

2º D.A.M.

Programación Multimedia y Dispositivos Móviles

Step by step - App_Eramus+

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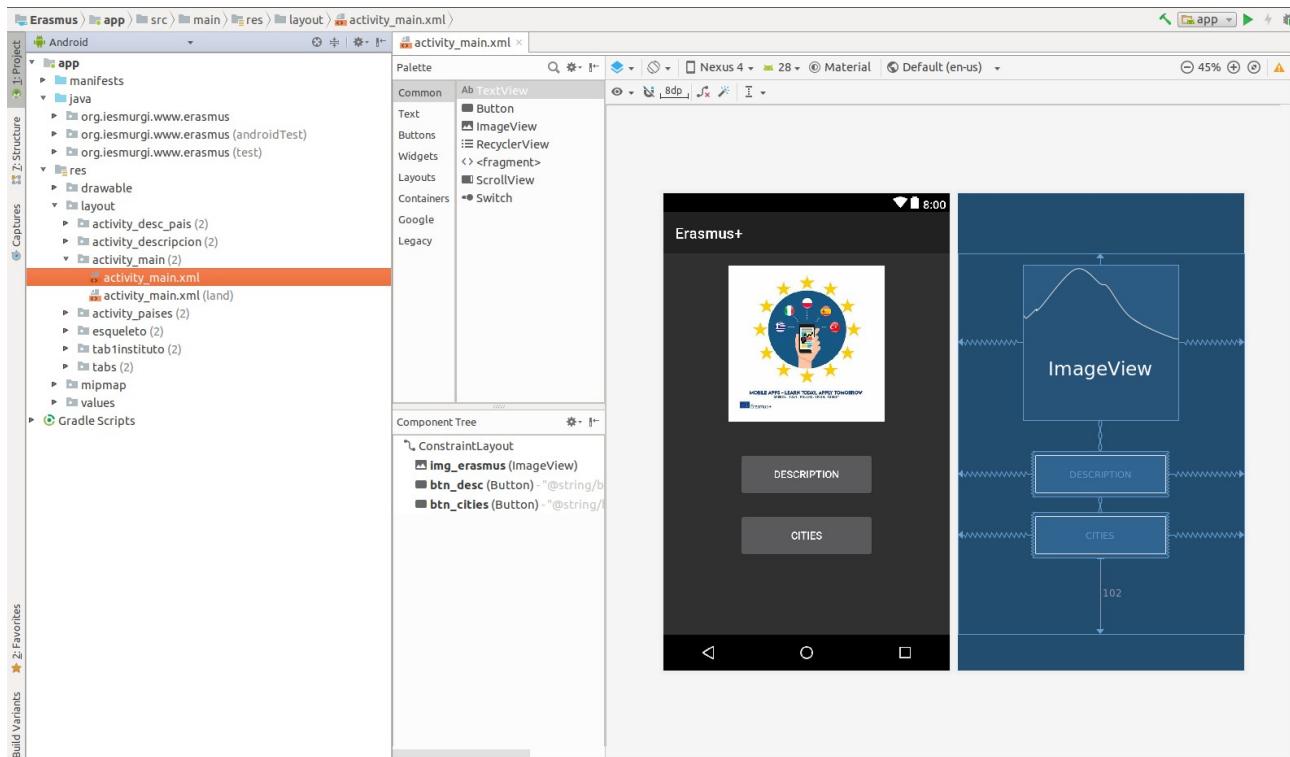
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Start menu

We are going to create a new project (Erasmus+) with an 'Empty Activity' where we will have a menu with 2 buttons: the description of the project button and the cities list button.

1. First of all we design the activity with the project logo and the buttons:



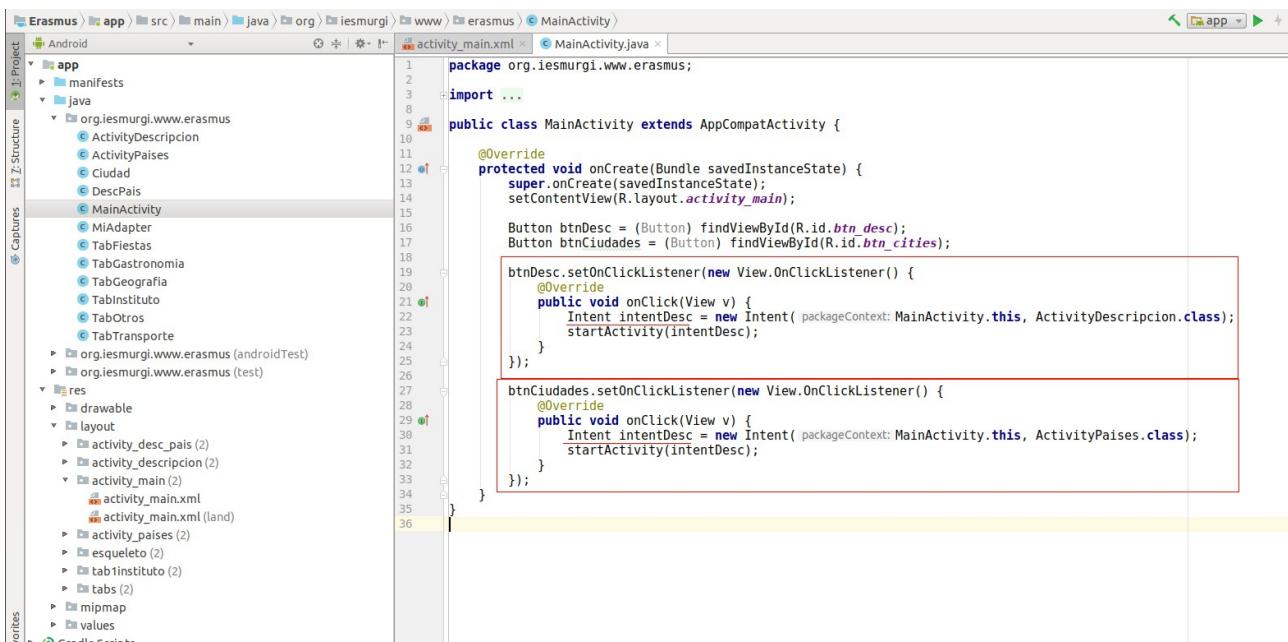
```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    tools:layout_editor_absoluteY="81dp">

    <ImageView
        android:id="@+id/img_erasmus"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:layout_marginBottom="40dp"
        app:layout_constraintBottom_toTopOf="@+id/btn_desc"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:srcCompat="@drawable/logoerasmus" />

    <Button
        android:id="@+id/btn_desc"
        android:layout_width="182dp"
        android:layout_height="0dp"
        android:layout_marginBottom="20dp"
        android:text="Description"
        app:layout_constraintBottom_toTopOf="@+id/btn_cities"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/img_erasmus" />

    <Button
        android:id="@+id/btn_cities"
        android:layout_width="182dp"
        android:layout_height="0dp"
        android:layout_marginBottom="102dp"
        android:text="Cities"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_desc" />
</android.support.constraint.ConstraintLayout>
```

2. We add listeners to the buttons to navigate to another activities.



```
Erasmus > app > src > main > java > org > iesmurgi > www > erasmus > MainActivity
```

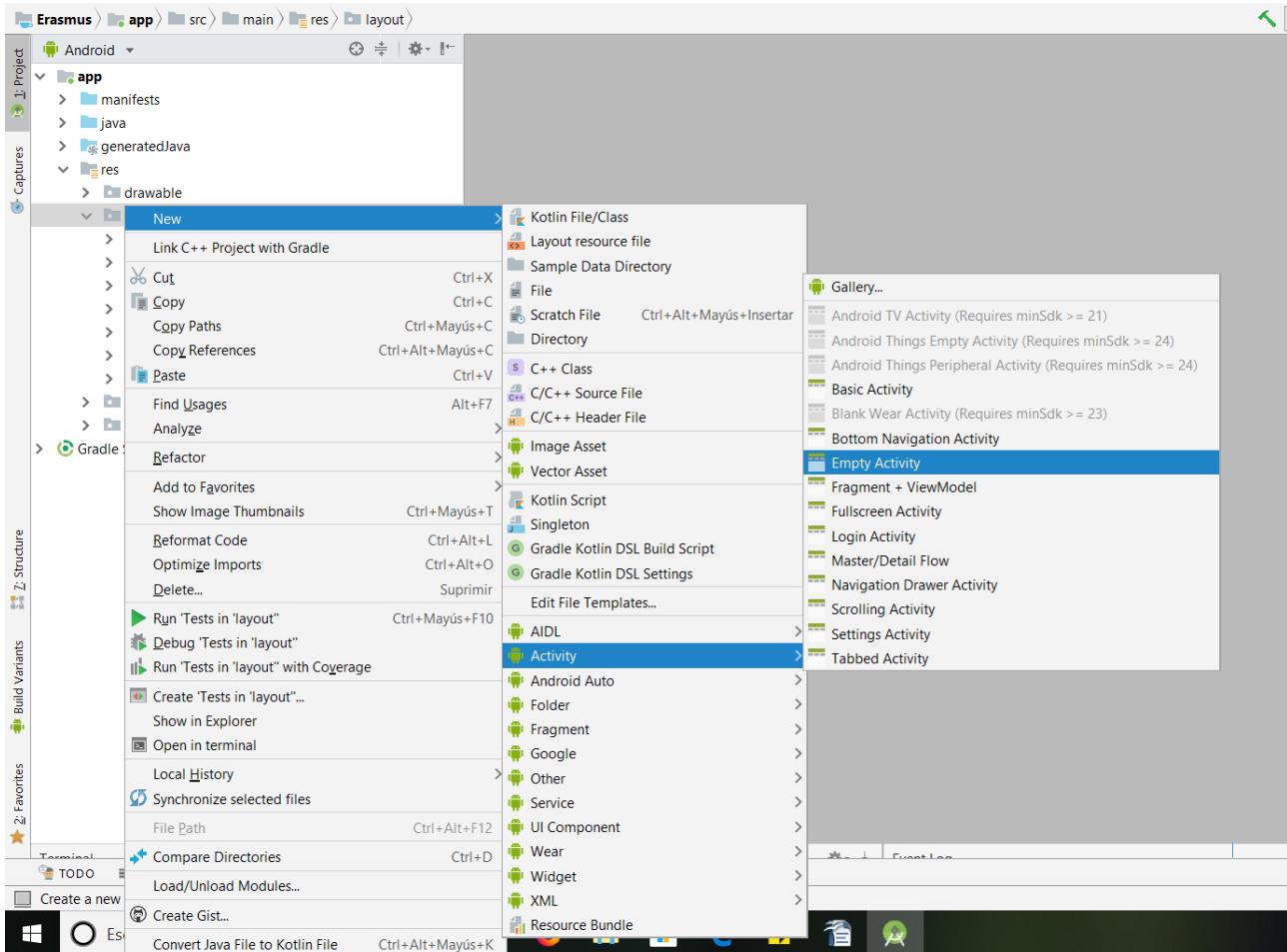
```
1 package org.iesmurgi.www.erasmus;
2
3 import ...
4
5 public class MainActivity extends AppCompatActivity {
6
7     @Override
8     protected void onCreate(Bundle savedInstanceState) {
9         super.onCreate(savedInstanceState);
10        setContentView(R.layout.activity_main);
11
12        Button btnDesc = (Button) findViewById(R.id.btn_desc);
13        Button btnCiudades = (Button) findViewById(R.id.btn_ciudades);
14
15        btnDesc.setOnClickListener(new View.OnClickListener() {
16            @Override
17            public void onClick(View v) {
18                Intent intentDesc = new Intent(getApplicationContext(), ActivityDescripcion.class);
19                startActivity(intentDesc);
20            }
21        });
22
23        btnCiudades.setOnClickListener(new View.OnClickListener() {
24            @Override
25            public void onClick(View v) {
26                Intent intentDesc = new Intent(getApplicationContext(), ActivityPaises.class);
27                startActivity(intentDesc);
28            }
29        });
30
31    }
32
33}
34
35}
36}
```

To navigate to another activity, it is used an ‘intent’ object.

