

uc3m

Universidad **Carlos III** de Madrid

Grupo de investigación:
Computer Security Lab

Mobile Devices Security

Bachelor Degree in Informatics Engineering

2020

SharedPreferences

- ❖ Preferences – agile way to save simple application data
- ❖ Set of key/value pair that we want to keep after the application is closed.
Ex.: language, sound settings of the application, fonts, colors, etc.
- ❖ The data that allows us to save are primitives and we can invoke using the following methods:
 - `.putInt()`, `putBoolean()`, `putFloat()`, `putLong()`, `putString()`, `putStringSet()` de la forma
(String key, tipo value)
- ❖ The application preferences are save as data in a file xml;
 - `/data/data/com.your.package/shared_prefs/com.your.package_preferences.xml`

<http://developer.android.com/reference/android/content.SharedPreferences.html>

SharedPreferences

1. To store data we will do as follow:

1. Instantiate an object of type SharedPreferences with the following arguments: file name – meaning the file that will hold the data and access mode – the mode to access to the file
2. Edit the object preferences of 1. with the help of a Editor object
3. Add values with the methods put(...) via the Editor object in order to save them
4. Update the values using the commit() method

2. Access Mode for the file holding the data

- MODE_PRIVATE - file can only be accessed using calling application
- MODE_WORLD_READABLE - other application to read the preferences
- MODE_WORLD_WRITEABLE - other application to write the preferences
- MODE_MULTI_PROCESS - checks for modification of preferences even if the sharedpreference instance has already been loaded (deprecated since API 23)

SharedPreferences

```
SharedPreferences prefs = getSharedPreferences("Name", MODE_PRIVATE);
Editor mEditor = prefs.edit();
mEditor.putString("username", username);
mEditor.putString("password", password);
mEditor.commit();
```

```
SharedPreferences prefs = getSharedPreferences("Name", MODE_PRIVATE);
String username = prefs.getString("username", "");
String password = prefs.getString("password", "");
```

username	password	← field
josef	uc3m_	← value

SP Example

1. Create the SPEjemplo project
2. Get the Java class and layout `sp_activity.xml`

```
public class SPActivity extends Activity {  
  
    SharedPreferences sprefs;  
  
    @Override  
    protected void onCreate(Bundle objShaPrefs) {  
        super.onCreate(objShaPrefs);  
        setContentView(R.layout.sp_activity);  
  
    } /** Fin del metodo protected void onCreate(Bundle objShaPrefs) ***/  
  
} /** Fin de la public class SPActivity extends Activity ***/
```



SP Example

3. Creating the layout sp_activity.xml

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center_horizontal"
        android:orientation="vertical">
    <TableRow
        android:id="@+id/tRow1"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center_horizontal">
        <TextView
            android:id="@+id/tvNombre"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/nombre"
            android:textAppearance="?android:attr/textAppearanceMedium" />
        <EditText
            android:id="@+id/etNombre"
            android:hint="@string/letrasHintNombre"
            android:maxLength="10" />
    </TableRow>
    <TableRow
        android:id="@+id/tRow2"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center_horizontal">
    </TableRow>
    <TableRow
        android:id="@+id/tRow3"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center_horizontal">
        <TextView
            android:id="@+id/tvContrasena"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/contrasena"
            android:textAppearance="?android:attr/textAppearanceMedium" />
        <EditText
            android:id="@+id/etContrasena"
            android:hint="@string/letrasContrasena"
            android:inputType="textPassword"
            android:maxLength="4" />
    </TableRow>
    <Button
        android:id="@+id/bGuardar"
        android:layout_gravity="center_vertical"
        android:layout_span="2"
        android:text="@string/bLetrasGuardar" />
</TableLayout>
```

SP Example

strings.xml:

```
<resources>
    <string name="app_name">SPAactivity</string>
    <string name="nombre">Nombre: </string>
    <string name="letrasHintNombre">letrasNombre</string>
    <string name="contrasena">Contraseña: </string>
    <string name="letrasContrasena">letrasContraseña</string>
    <string name="bLetrasGuardar">Salvar contacto</string>
</resources>
```

SP Example

4. Define the variables: file name and field

5. Define the preferences

