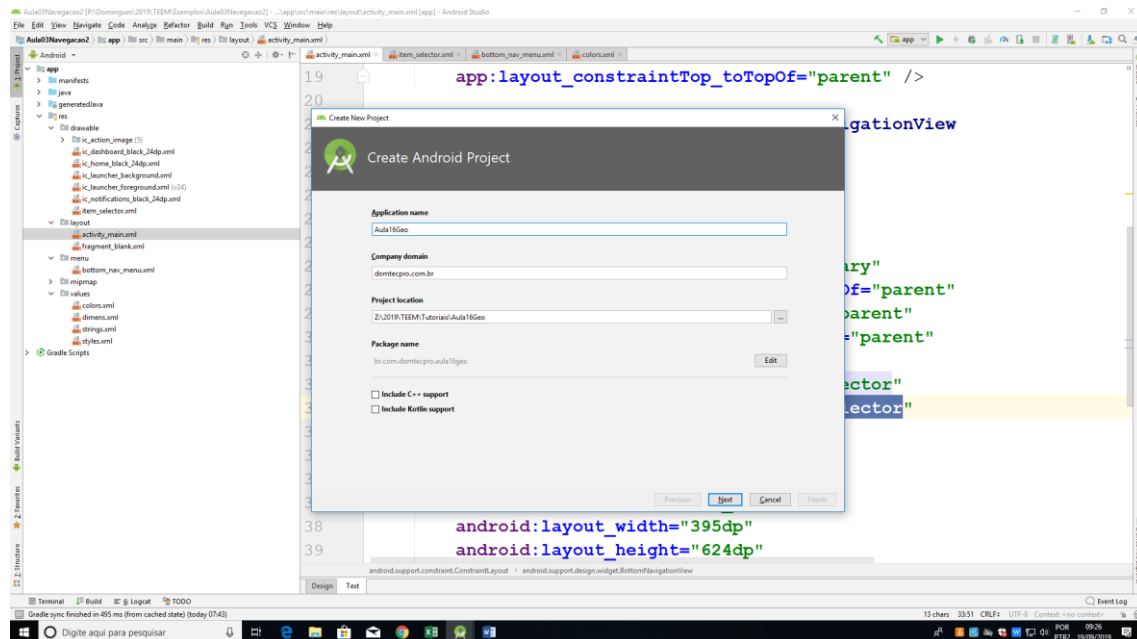
versão 1.0

Prof. Adriano Domingues

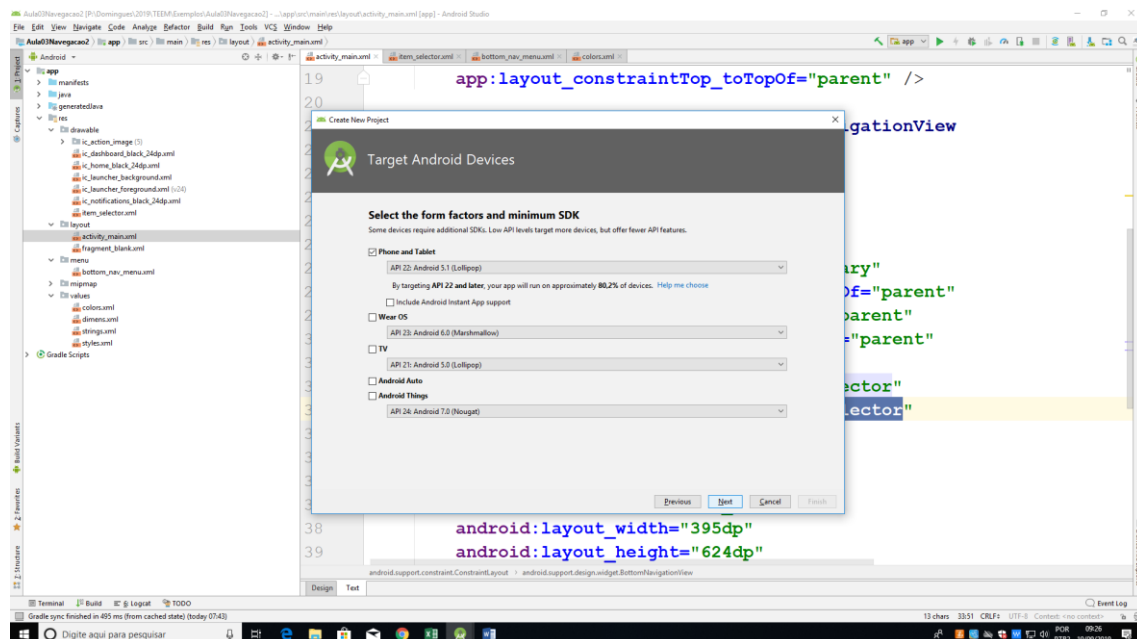
2019

AULA 16 – Geolocalização