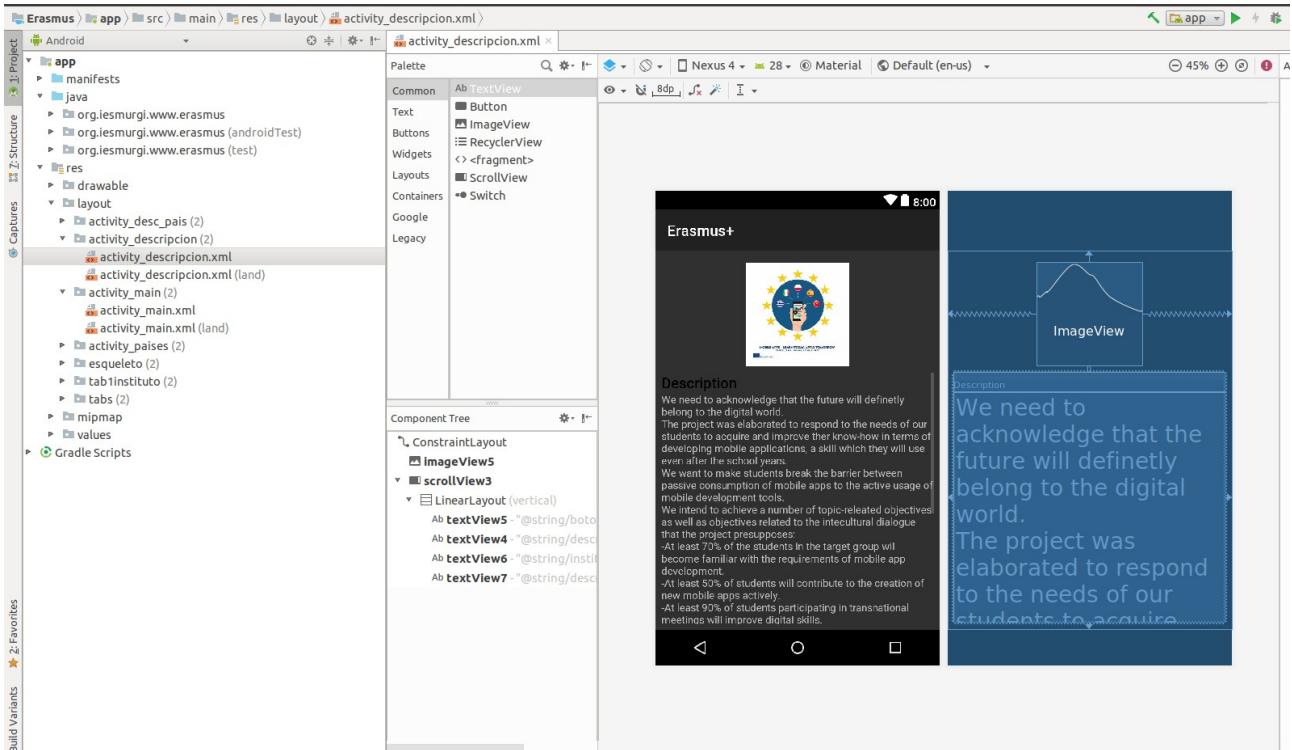
Activity: Description project

We create a new activity to show the description of the Erasmus+ project, like the participating centers and the objective of the same.

1. We create a new EmptyActivity.



2. We design the content of the new Activity (the project logo and a ScrollView with the description).



```

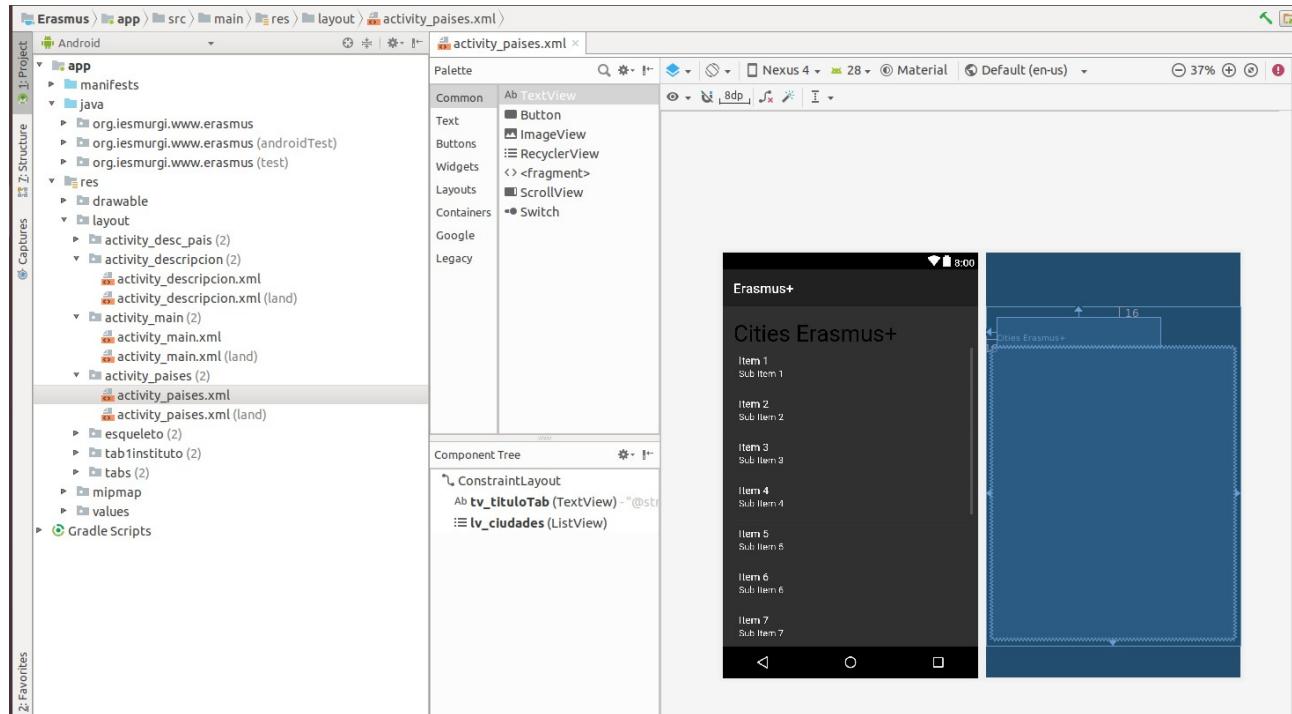
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <ImageView
        android:id="@+id/imageView5"
        android:layout_width="143dp"
        android:layout_height="140dp"
        android:layout_marginTop="16dp"
        android:layout_marginBottom="8dp"
        android:layout_constraintBottom_toTopOf="@+id/scrollView3"
        android:layout_constraintEnd_toEndOf="parent"
        android:layout_constraintStart_toStartOf="parent"
        android:layout_constraintTop_toTopOf="parent"
        android:srcCompat="@drawable/logoerasmus" />
    <ScrollView
        android:id="@+id/scrollView3"
        android:layout_width="0dp"
        android:layout_height="0dp"
        android:layout_marginStart="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        android:layout_constraintBottom_toBottomOf="parent"
        android:layout_constraintEnd_toEndOf="parent"
        android:layout_constraintStart_toStartOf="parent"
        android:layout_constraintTop_toBottomOf="@+id/imageView5" />
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical" >
        <TextView
            android:id="@+id/textView5"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Description"
            android:textColor="?attr/colorPrimaryDark"
            android:textAppearance="@style/TextAppearance.AppCompat.Widget.ActionMode.Title" />
        <TextView
            android:id="@+id/textView4"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="We need to acknowledge that the future will definitely belong to the digital world. The project was elaborated to respond to the needs of our students to acquire and improve their know-how in terms of developing mobile applications, a skill which they will use after the academic years. We want to let the students break the barrier between passive consumption of mobile apps to the active usage of mobile development tools. We intend to achieve a number of topic-related objectives as well as objectives related to the intercultural dialogue that the project presupposes: At least 80% of the students in the target group will become familiar with the requirements of mobile app development. At least 50% of students will contribute to the creation of new mobile apps actively. At least 90% of students participating in transnational meetings will improve digital skills." />
    </LinearLayout>

```

This Activity doesn't have any more code, just information.

Activity: Cities (with ListView)