```
public class SPAactivity extends AppCompatActivity {  
  
    TextView nombre ;  
    TextView contraseña;  
    public static final String MisPreferencias = "MyPrefs" ;  
    public static final String Nombre = "key_Nombre";  
    public static final String Contraseña = "Key_passw";  
    SharedPreferences sprefs;  
  
    @Override  
    protected void onCreate(Bundle objShaPrefs) {  
        super.onCreate(objShaPrefs);  
        setContentView(R.layout.sp_activity);  
  
        nombre = (TextView) findViewById(R.id.etNombre);  
        contraseña = (TextView) findViewById(R.id.etContrasena);  
  
        sprefs = getSharedPreferences(MisPreferencias, Context.MODE_PRIVATE);  
  
    @Override  
    protected void onCreate(Bundle objShaPrefs) {  
        super.onCreate(objShaPrefs);  
        setContentView(R.layout.sp_activity);  
  
    } /** Fin del metodo protected void onCreate(Bundle objShaPrefs) ***/  
} /** Fin de la public class SPAactivity extends Activity ***/
```



SP Example

```
public class SPActivity extends AppCompatActivity {

    TextView nombre;
    TextView contraseña;
    public static final String MisPreferencias = "MyPrefs" ;
    public static final String Nombre = "key_Nombre";
    public static final String Contraseña = "Key_passw";
    SharedPreferences sprefs;
    @Override
    protected void onCreate(Bundle objShaPrefs) {
        super.onCreate(objShaPrefs);
        setContentView(R.layout.sp_activity);
        nombre = (TextView) findViewById(R.id.etNombre);
        contraseña = (TextView) findViewById(R.id.etContraseña);
        bsave = (Button) findViewById(R.id.bGuardar);
        sprefs = getSharedPreferences(MisPreferencias, Context.MODE_PRIVATE);

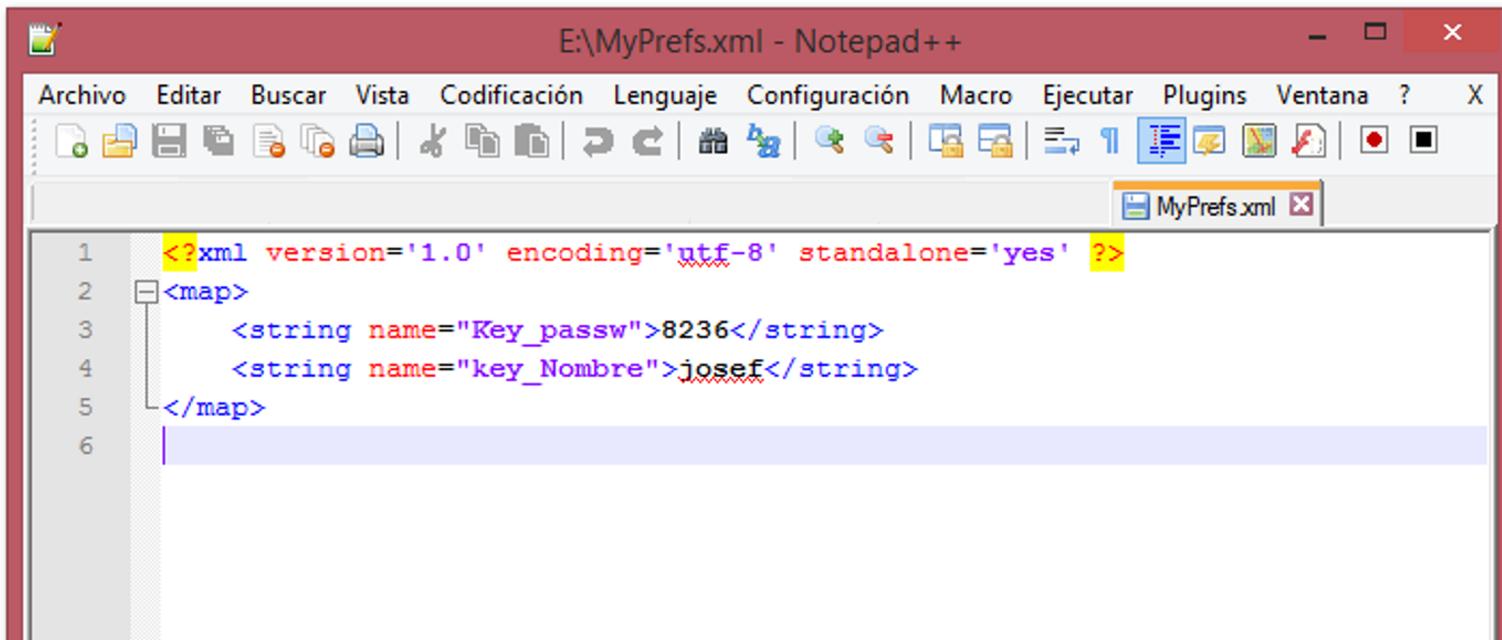
        if (sprefs.contains(Nombre))
            nombre.setText(sprefs.getString(Nombre, ""));
        if (sprefs.contains(Contraseña))
            contraseña.setText(sprefs.getString(Contraseña, ""));