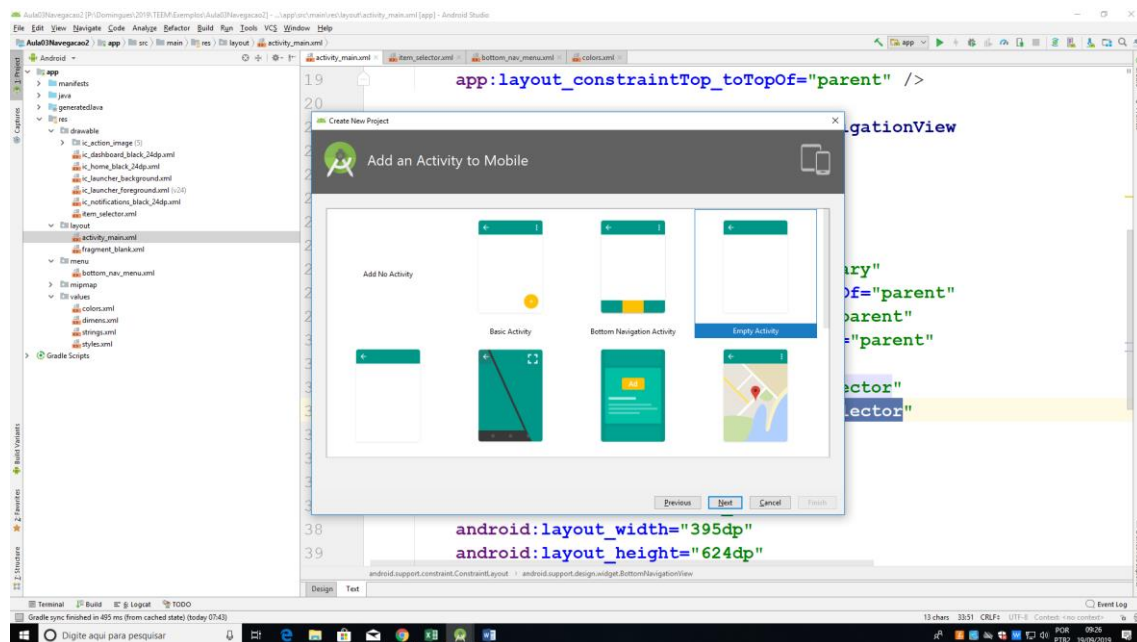
Crie o projeto chamando-o de Aula16Geo:



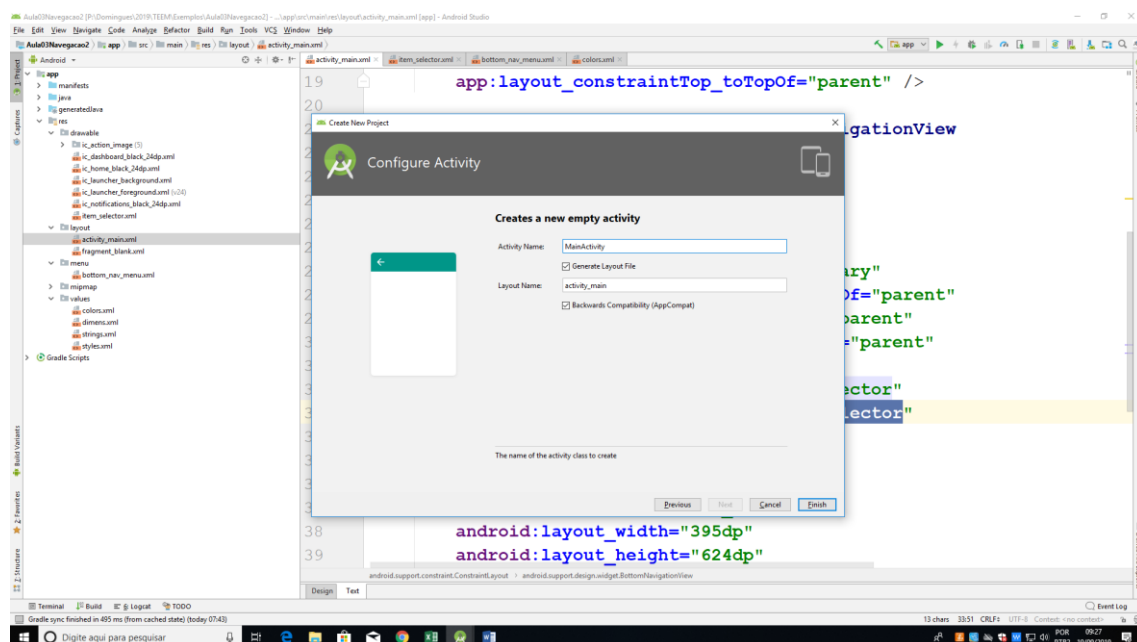
API 22:



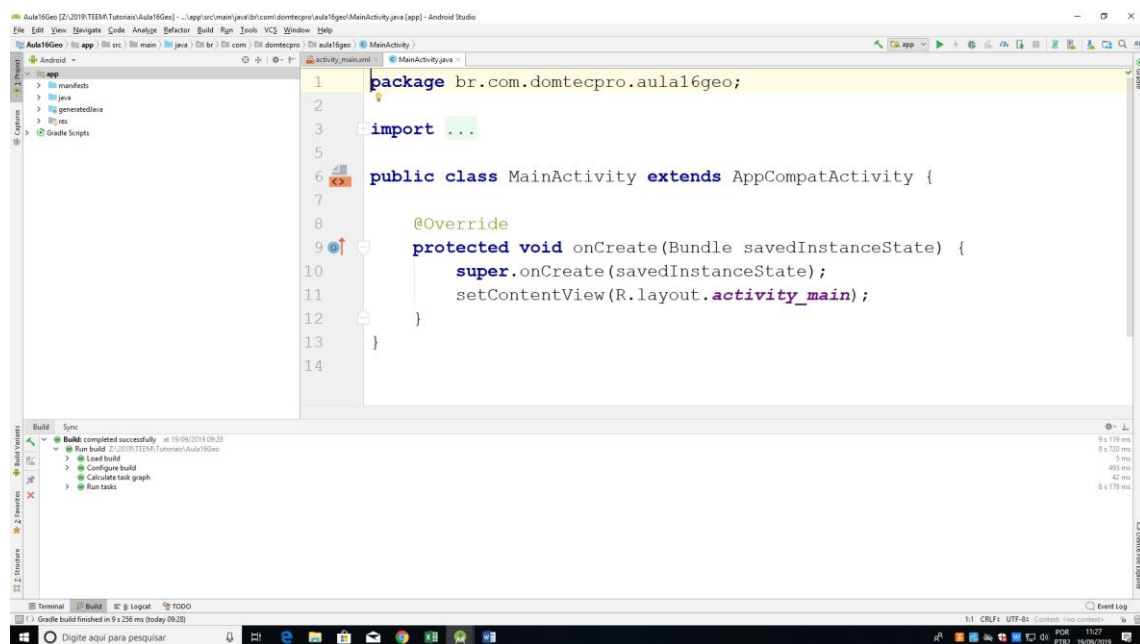
Empty Activity:



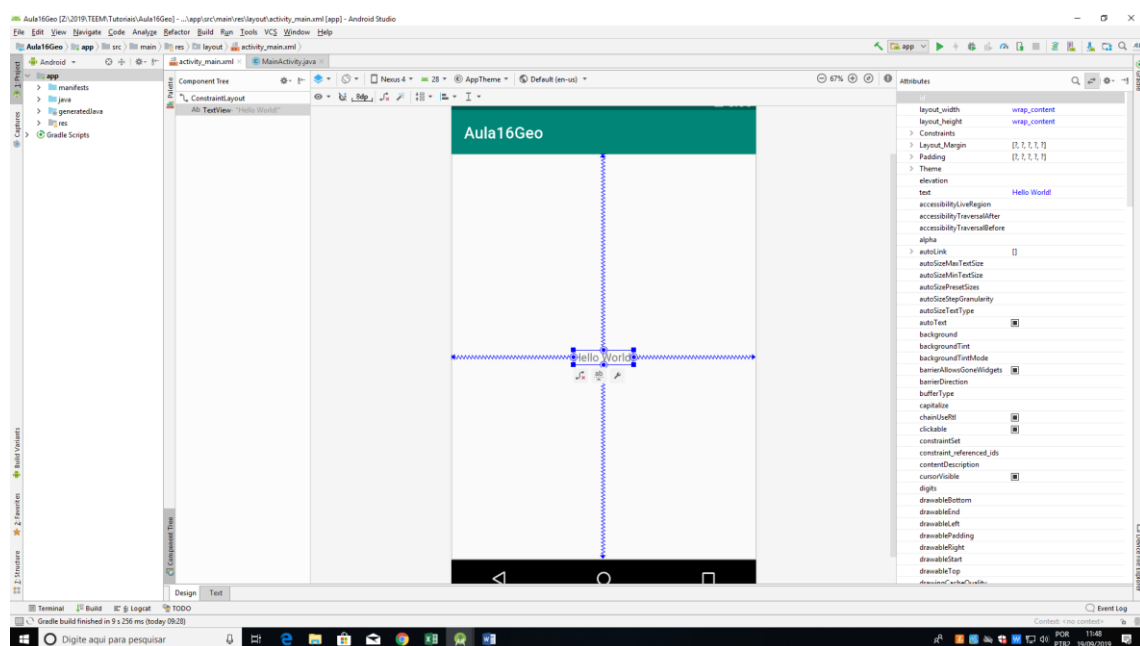
Clique em FINISH na última tela:



Tela inicial após carregamento:



Abra o layout activity_main.xml



Altere as propriedades do objeto TextView:

id: textView

background: #010014

textColor: #FFFFFF

textAlignment: center

layout_width: match_constraint

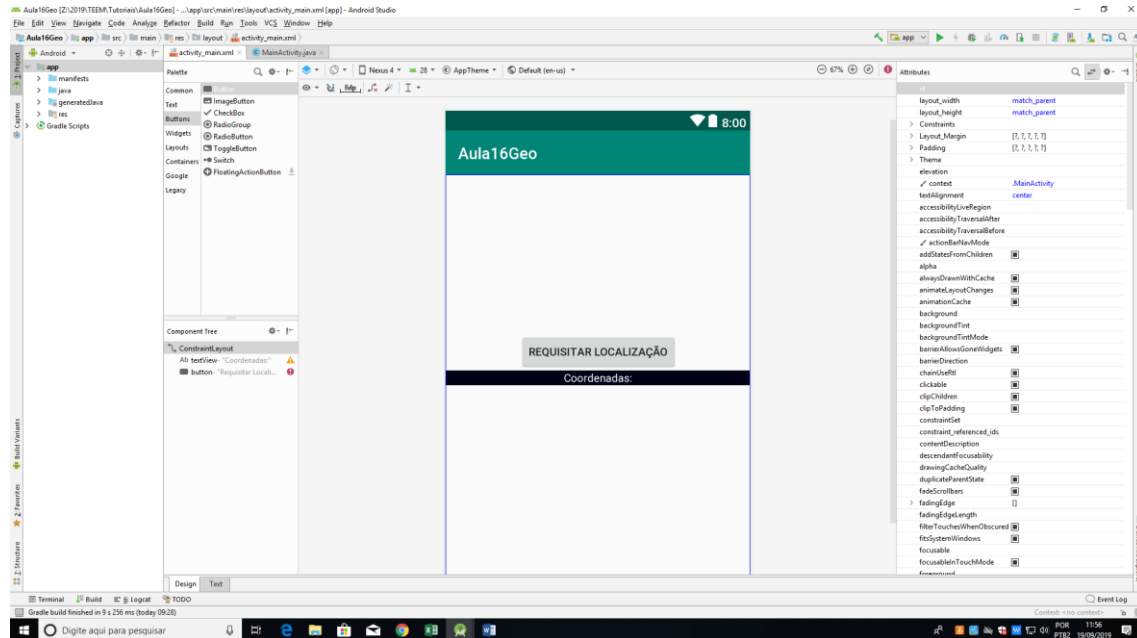
text: Cordenadas:

E insira um botão (Button) com as propriedades:

id: button

text: Requisitar Localização

O layout ficará assim:



E o XML da janela ficará assim após o clique no ícone ***Infer Constraints***:

```
<?xml version="1.0" encoding="utf-8" ?>
<android.support.constraint.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:textAlignment="center"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:background="#010014"
        android:text="Coordenadas:"
        android:textAlignment="center"
        android:textColor="#FFFFFF"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

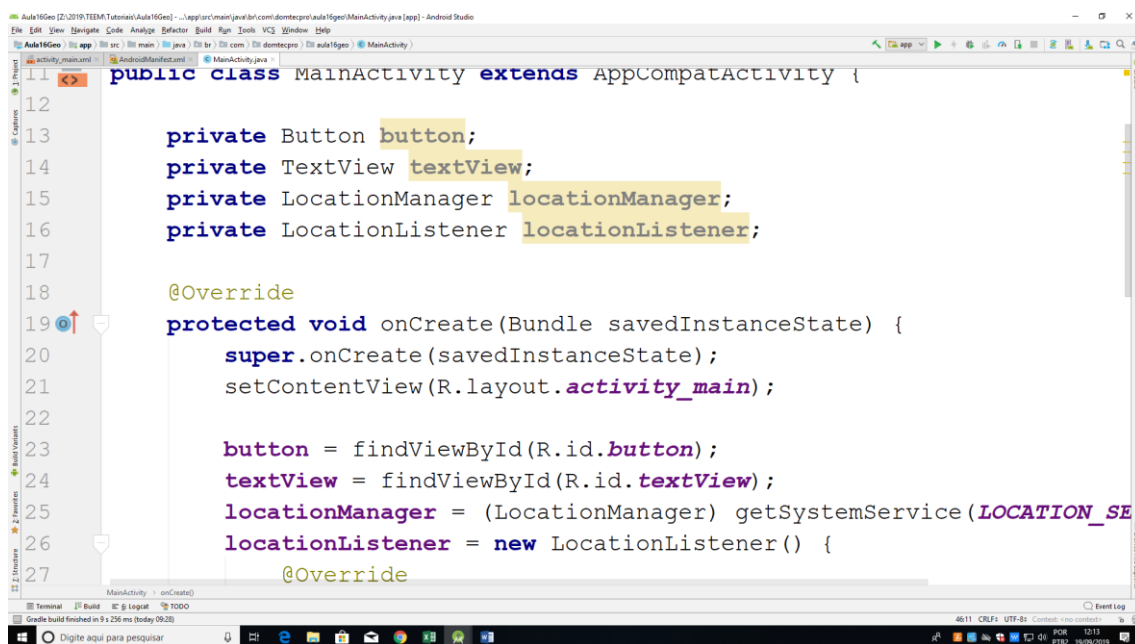
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Requisitar Localização"
        app:layout_constraintBottom_toTopOf="@+id/textView"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent" />

</android.support.constraint.ConstraintLayout>
```

Abra agora o AndroidManifest.xml e adicione as permissões de acesso à Internet e Localização:

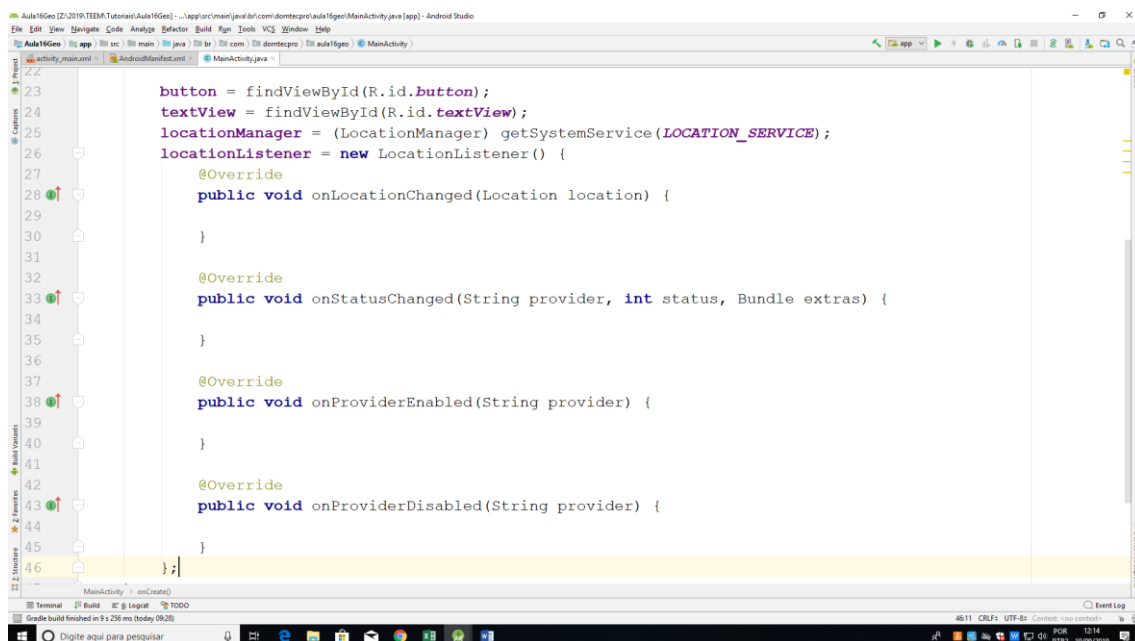
```
<uses-permission android:name="android.permission.INTERNET"/>
<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
```

Entre no MainActivity e digite o código abaixo:



```
11 public class MainActivity extends AppCompatActivity {
12
13     private Button button;
14     private TextView textView;
15     private LocationManager locationManager;
16     private LocationListener locationListener;
17
18     @Override
19     protected void onCreate(Bundle savedInstanceState) {
20         super.onCreate(savedInstanceState);
21         setContentView(R.layout.activity_main);
22
23         button = findViewById(R.id.button);
24         textView = findViewById(R.id.textView);
25         locationManager = (LocationManager) getSystemService(LOCATION_SERVICE);
26         locationListener = new LocationListener() {
27             @Override
```

Quando terminar de digitar a linha 26, os métodos de sobrecarga do construtor Location Listener serão carregados automaticamente:



```
23         button = findViewById(R.id.button);
24         textView = findViewById(R.id.textView);
25         locationManager = (LocationManager) getSystemService(LOCATION_SERVICE);
26         locationListener = new LocationListener() {
27             @Override
28             public void onLocationChanged(Location location) {
29
30             }
31
32             @Override
33             public void onStatusChanged(String provider, int status, Bundle extras) {
34
35             }
36
37             @Override
38             public void onProviderEnabled(String provider) {
39
40             }
41
42             @Override
43             public void onProviderDisabled(String provider) {
44
45             }
46         };
```

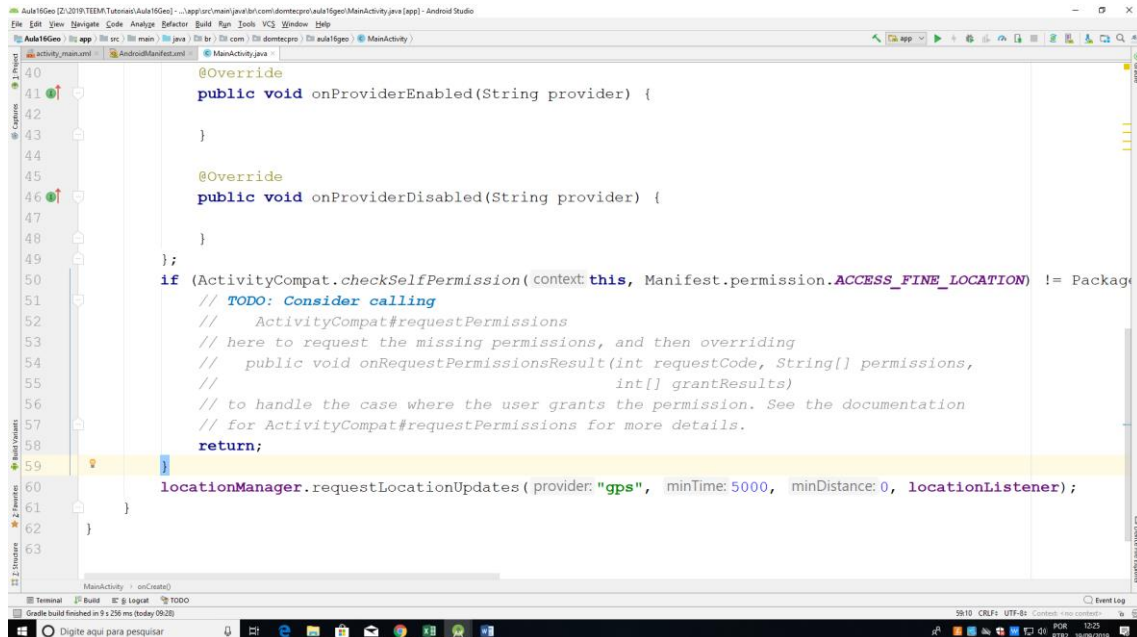
Não esqueça de incluir o ponto e vírgula (;) no final da linha 46, na chave (}