1. We create a new activity and we design it like the previous one.



```
<?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"
    tools:context=".ActivityPaises"
    tools:layout_editor_absoluteY="81dp">

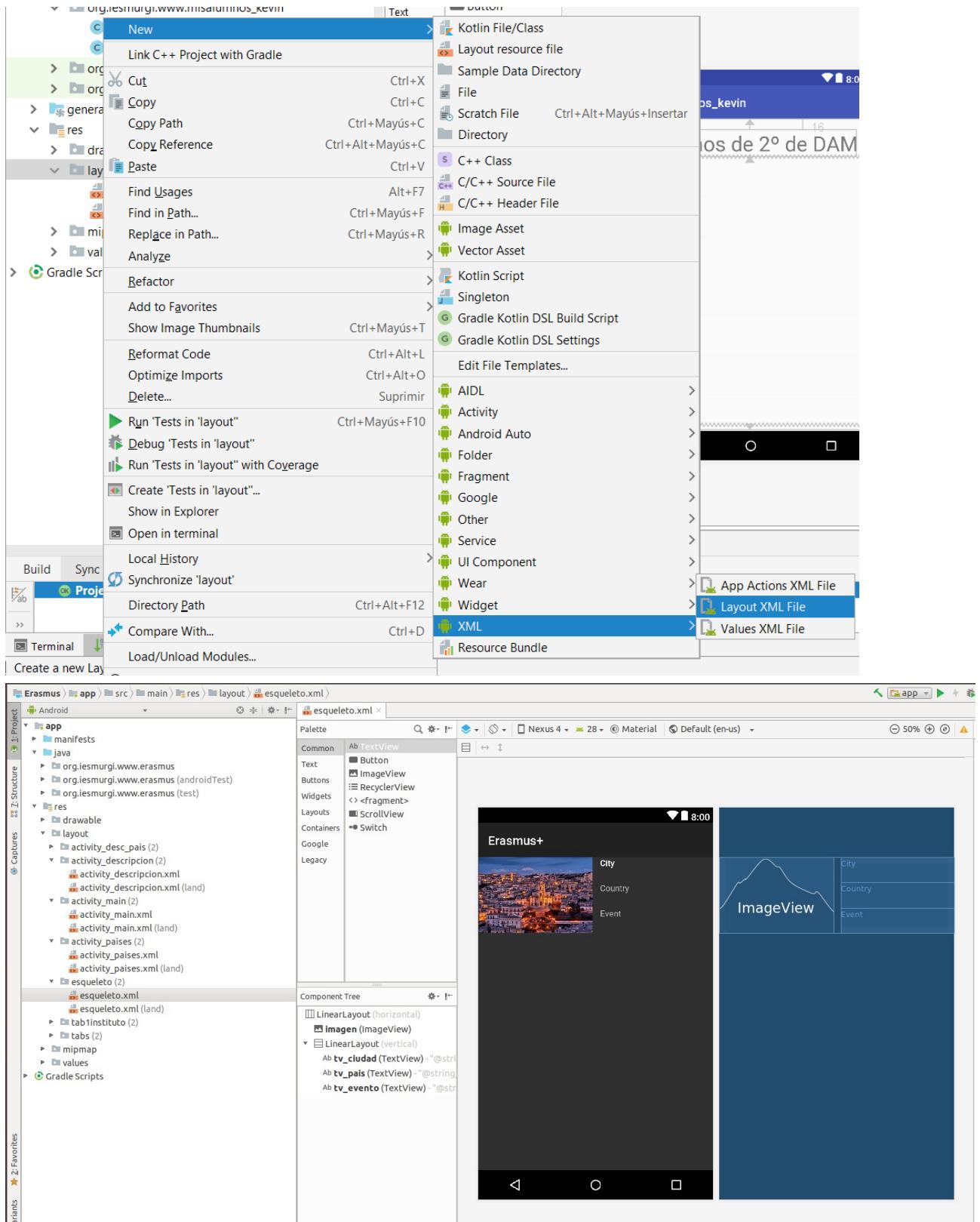
    <TextView
        android:id="@+id/tv_tituloTab"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="16dp"
        android:text="Cities Erasmus+"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        android:textColor="?attr/colorPrimaryDark"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <ListView
        android:id="@+id/lv_ciudades"
        android:layout_width="0dp"
        android:layout_height="0dp"
        android:layout_marginStart="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/tv_tituloTab" />

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

2. Step by step: ListView

- We create te model (model.xml) that will use each entry of the ListView to organise and show the content.



The screenshot shows the Android Studio interface with the project 'Erasmus' open. The left sidebar displays the project structure, including the app module with its manifest, Java files, and various resource folders like drawable and layout. The 'layout' folder contains several XML files, with 'esqueleto.xml' selected and shown in the main editor area. The code in 'esqueleto.xml' is as follows:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <ImageView
        android:id="@+id/imagen"
        android:layout_width="186dp"
        android:layout_height="124dp"
        android:layout_marginRight="12dp"
        android:layout_weight="1"
        app:srcCompat="@drawable/modica" />

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:orientation="vertical">

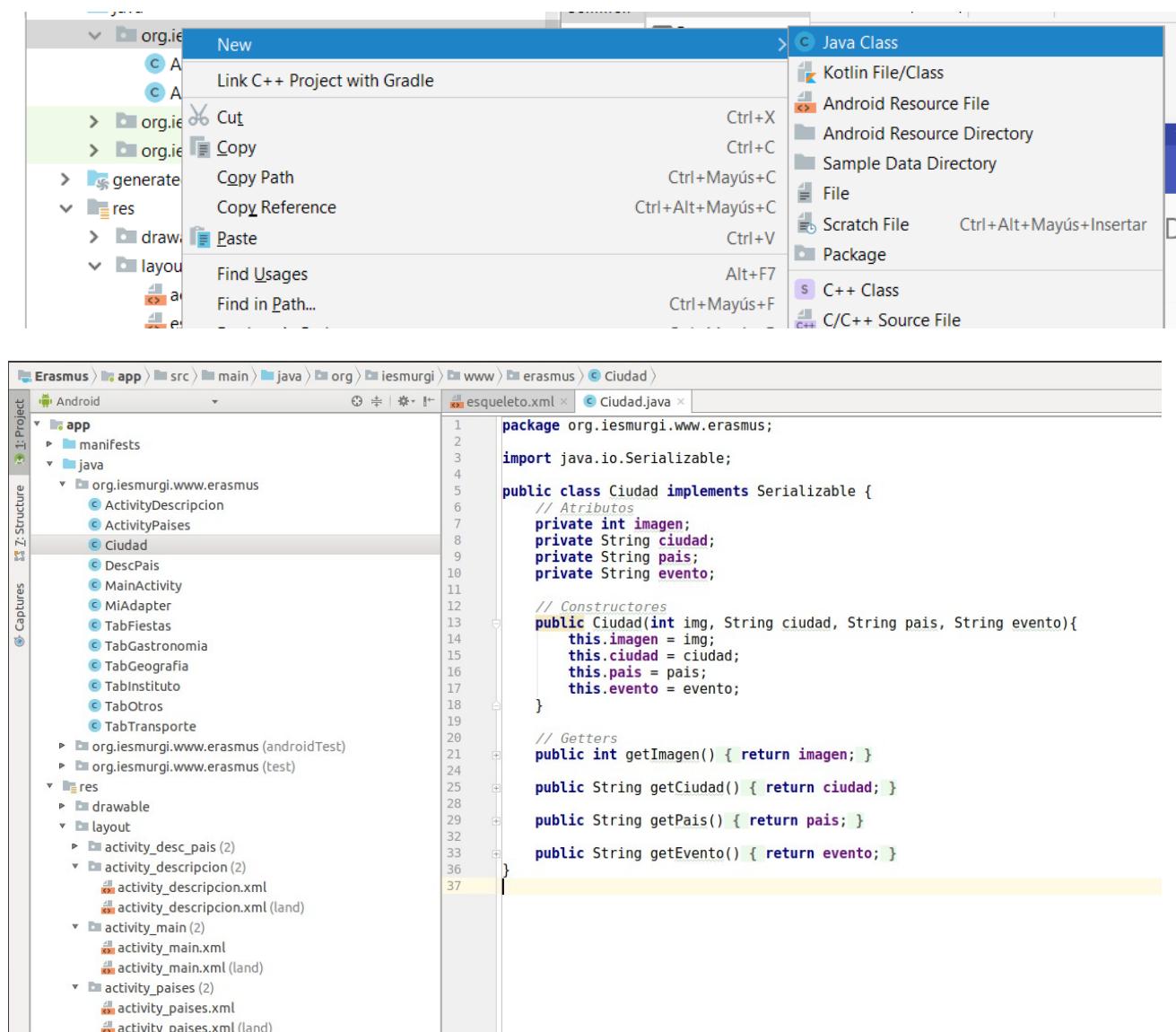
        <TextView
            android:id="@+id/tv_ciudad"
            android:layout_width="185dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="City"
            android:textAppearance="@style/TextAppearance.AppCompat.Body2" />

        <TextView
            android:id="@+id/tv_pais"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Country" />

        <TextView
            android:id="@+id/tv_evento"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Event" />

    </LinearLayout>
</LinearLayout>
```

2. We create the Java class where we are going to structure the objects of the ListView, in this case the City class.



3. We create the MiAdapter class that extends from BaseAdapter, and we override some methods of that class.

On the getView() method we inflate the data of the 'model.xml' and we assign them the data contained on the City object which are we working with on that moment. We have to make the View use the 'model.xml' layout to show the data.

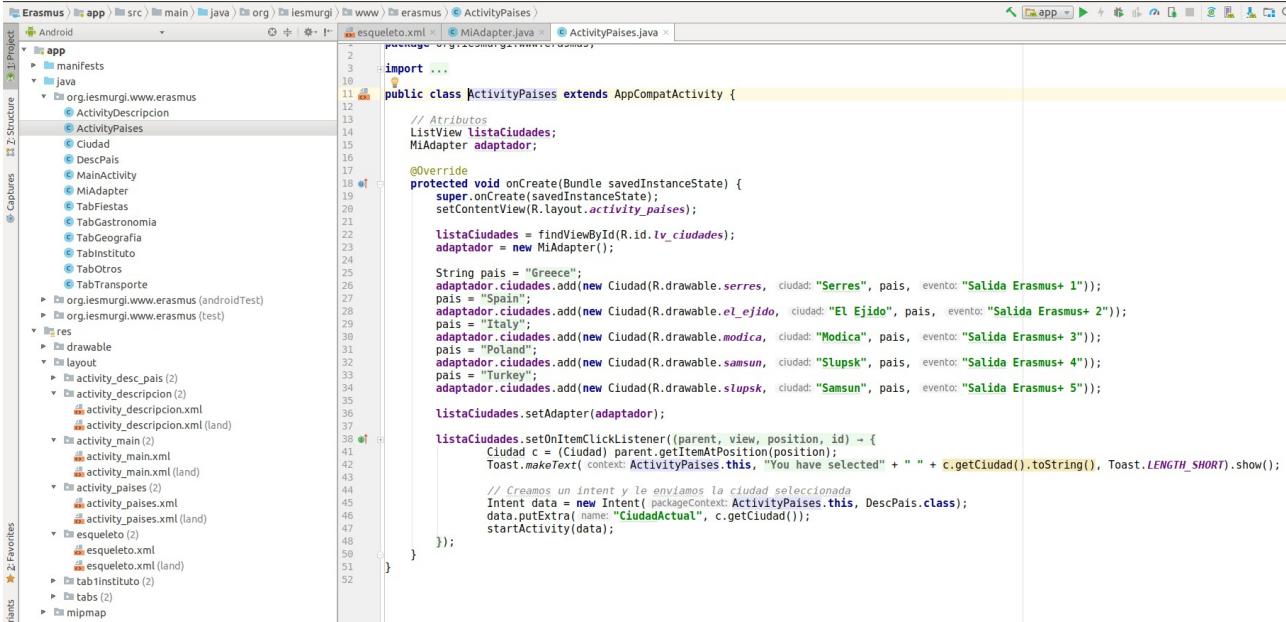
```

15 * que hereda de BaseAdapter e implementa sus metodos
16 * es el adaptador que se utilizará para mostrar
17 * las ciudades en el ListView del ejercicio
18 */
19 public class MiAdapter extends BaseAdapter {
20     // Atributos
21     ArrayList<Ciudad> ciudades = new ArrayList<>();
22
23     // Constructores
24     public MiAdapter() { ciudades.clear(); }
25
26     // Metodos heredados
27     @Override
28     public int getCount() { return ciudades.size(); }
29
30     @Override
31     public Object getItem(int position) { return ciudades.get(position); }
32
33     @Override
34     public long getItemId(int position) { return position; }
35
36     @Override
37     public View getView(int position, View vista, ViewGroup parent) {
38         // Si la vista es nula le asignamos los valores con que queremos crearla
39         if(vista == null){
40             Context cnt = parent.getContext();
41             vista = LayoutInflater.from(cnt).inflate(R.layout.esqueleto, root: null);
42         }
43
44         // Guardamos el objeto con el que se esta tratando
45         Ciudad ciudadActual = ciudades.get(position);
46
47         // Inflamos los elementos gráficos del Layout utilizado para el ListView
48         ImageView imagen = vista.findViewById(R.id.imagen);
49         TextView ciudad = (TextView) vista.findViewById(R.id.tv_ciudad);
50         TextView pais = (TextView) vista.findViewById(R.id.tv_pais);
51         TextView evento = (TextView) vista.findViewById(R.id.tv_evento);
52
53         // Le asignamos los valores correspondientes
54         imagen.setImageResource(ciudadActual.getImagen());
55         ciudad.setText(ciudadActual.getCiudad());
56         pais.setText(ciudadActual.getPais());
57         evento.setText(ciudadActual.getEvento());
58
59         return vista;
60     }
61
62 }

```

- In the Activity Cities class, we inflate the ListView and we instance a MyAdapter object. After that, we add the City objects that will be shown in the ListView.

