

## Objective

The objective of this practical work is to take a look at the fundamentals of designing an Advanced UI for Android application, namely : **List View and Menu**. By the help of these fundamentals, we can highlight how to view a collection of data and manipulate an option menu in an UI.

### 1. Practical Tasks

- (a) Create a new Android Project in Android Studio with a *Empty Activity*, and call it **TP\_Adv\_UI\_desGXXXX**.
- (b) Open the homepage UI and (see 1) :
  - i. Modify the layout type to "**LinearLayout**".
  - ii. Examine the value of attributes : "**android :layout\_width, android :layout\_height and android :orientation**" for this layout to match them with the proper values.
  - iii. Drag the following view from the palette(legacy) : "*ListView*" with **id attribute value : "mobile\_list"**.
  - iv. Examine the value of attributes : " **android :layout\_width, android :layout\_height**" for such view to match them with the proper values.
- (c) Create a separate new **Layout XML resource file**, with "**TextView**" as "**Root element**" and name it as **activity\_listview**.
- (d) Open this file and (see 2)
  - i. Examine the value of attributes : " **android :id, android :layout\_width, android :layout\_height, android :padding** " for such view to match them with the indicated values.
- (e) Create a new **menu resource file** (Menu as "**Resource type**"), and name it as **app\_menu**.
- (f) Open this file (from res\_ menu)and (see 3)
  - i. Examine the value of attributes : " **android :id, android :title, android :icon, app :showAsAction**" for each menu item to match them with the indicated values.
- (g) Open *MainActivity.java* and (see 4) :
  - i. Examine the **onCreate() method** for this activity and modify it to perform the view of collection of data (indicated by the string object "mobileArray") as a list (indicated by the **the object "listView**" and the **ListView "mobile\_list"** in the **activity layout XML** ) by using **ArrayAdapter** (using the "**activity\_listview**" as **the resource id** of the **separate layout XML**).

- ii. Override the **onCreateOptionsMenu()** method for this activity to inflate the option menu defined by the menu XML file created above.
  - iii. Override the **onOptionsItemSelected()** method for this activity to handle the selection event of menu items.
- (h) Compile and run the app (see 5).

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    >

    <ListView
        android:id="@+id/mobile_list"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
    </ListView>

</LinearLayout>

```

FIGURE 1: Figure of activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<!-- Single List Item Design -->
<TextView xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/label"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:padding="10dip"
    android:textSize="16dip"
    android:textStyle="bold" >
</TextView>

```

FIGURE 2: Figure of activity\_listview.xml

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
      xmlns:app="http://schemas.android.com/apk/res-auto">

    <item
        android:id="@+id/menu_edition"
        android:title="Edition"
        android:icon="@android:drawable/ic_menu_edit"
        app:showAsAction="ifRoom"/>

    <item
        android:id="@+id/menu_preferences"
        android:title="Préférences"
        android:icon="@android:drawable/ic_menu_preferences"
        app:showAsAction="collapseActionView"/>

</menu>

```

FIGURE 3: Figure of app-menu.XML

```

public class MainActivity extends AppCompatActivity {
    private static final String TAG = "MainActivity";
    // Array of strings...
    String[] mobileArray = {"Android", "iPhone", "WindowsMobile", "Blackberry",
        "WebOS", "Ubuntu", "Windows7", "Max OS X"};

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

        ArrayAdapter adapter = new ArrayAdapter<String>(this,
            R.layout.activity_listview, mobileArray);

        ListView listView = (ListView) findViewById(R.id.mobile_list);
        listView.setAdapter(adapter);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.app_menu, menu);
        return true;
    }
    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        switch (item.getItemId()) {
            case R.id.menu_edition:
                Log.i(TAG, "Clic sur le bouton d'édition");
                return true;
            case R.id.menu_preferences:
                Log.i(TAG, "Clic sur le bouton des préférences");
                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }
}

```

FIGURE 4: Figure of Main\_Activity.java

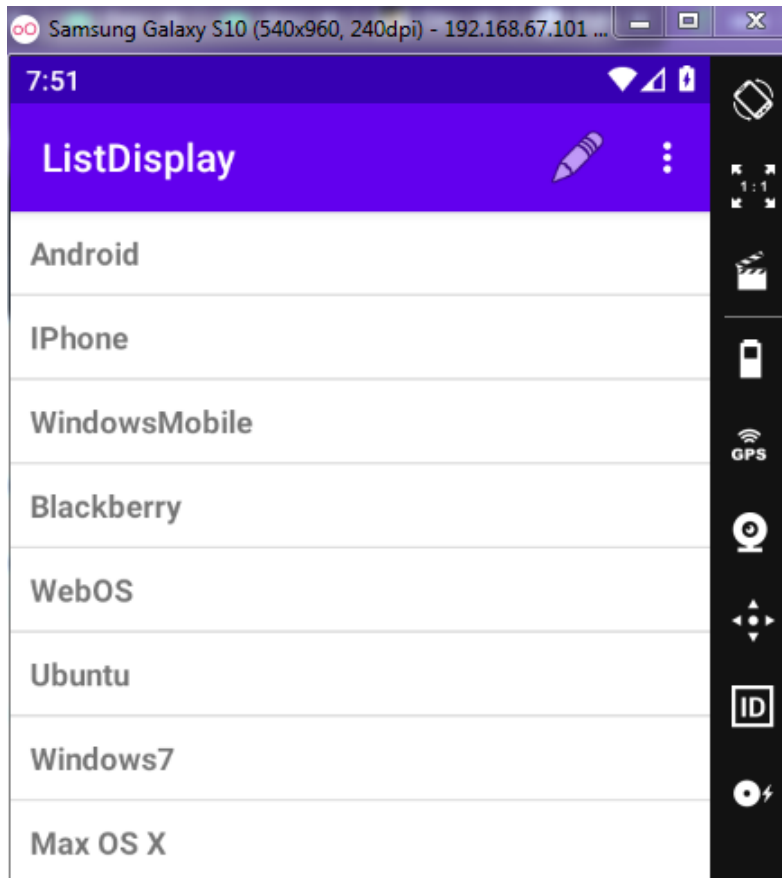


FIGURE 5: Figure of obtained UI