Na linha 47 digite:

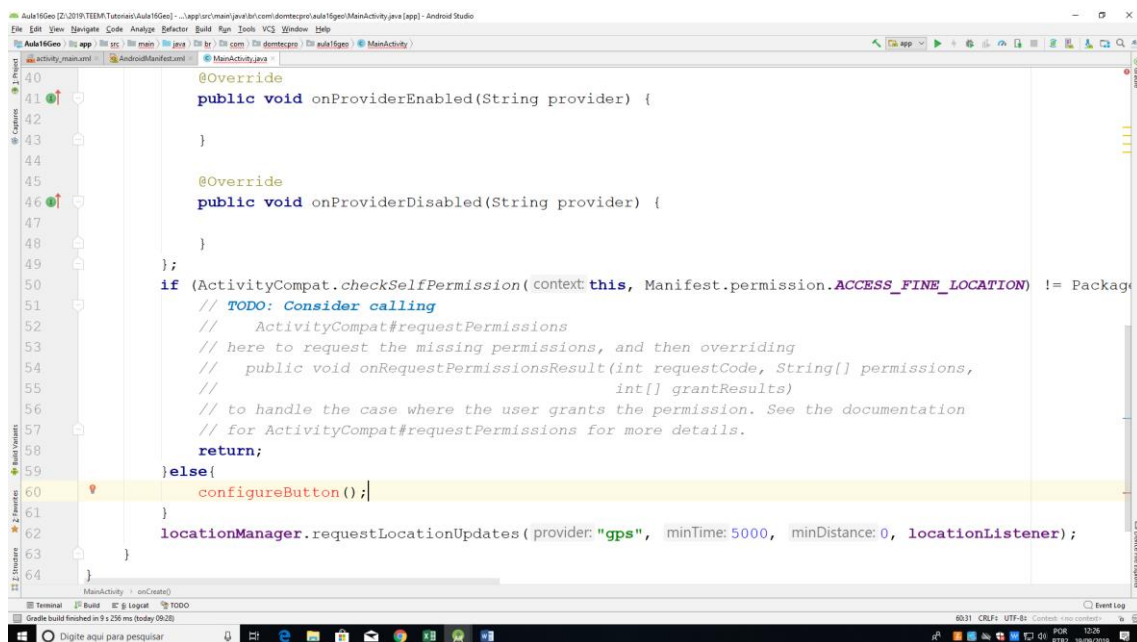
```
locationManager.requestLocationUpdates("gps", 5000, 0,
locationListener);
```

Quando a linha vermelha abaixo dessa linha aparecer, clique na lâmpada vermelha e escolha: **Add permission check**

O código ficará como abaixo:

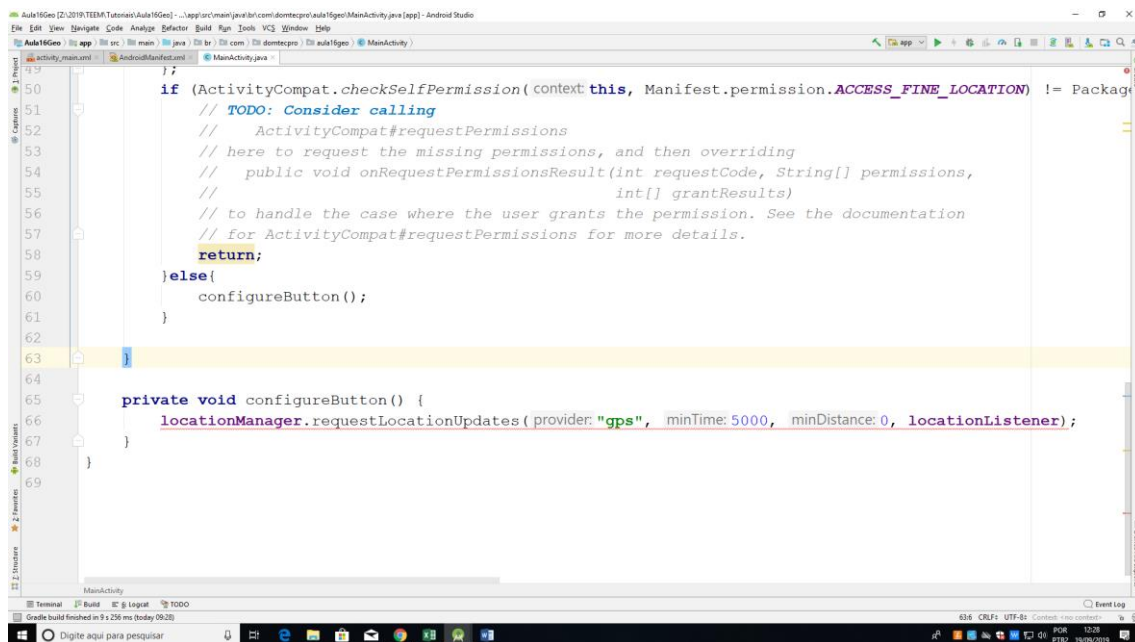


Na linha 59 vamos adicionar o **else**:



Clique no método que esta em vermelho, clique na lâmpada vermelha à esquerda e clique em Create method...

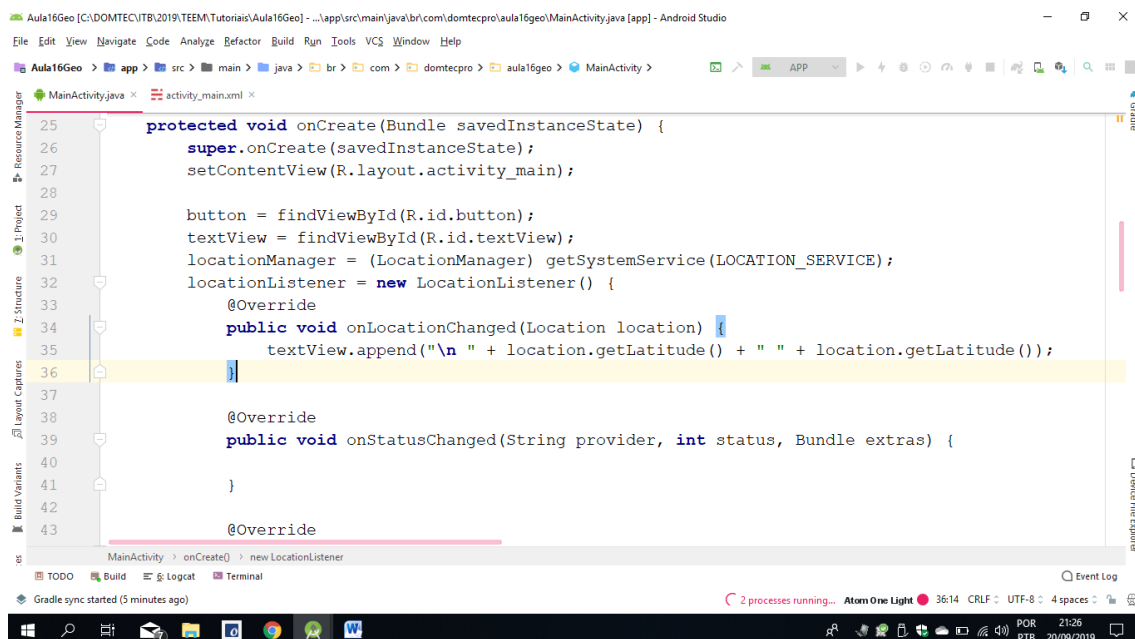
Passando o código da linha 62 para dentro do método configureButton():



Na linha 35 vamos inserir a linha:

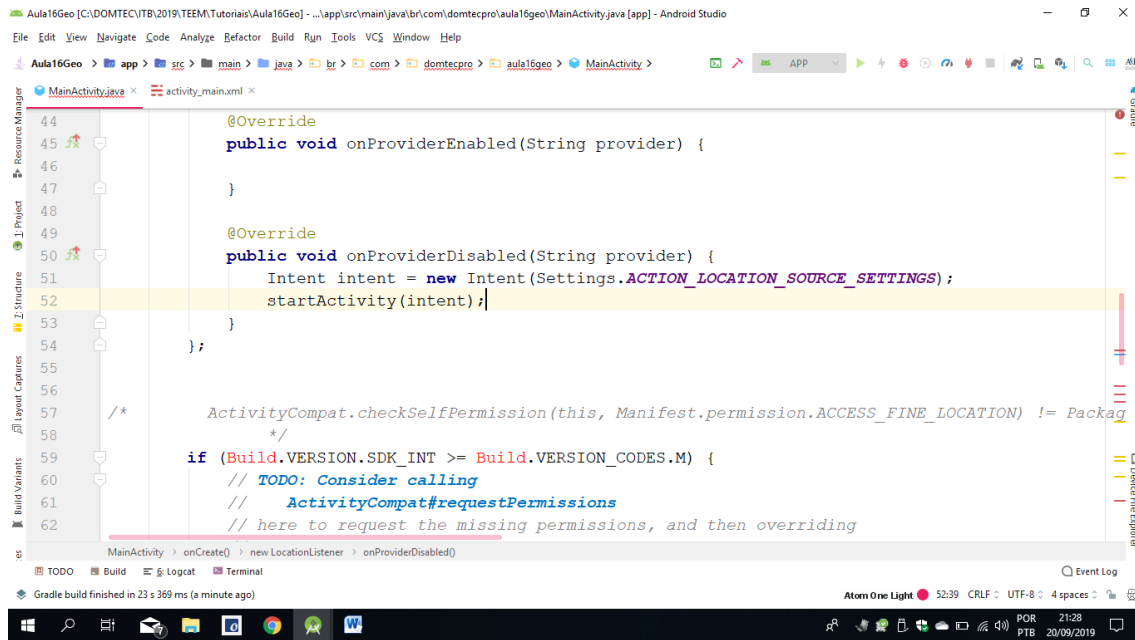
```
textView.append("\n " + location.getLatitude() + " " +
location.getLatitude());
```