Finally, we assign the created adapter to the ListView and we assign it an OnItemClickListener event to show a pop up message (Toast) and navigate to the next Activity every time we select any item of the ListView.



```

1 package org.lesmurgi.www.erasmus;
2
3 import ...
4
5 public class ActivityPaises extends AppCompatActivity {
6
7     // Atributos
8     ListView listaCiudades;
9     MiAdapter adaptador;
10
11     @Override
12     protected void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_paises);
15
16         listaCiudades = findViewById(R.id.lv_ciudades);
17         adaptador = new MiAdapter();
18
19         String pais = "Greece";
20         adaptador.ciudades.add(new Ciudad(R.drawable.serres, ciudad: "Serres", pais, evento: "Salida Erasmus+ 1"));
21         pais = "Spain";
22         adaptador.ciudades.add(new Ciudad(R.drawable.el_ejido, ciudad: "El Ejido", pais, evento: "Salida Erasmus+ 2"));
23         pais = "Italy";
24         adaptador.ciudades.add(new Ciudad(R.drawable.modica, ciudad: "Modica", pais, evento: "Salida Erasmus+ 3"));
25         pais = "Poland";
26         adaptador.ciudades.add(new Ciudad(R.drawable.samsun, ciudad: "Slupsk", pais, evento: "Salida Erasmus+ 4"));
27         pais = "Turkey";
28         adaptador.ciudades.add(new Ciudad(R.drawable.slupsk, ciudad: "Samsun", pais, evento: "Salida Erasmus+ 5"));
29
30         listaCiudades.setAdapter(adaptador);
31
32         listaCiudades.setOnItemClickListener((parent, view, position, id) -> {
33             Ciudad c = (Ciudad) parent.getItemAtPosition(position);
34             Toast.makeText(context: ActivityPaises.this, "You have selected" + " " + c.getCiudad().toString(), Toast.LENGTH_SHORT).show();
35
36             // Creamos un Intent y le enviamos la ciudad seleccionada
37             Intent data = new Intent(packageContext: ActivityPaises.this, DescPais.class);
38             data.putExtra(name: "CiudadActual", c.getCiudad());
39             startActivity(data);
40         });
41     }
42
43 }
44
45
46
47
48
49
50
51
52
}

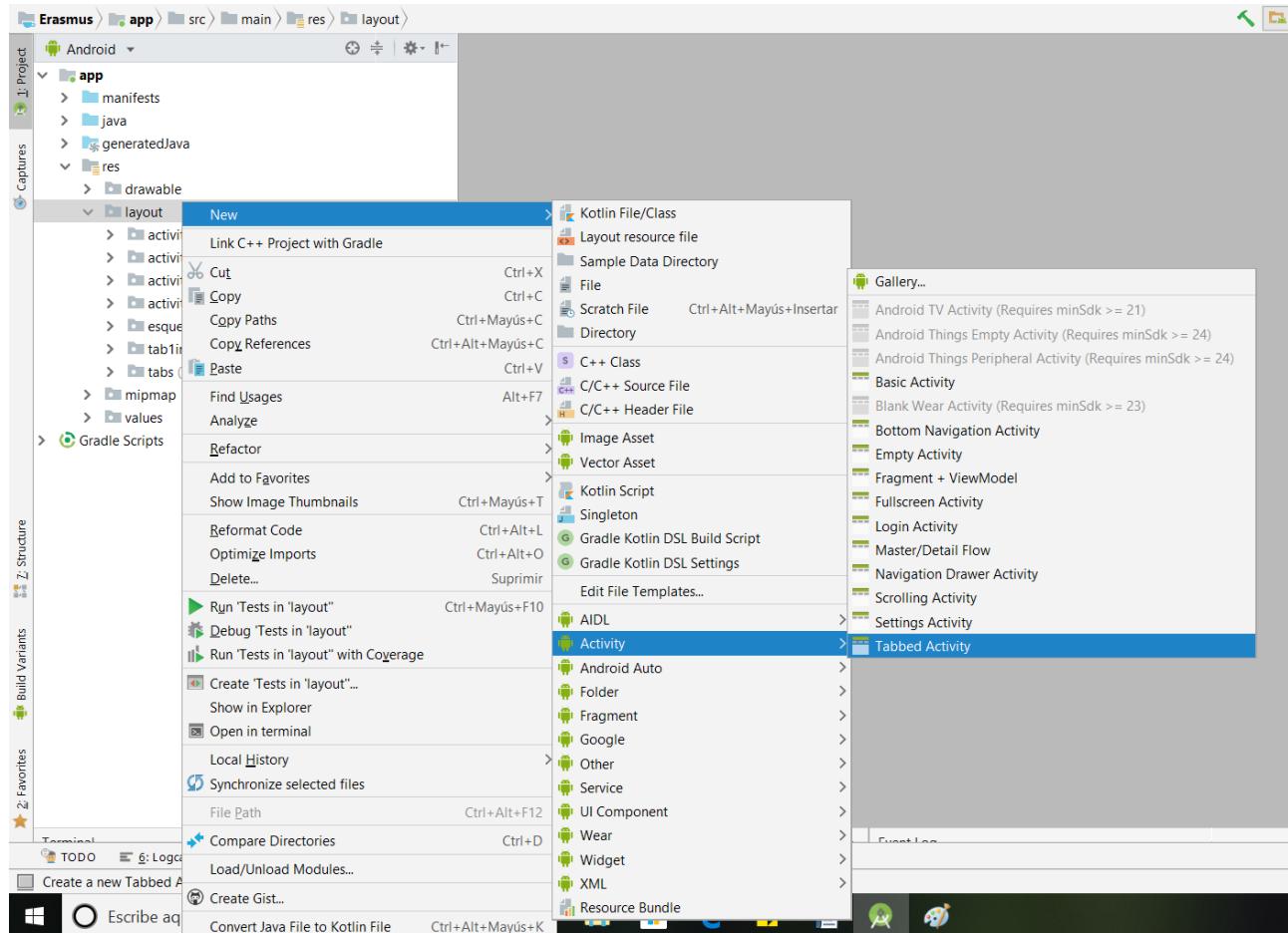
```

We use an “Intent“ object to go to the next activity, like before. In this case we also send some information, a String with the city name that will be used later. We've made that by using the putExtra() method.

Activity: City description

We create a new Tabbed activity where we are going to add tabs with data that we want to show of each city (Center, Festivites, Gastronomy, Geography, Transport and Other). The activity will show different information depending of the selected city.

1. We create the Tabbed Activity and add some tabs.



The screenshot shows the Android Studio interface with the project structure on the left and the XML code editor on the right.

Project Structure:

- Erasmus > app > src > main > res > layout > activity_desc_pais.xml
- Android tab selected in the toolbar.
- Left sidebar: 1: Project, 2: Structure, Captures, Favorites.
- Activity_desc_pais.xml (selected in the layout list) is shown in the code editor.

XML Code (activity_desc_pais.xml):

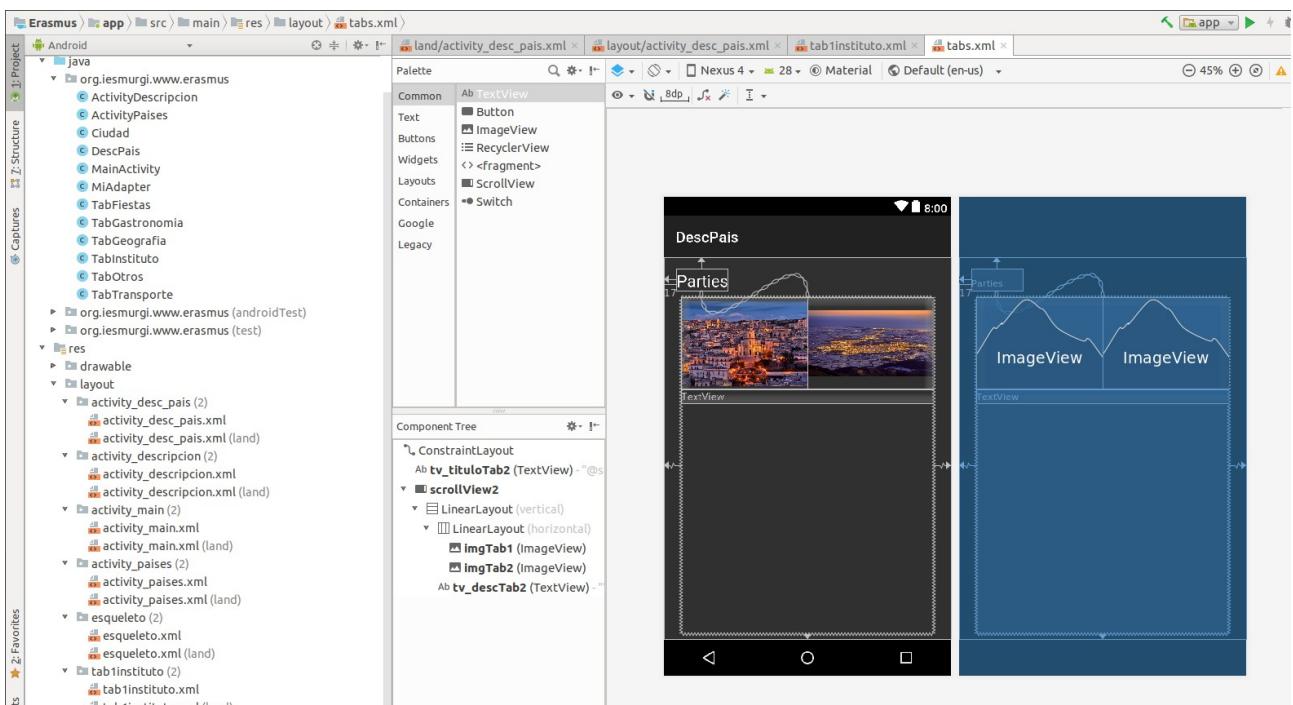
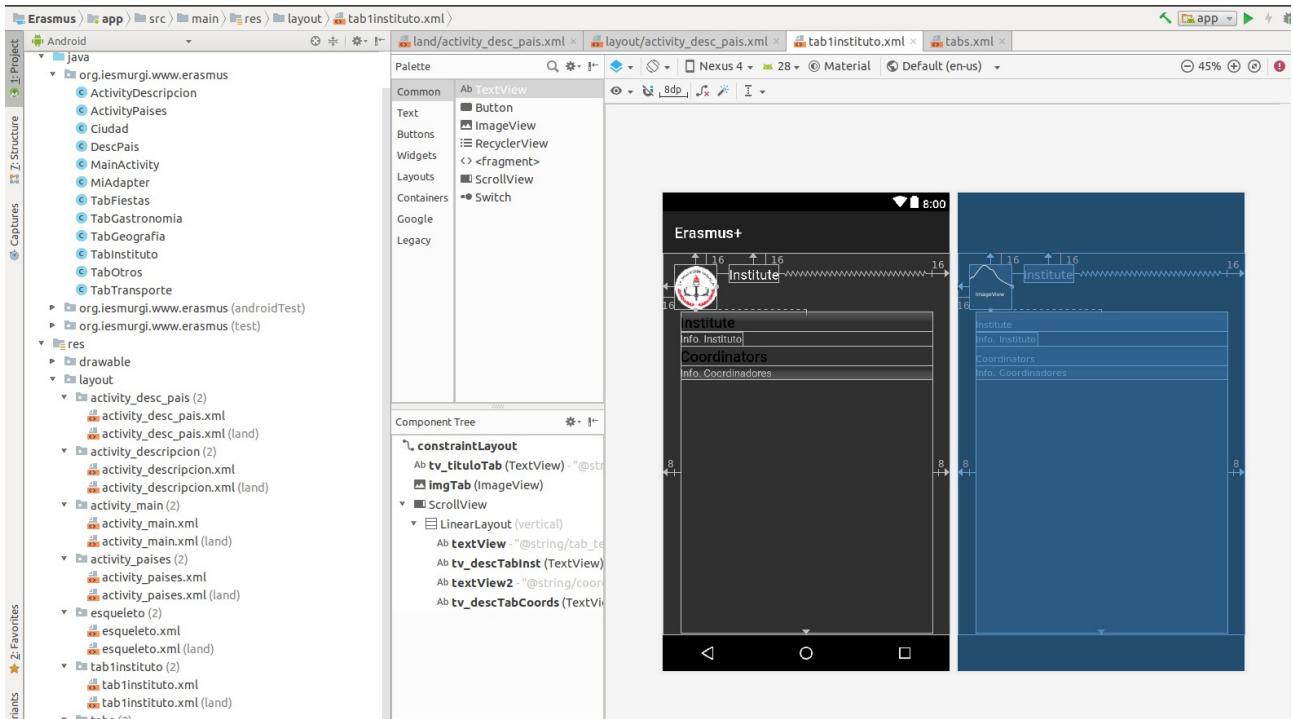
```

</android.support.v7.widget.Toolbar>
<android.support.design.widget.TabLayout
    android:id="@+id/tabs"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
<android.support.design.widget.TabItem
    android:id="@+id/tabItem"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Institute" />
<android.support.design.widget.TabItem
    android:id="@+id/tabItem2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Parties" />
<android.support.design.widget.TabItem
    android:id="@+id/tabItem3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Gastronomy" />
<android.support.design.widget.TabItem
    android:id="@+id/tabItem4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Geography" />
<android.support.design.widget.TabItem
    android:id="@+id/tabItem5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Transport" />
<android.support.design.widget.TabItem
    android:id="@+id/tabItem6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Others" />
</android.support.design.widget.TabLayout>
</android.support.design.widget.AppBarLayout>
<android.support.v4.view.ViewPager
    android:id="@+id/pager"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