        bsave.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String n = nombre.getText().toString();
                String cs = contraseña.getText().toString();
                SharedPreferences.Editor editor = sprefs.edit();
                editor.putString(Nombre, n);
                editor.putString(Contraseña, cs);
                editor.commit();
                unInt = new Intent(SPActivity.this, SegundaActividad.class);
                startActivity(unInt);
            }
        });
    } /** Fin del metodo protected void onCreate(Bundle objShaPrefs) ***/
} /** Fin de la public class SPActivity extends Activity ***/
}
```

6. Check if they are saved preferences to load
7. By mean of the button we load the new preferences
8. Go the next activity

SP Example

9. Verify the file: MyPrefs
10. Verify the files: Key_passw y key_Nombre
11. Verify the values: 8236 y josef



```
E:\MyPrefs.xml - Notepad++
Archivo Editar Buscar Vista Codificación Lenguaje Configuración Macro Ejecutar Plugins Ventana ? X
MyPrefs.xml X

1 <?xml version='1.0' encoding='utf-8' standalone='yes' ?>
2 <map>
3   <string name="Key_passw">8236</string>
4   <string name="key_Nombre">josef</string>
5 </map>
6 |
```

SP Example

Layout : act_sequnda.xml

```
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/tlTable"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:gravity="center_horizontal" >

    <TableRow
        android:id="@+id/tr0"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:minHeight="20dp" >
    </TableRow>

    <TableRow
        android:id="@+id/tr1"
        android:layout_height="wrap_content"
        android:layout_width="fill_parent"
        android:gravity="center_horizontal"
        android:layout_marginTop="20dip" >
        <TextView
            android:id="@+id/tvTitBen1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:text="@string/txtTitBen1"
            android:textAppearance="?android:attr/textAppearanceLarge" />
    </TableRow>

    <TableRow
        android:id="@+id/tr2"
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_marginTop="20dip" >
    </TableRow>

    <TableRow
        android:id="@+id/tr3"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:gravity="fill_horizontal" >
        <TextView
            android:id="@+id/tvTitBen2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_weight="1"
            android:gravity="center"
            android:text="@string/txtTitBen2"
            android:textAppearance="?android:attr/textAppearanceLarge" />
    </TableRow>
</TableLayout>
```

SP Example

strings.xml:

```
<resources>
    <string name="app_name">SPAactivity</string>
    <string name="nombre">Nombre: </string>
    <string name="letrasHintNombre">letrasNombre</string>
    <string name="contrasena">Contraseña: </string>
    <string name="letrasContrasena">letrasContraseña</string>
    <string name="bLetrasGuardar">Salvar contacto</string>
    <string name="txtTitBen1">Bienvenidos a la</string>
    <string name="txtTitBen2">Clase de SDM !!</string>
</resources>
```

SPEjemplo

Java class: SegundaActividad

```
package com.SDM.spejemplo;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class SegundaActividad extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.act_segunda);
    }
}
/** Fin de la public class SegundaActividad extends Activity **/
```



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