Ficando o código como abaixo:



Na linha 51 dentro do método onProviderDisabled() vamos inserir o código:

```
Intent intent = new Intent(Settings.ACTION_LOCATION_SOURCE_SETTINGS);
startActivity(intent);
```



O if da linha 59 foi alterado como abaixo:

```
if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
    // TODO: Consider calling
    // ActivityCompat#requestPermissions
    // here to request the missing permissions, and then overriding
    // public void onRequestPermissionsResult(int requestCode,
    String[] permissions,
    //                                     int[] grantResults)
    // to handle the case where the user grants the permission. See
    the documentation
    // for ActivityCompat#requestPermissions for more details.

    if (checkSelfPermission(Manifest.permission.ACCESS_FINE_LOCATION)
    !=
        PackageManager.PERMISSION_GRANTED &&
        checkSelfPermission(Manifest.permission.ACCESS_COARSE_LOCATION) !=
            PackageManager.PERMISSION_GRANTED) {
        requestPermissions(new String[]{
            Manifest.permission.ACCESS_FINE_LOCATION,
            Manifest.permission.ACCESS_COARSE_LOCATION,
            Manifest.permission.INTERNET
        }, 10);
        return;
    }
} else {
    configureButton();
}
```

Fora do método onCreate() vamos inserir os método onRequestPermissionsResult abaixo:

```
@Override
public void onRequestPermissionsResult(int requestCode, String[]
permissions, int[] grantResults) {
    switch (requestCode) {
        case 10:
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED)
                configureButton();
            return;
        }
    }
```

E na linha 93 vamos alterar o método configureButton() como abaixo:

```
private void configureButton() {
    button.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            try {
                locationManager.requestLocationUpdates("gps", 5000, 0,
locationListener);
            } catch (SecurityException e) {
                e.printStackTrace();
            }
        }
    });
}
```

Este é o código completo do MainActivity.class, teste e verifique que as coordenadas são adicionadas no TextView:

```
package br.com.domtecpa.aula16geo;
import android.Manifest;
import android.content.pm.PackageManager;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Build;
import android.provider.Settings;
import android.support.v4.app.ActivityCompat;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.content.Context;
import android.content.Intent;

public class MainActivity extends AppCompatActivity {
    private Button button;
    private TextView textView;
    private LocationManager locationManager;
    private LocationListener locationListener;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

```

button = findViewById(R.id.button);
textView = findViewById(R.id.textView);
locationManager = (LocationManager)
getSystemService(LOCATION_SERVICE);
locationListener = new LocationListener() {
    @Override
    public void onLocationChanged(Location location) {
        textView.append("\n " + location.getLatitude() + " " +
location.getLatitude());
    }

    @Override
    public void onStatusChanged(String provider, int status, Bundle
extras) {

    }

    @Override
    public void onProviderEnabled(String provider) {

    }

    @Override
    public void onProviderDisabled(String provider) {
        Intent intent = new
Intent(Settings.ACTION_LOCATION_SOURCE_SETTINGS);
        startActivity(intent);
    }
};

if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
    // TODO: Consider calling
    // ActivityCompat#requestPermissions
    // here to request the missing permissions, and then
    overriding
    // public void onRequestPermissionsResult(int requestCode,
String[] permissions,
    // int[]
grantResults)
    // to handle the case where the user grants the permission.
    See the documentation
    // for ActivityCompat#requestPermissions for more details.

    if
(checkSelfPermission(Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED &&
checkSelfPermission(Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
        requestPermissions(new String[]{
            Manifest.permission.ACCESS_FINE_LOCATION,
            Manifest.permission.ACCESS_COARSE_LOCATION,
            Manifest.permission.INTERNET
        }, 10);
        return;
    }
} else {
    configureButton();
}
}

```

```
@Override
public void onRequestPermissionsResult(int requestCode, String[]
permissions, int[] grantResults) {
    switch (requestCode) {
        case 10:
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED)
                configureButton();
            return;
        }
    }

    private void configureButton() {
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                try {
                    locationManager.requestLocationUpdates("gps",
5000, 0, locationListener);
                } catch (SecurityException e) {
                    e.printStackTrace();
                }
            }
        });
    }
}
```

Referência Bibliográfica

- [1] <http://developer.android.com>. Acessado em 28/04/2019.
- [2] https://www.youtube.com/watch?v=QNb_3QKSmMk. Acessado em 19/09/2019.
- [3] <https://imasters.com.br/android/requisitando-localizacao-usuario-da-forma-correta-no-android>. Acessado em 20/09/2019.