```

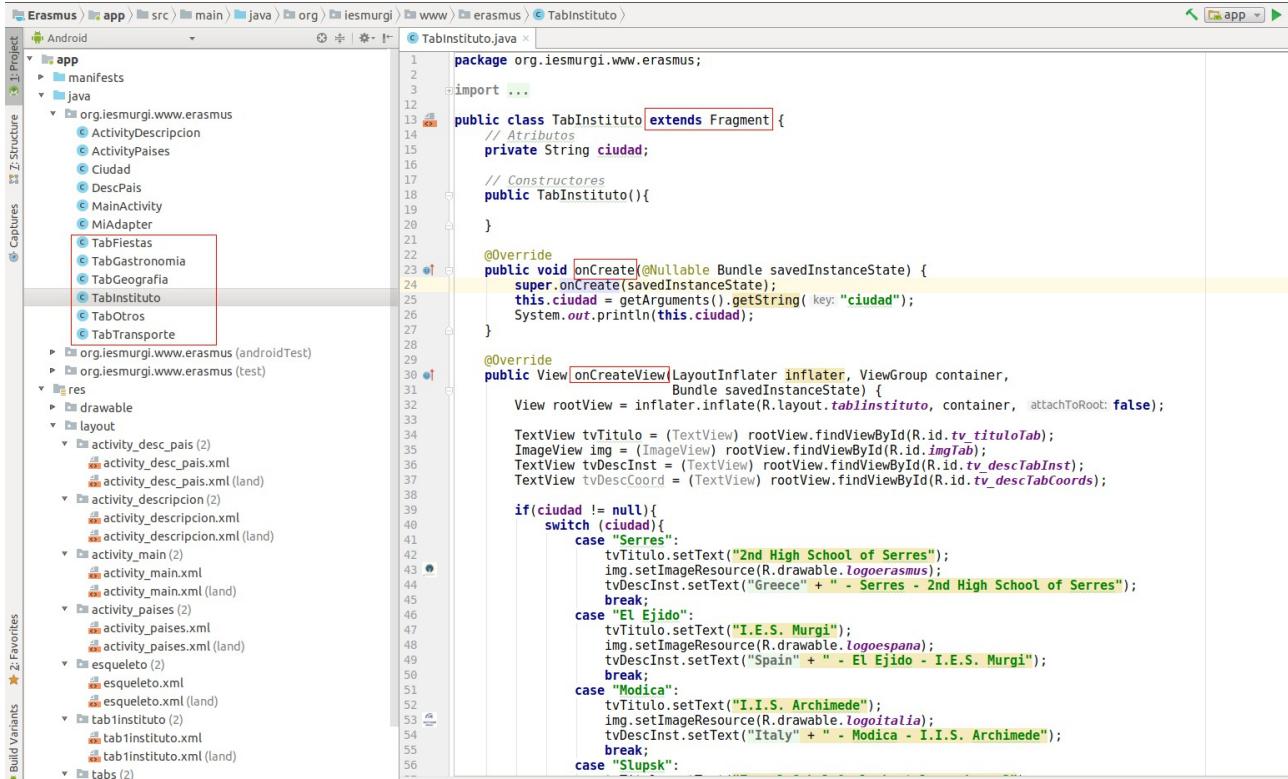
* We can do copy-paste of a TabItem object and modify his ID and Text attributes to do it more simple and fast.

2. We create the XML models to order and structure the information that will be shown on the tabs. Like this case, where we have made one for the tab with the center and another one for the rest of the tabs.



3. Create a Java class for each tab. This class extends from Fragment, and we have to override some methods: onCreate and onCreateView.

In “onCreateView” method we inflate the elements of the created model (one of them), and we show the information depending of the received city through the “Intent” object.



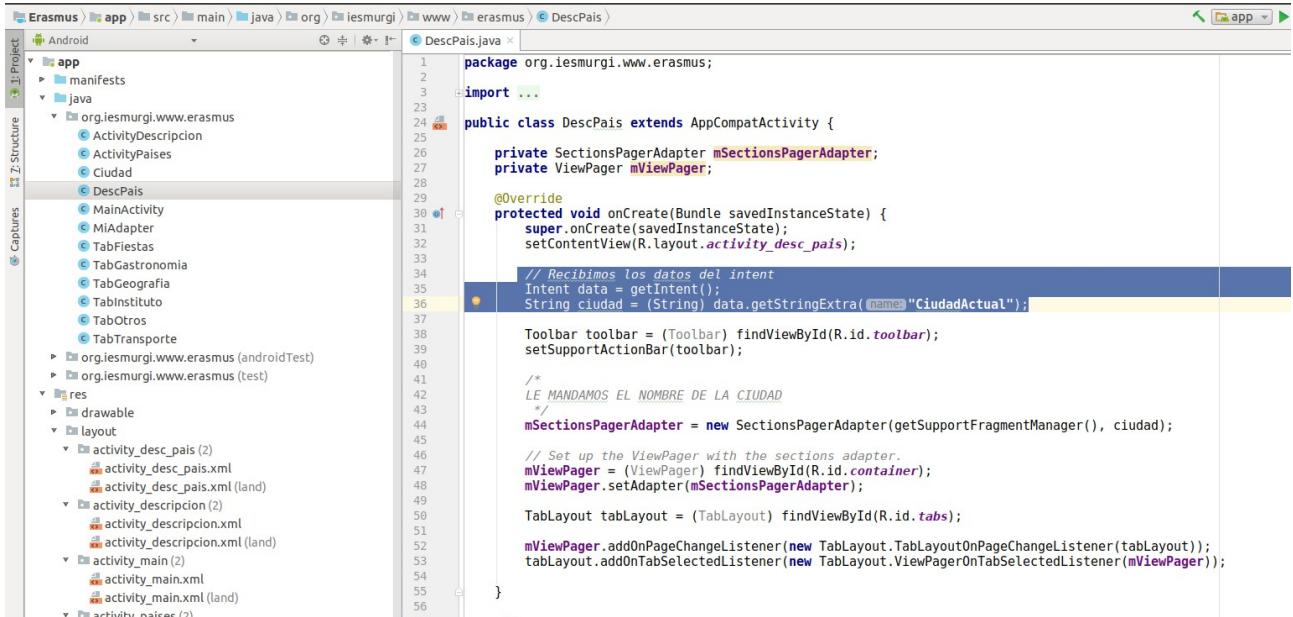
The screenshot shows the Android Studio interface. On the left, the Project structure is visible, showing packages like app, org.iesmurgi.www.erasmus, and org.iesmurgi.www.erasmus (test). The src/main/java/org/iesmurgi/www/erasmus directory contains several Java files: ActivityDescripcion, ActivityPaises, Ciudad, DescPais, MainActivity, MiAdapter, TabFiestas, TabGastronomia, TabGeografia, TabInstituto, TabOtros, and TabTransporte. The TabInstituto.java file is open in the main editor. The code defines a class TabInstituto that extends Fragment. It overrides the onCreate and onCreateView methods. The onCreateView method inflates a layout named tabInstituto and sets up TextViews and an ImageView to display information based on the received city from the Intent. A red box highlights the onCreateView method.

```

package org.iesmurgi.www.erasmus;
import ...
public class TabInstituto extends Fragment {
    // Atributos
    private String ciudad;
    public TabInstituto() {
    }
    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        this.ciudad = getArguments().getString("ciudad");
        System.out.println(this.ciudad);
    }
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                           Bundle savedInstanceState) {
        View rootView = inflater.inflate(R.layout.tabInstituto, container, attachToRoot: false);
        TextView tvTitulo = (TextView) rootView.findViewById(R.id.tv_tituloTab);
        ImageView img = (ImageView) rootView.findViewById(R.id.imgTab);
        TextView tvDescInst = (TextView) rootView.findViewById(R.id.tv_descTabInst);
        TextView tvDescCoord = (TextView) rootView.findViewById(R.id.tv_descTabCoords);
        if(ciudad != null){
            switch (ciudad){
                case "Serres":
                    tvTitulo.setText("2nd High School of Serres");
                    img.setImageResource(R.drawable.logoerasmus);
                    tvDescInst.setText("Greece" + " - Serres - 2nd High School of Serres");
                    break;
                case "El Ejido":
                    tvTitulo.setText("I.E.S. Murgi");
                    img.setImageResource(R.drawable.logoespana);
                    tvDescInst.setText("Spain" + " - El Ejido - I.E.S. Murgi");
                    break;
                case "Modica":
                    tvTitulo.setText("I.I.S. Archimede");
                    img.setImageResource(R.drawable.logitalia);
                    tvDescInst.setText("Italy" + " - Modica - I.I.S. Archimede");
                    break;
                case "Slupsk":
                    tvTitulo.setText("I.I.S. Archimede");
                    img.setImageResource(R.drawable.logopolandia);
                    tvDescInst.setText("Poland" + " - Slupsk - I.I.S. Archimede");
                    break;
            }
        }
    }
}

```

4. In the Java class of the Tabbed Activity we receive the data that has been send through the “Intent” object.



```

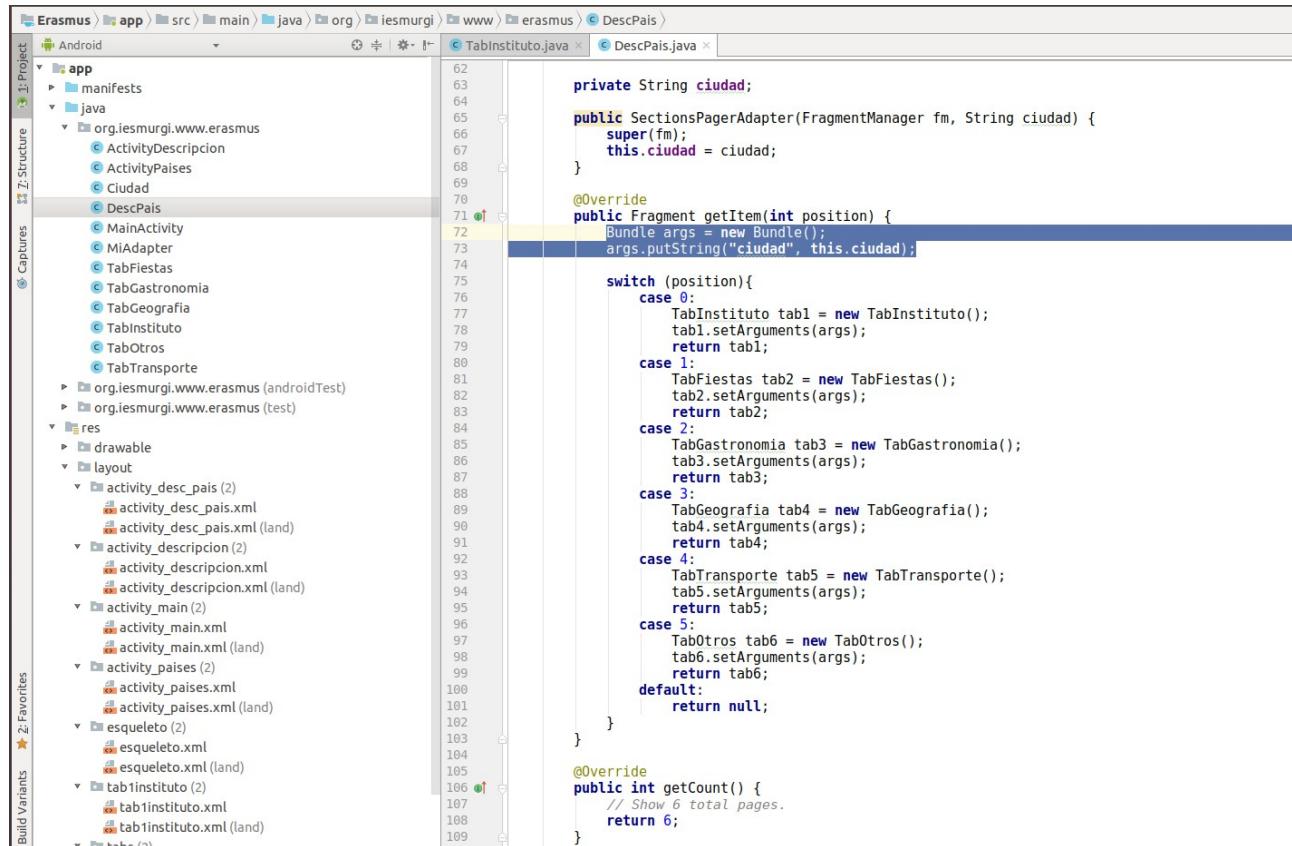
1 package org.iesmurgi.www.erasmus;
2
3 import ...
4
5 public class DescPais extends AppCompatActivity {
6
7     private SectionsPagerAdapter mSectionsPagerAdapter;
8     private ViewPager mViewPager;
9
10    @Override
11    protected void onCreate(Bundle savedInstanceState) {
12        super.onCreate(savedInstanceState);
13        setContentView(R.layout.activity_desc_pais);
14
15        // Recibimos los datos del intent
16        Intent data = getIntent();
17        String ciudad = (String) data.getStringExtra("CiudadActual");
18
19        Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
20        setSupportActionBar(toolbar);
21
22        /*
23         * LE MANDAMOS EL NOMBRE DE LA CIUDAD
24         */
25        mSectionsPagerAdapter = new SectionsPagerAdapter(getSupportFragmentManager(), ciudad);
26
27        // Set up the ViewPager with the sections adapter.
28        mViewPager = (ViewPager) findViewById(R.id.container);
29        mViewPager.setAdapter(mSectionsPagerAdapter);
30
31        TabLayout tabLayout = (TabLayout) findViewById(R.id.tabs);
32
33        mViewPager.addOnPageChangeListener(new TabLayout.TabLayoutOnPageChangeListener(tabLayout));
34        tabLayout.addOnTabSelectedListener(new TabLayout.ViewPagerOnTabSelectedListener(mViewPager));
35
36    }
37
38    ...
39
40}
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56

```

5. In the same Java file is another class called SectionsPagerAdapter that we have to modify a bit.

In the “getItem” method we have to return one of the class that extends from Fragment, depending on the tab position.

To send the city name as a String we have to use a “Bundle” object.



```

private String ciudad;

public SectionsPagerAdapter(FragmentManager fm, String ciudad) {
    super(fm);
    this.ciudad = ciudad;
}

@Override
public Fragment getItem(int position) {
    Bundle args = new Bundle();
    args.putString("ciudad", this.ciudad);

    switch (position){
        case 0:
            TabInstituto tab1 = new TabInstituto();
            tab1.setArguments(args);
            return tab1;
        case 1:
            TabFiestas tab2 = new TabFiestas();
            tab2.setArguments(args);
            return tab2;
        case 2:
            TabGastronomia tab3 = new TabGastronomia();
            tab3.setArguments(args);
            return tab3;
        case 3:
            TabGeografia tab4 = new TabGeografia();
            tab4.setArguments(args);
            return tab4;
        case 4:
            TabTransporte tab5 = new TabTransporte();
            tab5.setArguments(args);
            return tab5;
        case 5:
            TabOtros tab6 = new TabOtros();
            tab6.setArguments(args);
            return tab6;
        default:
            return null;
    }
}

@Override
public int getCount() {
    // Show 6 total pages.
    return 6;
}

```

In the “getCount” method we indicate the total amount of tabs (in this case 6).

In the “getPageTitle” method we return the title of each tab, in the same order than we did before (“getItem” method).

The screenshot shows the Android Studio interface. On the left is the Project Navigational Drawer with sections for 1: Project, 2: Structure, Captures, and Favorites. The Project section shows the package structure: Erasmus > app > src > main > java > org > iesmurgi > www > erasmus. Inside the java folder, DescPais is selected. The right side of the screen displays the code for TabInstituto.java.

```

91     return tab4;
92
93     case 4:
94         TabTransporte tab5 = new TabTransporte();
95         tab5.setArguments(args);
96         return tab5;
97
98     case 5:
99         TabOtros tab6 = new TabOtros();
100        tab6.setArguments(args);
101        return tab6;
102
103    default:
104        return null;
105    }
106
107    @Override
108    public int getCount() {
109        // Show 6 total pages.
110        return 6;
111    }
112
113    @Nullable
114    @Override
115    public CharSequence getPageTitle(int position) {
116        switch (position){
117            case 0:
118                return "Institute";
119            case 1:
120                return "Parties";
121            case 2:
122                return "Gastronomy";
123            case 3:
124                return "Geography";
125            case 4:
126                return "Transport";
127            case 5:
128                return "Others";
129            default:
130                return "";
131        }
132    }
133
}

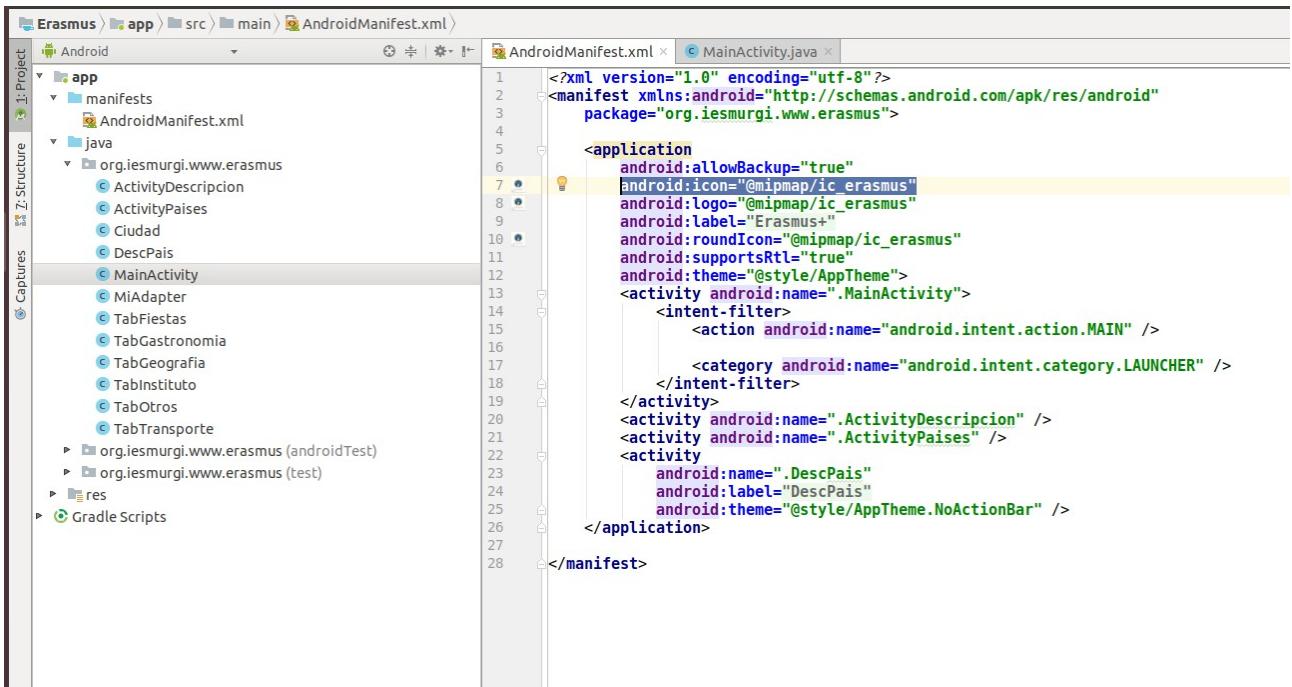
```

Note: When a Tabbed Activity is created, the class generate unnecessary code for our objective that can be deleted without any problem.

Note: All activities have the Portrait design and the Landscape design.

Icons

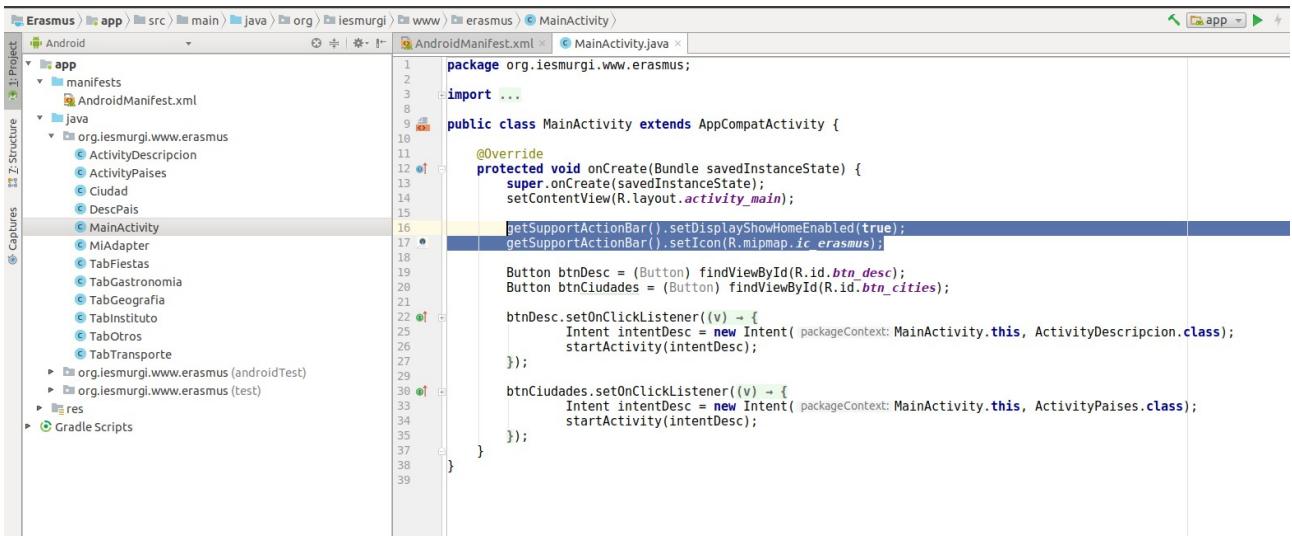
To change the application icon, we have to go to: app → manifests, and modify the “android:icon” property.



```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="org.iesmurgi.www.erasmus">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_erasmus"
        android:label="Erasmus+"
        android:roundIcon="@mipmap/ic_erasmus"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name=".ActivityDescripcion" />
        <activity android:name=".ActivityPaises" />
        <activity
            android:name=".DescPais"
            android:label="DescPais"
            android:theme="@style/AppTheme.NoActionBar" />
    </application>
</manifest>
```

To modify or add the icon in the activity toolbar, we the property “setIcon”.



```
package org.iesmurgi.www.erasmus;
import ...
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        getSupportActionBar().setDisplayHomeAsUpEnabled(true);
        getSupportActionBar().setIcon(R.mipmap.ic_erasmus);
        Button btnDesc = (Button) findViewById(R.id.btn_desc);
        Button btnCiudades = (Button) findViewById(R.id.btn_cities);
        btnDesc.setOnClickListener((v) -> {
            Intent intentDesc = new Intent(getApplicationContext(), ActivityDescripcion.class);
            startActivity(intentDesc);
        });
        btnCiudades.setOnClickListener((v) -> {
            Intent intentDesc = new Intent(getApplicationContext(), ActivityPaises.class);
            startActivity(intentDesc);
        });
    }
}
```

Sound (MediaPlayer)

We've put two types of sounds into the Erasmus+ app: long sounds and short sounds.

At the MainPage, Description page and Cities page (the one with the ListView) there is a long song that stops when navigating between them and continues when the new activity is started.

It is used as an attribute of the MainActivity and played/stopped from the other activities.

NOTE: As it can be seen on the description page, i've tried to use the putExtra() method passing the current position of the song and adding a onSeekCompleteListener to the MediaPlayer object to do it without changing anything directly on the MainActivity but it doesn't work :(

MainActivity:

```
3 import ...
10
11 public class MainActivity extends AppCompatActivity {
12
13     private MediaPlayer mpBurbujas;
14     protected static MediaPlayer mpEnnio;
15     //protected static int posicionEnnio;
16
17     @Override
18     protected void onCreate(Bundle savedInstanceState) {
19         super.onCreate(savedInstanceState);
20         setContentView(R.layout.activity_main);
21
22         // Icono en la barra de accion
23         getSupportActionBar().setDisplayHomeAsUpEnabled(true);
24         getSupportActionBar().setIcon(R.mipmap.ic_erasmus);
25
26         // Inflacion de los botones
27         Button btnDesc = (Button) findViewById(R.id.btn_desc);
28         Button btnCiudades = (Button) findViewById(R.id.btn_cities);
29
30         // Configuracion de las canciones
31         this.mpBurbujas = MediaPlayer.create(context: this, R.raw.burbujas);
32         this.mpBurbujas.seekTo( msec: 0 );
33         this.mpBurbujas.setLooping(false);
34
35         mpEnnio = MediaPlayer.create(context: this, R.raw.cinema_paradiso);
36         mpEnnio.seekTo( msec: 0 );
37         mpEnnio.setLooping(true);
38 }
```

```
46    });
47    */
48
49    // Cuando se navegue a otra pagina se almacena la posicion
50    btnDesc.setOnClickListener((v) -> {
51        Intent intentDesc = new Intent(getApplicationContext(), ActivityDescripcion.class);
52        mpEnnio.pause();
53        //MainActivity.posicionEnnio = mpEnnio.getCurrentPosition();
54        startActivity(intentDesc);
55        mpBurbujas.start();
56    });
57
58    btnCiudades.setOnClickListener((v) -> {
59        Intent intentPaises = new Intent(getApplicationContext(), ActivityPaises.class);
60        mpEnnio.pause();
61        //MainActivity.posicionEnnio = mpEnnio.getCurrentPosition();
62        startActivity(intentPaises);
63        mpBurbujas.start();
64    });
65
66    // Al reiniciar la actividad se pone la cancion en la posicion que estaba
67    @Override
68    protected void onStart() {
69        super.onStart();
70        //this.mpEnnio.seekTo(MainActivity.posicionEnnio);
71        mpEnnio.start();
72    }
73
74}
```

ActivityDescription:

```
24     getSupportActionBar().setDisplayHomeAsUpEnabled(true);
25     getSupportActionBar().setIcon(R.mipmap.ic_erasmus);

26
27
28
29
30
31
32     /**
33      this.mpEnnio = MediaPlayer.create(this, R.raw.cinema_paradiso);
34      this.mpEnnio.setLooping(true);
35      this.mpEnnio.seekTo(MainActivity.posicionEnnio);
36      this.mpEnnio.setOnSeekCompleteListener(new MediaPlayer.OnSeekCompleteListener()
37          @Override
38          public void onSeekComplete(MediaPlayer mp) {
39              mpEnnio.start();
40          }
41      );
42      */
43
44
45
46
47
48
49     @Override
50     protected void onStart() {
51         super.onStart();
52         //this.mpEnnio.seekTo(MainActivity.posicionEnnio);
53         MainActivity.mpEnnio.start();
54     }

55
56 }
```

ActivityPaises:

```
38     adaptador.ciudades.add(new Ciudad(R.drawable.slups
39
40     listaCiudades.setAdapter(adaptador);
41
42     listaCiudades.setOnItemClickListener((parent, view
43         Ciudad c = (Ciudad) parent.getItemAtPositi
44         Toast.makeText(context: ActivityPaises.this,
45
46         // Creamos un intent y le enviamos la ciuc
47         Intent data = new Intent(packageContext: Acti
48         data.putExtra(name: "CiudadActual", c.getN
49         startActivityForResult(data);
50
51     });
52
53 }
54
55
56 @Override
57 protected void onStart() {
58     super.onStart();
59     MainActivity.mpEnnio.start();
60 }
61
62 @Override
63 protected void onPause() {
64     super.onPause();
65     MainActivity.mpEnnio.pause();
66 }
67 }
68 }
```

Also, at the MainActivity is another MediaPlayer that plays a short sound when a button is pressed:

```

30 // Configuración de las canciones
31 this.mpBurbujas = MediaPlayer.create( context: this, R.raw.burbujas);
32 this.mpBurbujas.seekTo( msec: 0 );
33 this.mpBurbujas.setLooping(false);

34
35 mpEnnio = MediaPlayer.create( context: this, R.raw.cinema_paradiso);
36 mpEnnio.seekTo( msec: 0 );
37 mpEnnio.setLooping(true);

38 /*
39 // Cuando la canción larga haya buscado la posición se inicia
40 this.mpEnnio.setOnSeekBarCompleteListener(new MediaPlayer.OnSeekBarChangeListener() {
41     @Override
42     public void onProgressChanged(MediaPlayer mp, int progress) {
43         mpEnnio.seekTo(progress);
44     }
45 });
46 */
47

48
49 // Cuando se navegue a otra página se almacena la posición
50 btnDesc.setOnClickListener(v) -> {
51     Intent intentDesc = new Intent( packageContext: MainActivity.this, ActivityDescripcion.class);
52     mpEnnio.pause();
53     //MainActivity.posicionEnnio = mpEnnio.getCurrentPosition();
54     startActivityForResult(intentDesc);
55     mpBurbujas.start();
56 }
57

58
59 btnCiudades.setOnClickListener(v) -> {
60     Intent intentDesc = new Intent( packageContext: MainActivity.this, ActivityPaises.class);
61     mpEnnio.pause();
62     //MainActivity.posicionEnnio = mpEnnio.getCurrentPosition();
63     startActivityForResult(intentDesc);
64     mpBurbujas.start();
65 }
66
67
68
69
70
71
}

```

We never stop it because its durations is like 1 second. After that sound, the song plays again.

There are another songs when Italy or Spain is selected at the ListView:

```
25 public class DescPais extends AppCompatActivity {
26
27     private SectionsPagerAdapter mSectionsPagerAdapter;
28     private ViewPager mViewPager;
29     private MediaPlayer mp = null;
30
31     @Override
32     protected void onCreate(Bundle savedInstanceState) {
33         super.onCreate(savedInstanceState);
34         setContentView(R.layout.activity_desc_pais);
35
36         // Recibimos los datos del intent
37         Intent data = getIntent();
38         String ciudad = (String) data.getStringExtra("CiudadActual");
39
40         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
41         setSupportActionBar(toolbar);
42
43         getSupportActionBar().setDisplayHomeAsUpEnabled(true);
44         switch(ciudad) {
45             case "Serres":
46                 getSupportActionBar().setIcon(R.mipmap.ic_erasmus);
47                 this.mp = null;
48                 break;
49             case "El Ejido":
50                 getSupportActionBar().setIcon(R.mipmap.ic_espana);
51                 this.mp = MediaPlayer.create(context: this, R.raw.espana_un_domingo);
52                 this.mp.seekTo(msec: 0);
53                 this.mp.setLooping(true);
54                 this.mp.setVolume(leftVolume: 1, rightVolume: 1);
55                 this.mp.start();
56                 break;
57             case "Modica":
58                 getSupportActionBar().setIcon(R.mipmap.ic_italia);
59                 this.mp = MediaPlayer.create(context: this, R.raw.italia_tarantella_napoletana);
60                 this.mp.seekTo(msec: 0);
61                 this.mp.setLooping(true);
62                 this.mp.start();
63                 break;
64         }
65     }
66 }
```

```
85
86         mViewPager.addOnPageChangeListener(new TabLayout.TabLayoutOnPageChangeListener(tabLayout));
87         tabLayout.addOnTabSelectedListener(new TabLayout.ViewPagerOnTabSelectedListener(mViewPager));
88     }
89
90     @Override
91     protected void onRestart() {
92         super.onRestart();
93         if(this.mp != null){
94             this.mp.start();
95         }
96     }
97
98     @Override
99     protected void onPause() {
100        super.onPause();
101        if(this.mp != null && this.mp.isPlaying()){
102            this.mp.stop();
103        }
104    }
105
106    @Override
107    protected void onStop() {
108        super.onStop();
109        if(this.mp != null && this.mp.isPlaying()){
110            this.mp.stop();
111            //this.mp.release();
112        }
113    }
114
115    /**
116     * A {@link FragmentPagerAdapter} that returns a fragment corresponding to
117     * one of the sections/tabs/pages.
118     */
119    public class SectionsPagerAdapter extends FragmentPagerAdapter {
120
121        private String ciudad;
122
123        public SectionsPagerAdapter(FragmentManager fm, String ciudad) {
```

The song is played at every Fragment of the Tabbed Activity and stops when navigating back to the Cities Activity.

URLs

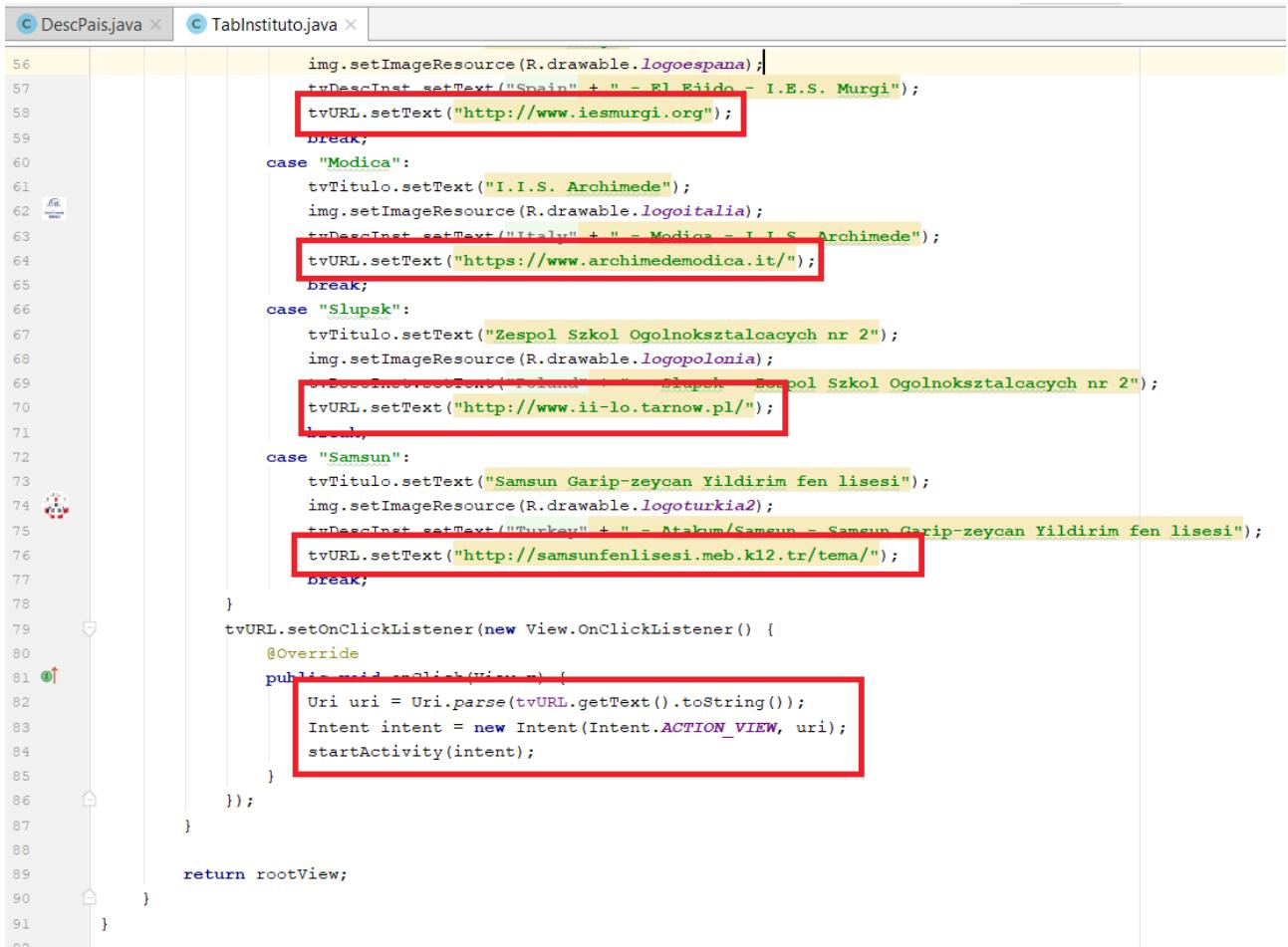
For each city that participates in the Erasmus+ project we've add a URI to their website.
In order to get this there are 2 steps to be done:

1. Add a new TextView where the URL is going to be and set the autoLink attribute to "web":



```
63     android:id="@+id/tv_descTabInst"
64     android:layout_width="wrap_content"
65     android:layout_height="wrap_content"
66     android:text="Info. Instituto"
67     tools:layout_editor_absoluteX="50dp"
68     tools:layout_editor_absoluteY="131dp" />
69
70     <TextView
71         android:id="@+id/textView2"
72         android:layout_width="match_parent"
73         android:layout_height="wrap_content"
74         android:text="Coordinators"
75         android:text="@string/coordinadores" appearance.appcompat.Widget.ActionMode.Title"
76         android:textColor="?attr/colorPrimaryDark" />
77
78     <TextView
79         android:id="@+id/tv_descTabCoords"
80         android:layout_width="match_parent"
81         android:layout_height="wrap_content"
82         android:text="Info. Coordinadores" />
83
84     <TextView
85         android:id="@+id/tv_url"
86         android:layout_width="match_parent"
87         android:layout_height="wrap_content"
88         android:autoLink="web"
89         android:text="URL"
90         android:textColor="@color/design_default_color_primary"
91         android:textColorLink="@color/design_default_color_primary" />
92
93     </LinearLayout>
94
95 </ScrollView>
96 </android.support.constraint.ConstraintLayout>
```

2. In the Java class we have to set the text of this TextView with the URL of the website and make the app go there with an Intent object:



```

56     img.setImageResource(R.drawable.logoespana);
57     tvDescInst.setText("Spain" + " - El Ejido - I.E.S. Murgi");
58     tvURL.setText("http://www.iesmurgi.org");
59     break;
60
61     case "Modica":
62         tvTitulo.setText("I.I.S. Archimede");
63         img.setImageResource(R.drawable.logoitalia);
64         tvDescInst.setText("Italy" + " - Modica - I.I.S. Archimede");
65         tvURL.setText("https://www.archimedemodica.it/");
66         break;
67
68     case "Slupsk":
69         tvTitulo.setText("Zespol Szkol Ogólnokształcących nr 2");
70         img.setImageResource(R.drawable.logopolonia);
71         tvDescInst.setText("Poland" + " - Zespol Szkol Ogólnokształcących nr 2");
72         tvURL.setText("http://www.ii-lo.tarnow.pl/");
73
74     case "Samsun":
75         tvTitulo.setText("Samsun Garip-zeycan Yıldırım fen lisesi");
76         img.setImageResource(R.drawable.logoturkia2);
77         tvDescInst.setText("Turkey" + " - Atakum/Samsun - Samsun Garip-zeycan Yıldırım fen lisesi");
78         tvURL.setText("http://samsunfenlisesi.meb.k12.tr/tema/");
79     break;
80
81     tvURL.setOnClickListener(new View.OnClickListener() {
82         @Override
83         public void onClick(View v) {
84             Uri uri = Uri.parse(tvURL.getText().toString());
85             Intent intent = new Intent(Intent.ACTION_VIEW, uri);
86             startActivity(intent);
87         }
88
89     });
90
91     return rootView;
92 }

```

Strings: English and Spanish

```
<resources tools:resourceType="string">
    <string name="app_name">Erasmus+</string>
    <string name="listViewSeleccionado">You have selected</string>

    <!-- Botones de activity_main -->
    <string name="botonDescripcion">Description</string>
    <string name="botonPaises">Cities</string>

    <!-- Descripcion del proyecto de activity_despcion -->
    <string name="descripcionErasmus">We need to acknowledge that the future will definitely belong to the digital world.  
The project was elaborated to respond to the needs of our students to acquire and improve their know-how in terms of developing mobile  
We want to make students break the barrier between passive consumption of mobile apps to the active usage of mobile development tools.  
We intend to achieve a number of topic-related objectives as well as objectives related to the intercultural dialogue that the project  
At least 70% of the students in the target group will become familiar with the requirements of mobile app development.  
At least 50% of students will contribute to the creation of new mobile apps actively.  
All participants will contribute to the creation of new mobile apps actively.  
At least 80% of participants will improve their transnational meetings.  
At least 80% of participants will improve digital skills.  
At least 70% of participants will improve communication skills in English and other languages of the partners.  
All participants will develop tolerance, mutual respect, intercultural understanding.  
All project team members and students will improve organisation, teamwork and data manipulation skills.</string>
    <string name="institutos">Institutes</string>
    <string name="descripcionInstitutos">IES Murgi - Spain - El Ejido  
\\n2nd High School of Serres - Greece - Serres  
\\nIIS Archimede - Italy - Modica  
\\nSamsun Garip-yezcan Yildirim Fen lisesi - Turkey - Atakum/Samsun  
\\nZespol Szko\\l Ogolnokształcacych nr 2 - Poland - Słupsk</string>

    <!-- Titulo de activity_paises -->
    <string name="tituloCiudades">Cities Erasmus+</string>

    <!-- Etiquetas de esqueleto -->
    <string name="ciudad">City</string>
    <string name="pais">Country</string>
    <string name="evento">Event</string>
    <string name="descripcion">Description</string>

    <!-- Nombres de los Paises -->
    <string name="grecia">Greece</string>
    <string name="espana">Spain</string>
    <string name="italia">Italy</string>
    <string name="polonia">Poland</string>
    <string name="turquia">Turkey</string>

    <!-- Tabbed Activity -->
    <string name="title_activity_desc_pais">DescPais</string>
    <string name="tab_text_1">Institute</string>
    <string name="tab_text_2">Dartinc</string>
```

```
<resources>
    <string name="app_name">Erasmus</string>
    <string name="listViewSeleccionado">Has seleccionado</string>

    <!-- Botones de activity main -->
    <string name="botonDescripcion">Descripción</string>
    <string name="botonPaises">Ciudades</string>

    <!-- Descripción del proyecto de activity_descripcion -->
    <string name="descripcionErasmus">El proyecto fue elaborado para responder a las necesidades de nuestros estudiantes para adquirir y mejorar sus habilidades digitales. Nuestra intención es ayudar a los estudiantes romper la barrera entre el consumo pasivo de aplicaciones móviles al uso activo de herramientas de aprendizaje. Por lo menos un 70% de los estudiantes en el grupo del proyecto se familiarizarán con los requerimientos del desarrollo de aplicaciones móviles. Por lo menos un 50% de los estudiantes contribuirá a la creación de nuevas aplicaciones móviles de forma activa. Por lo menos un 90% de los estudiantes participantes en los encuentros internacionales mejorará sus habilidades digitales. Por lo menos un 80% de los participantes mejorará su conocimiento de culturas extranjeras. Por lo menos un 70% de los participantes desarrollará tolerancia, respeto mutuo y entendimiento intercultural. Todos los participantes desarrollarán su habilidad de comunicación en inglés u otras lenguas de sus compañeros. Los profesores y miembros de la dirección del proyecto, así como los estudiantes, mejorará su organización, trabajo en equipo y habilidades de trabajo en grupo.</string>
    <string name="Instituto">Institutos</string>
    <string name="descInstitutos">IES Murgi - España - El Ejido</string>
    <string name="2ndHighSchoolSerres">2nd High School of Serres - Grecia - Serres</string>
    <string name="ArchimedeItalia">Archimede - Italia - Modica</string>
    <string name="SamsunGaripZeycanYildirimFenLisesi">Samsun Garip-Zeycan Yıldırım fen lisesi - Turquía - Atakum/Samsun</string>
    <string name="ZespolSzkolOgoloksztalczacych2PoloniaSlupsk">Zespol Szkol Ogoloksztalczacych nr 2 - Polonia - Slupsk</string>

    <!-- Título de activity_paises -->
    <string name="tituloCiudades">Ciudades Erasmus</string>

    <!-- Etiquetas de esquema -->
    <string name="ciudad">Ciudad</string>
    <string name="pais">País</string>
    <string name="evento">Evento</string>
    <string name="descripcion">Descripción</string>

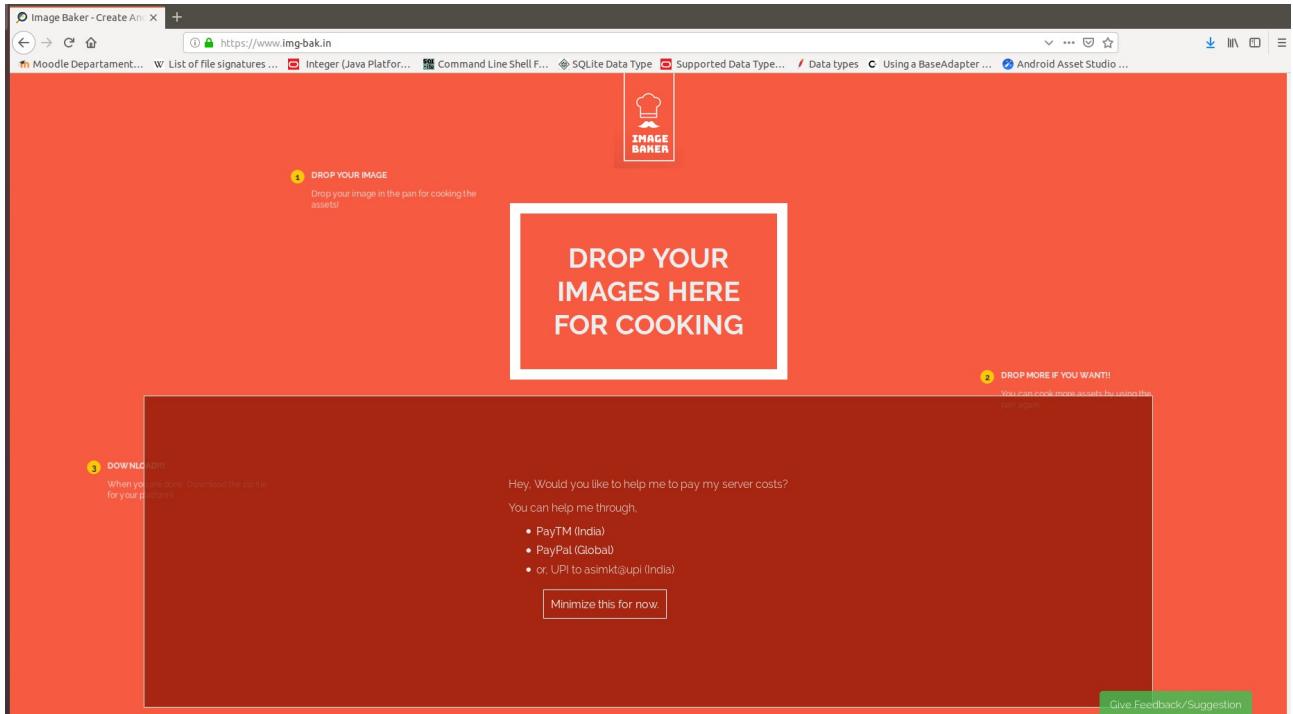
    <!-- Nombres de los Paises -->
    <string name="grecia">Grecia</string>
    <string name="espana">España</string>
    <string name="italia">Italia</string>
    <string name="polonia">Polonia</string>
    <string name="turquia">Turquía</string>

    <!-- Tabbed Activity -->
    <string name="title_activity_desc_pais">DescPais</string>
    <string name="tab_text_1">Instituto</string>
    <string name="tab_text_2">Fiestas</string>
    <string name="tab_text_3">Gastronomía</string>
```

The whole content of the pages and activities has been translated to English and Spanish, except the center and cities names.

Images

The process of scaling the images has been done with: <https://www.img-bak.in/>



Result

