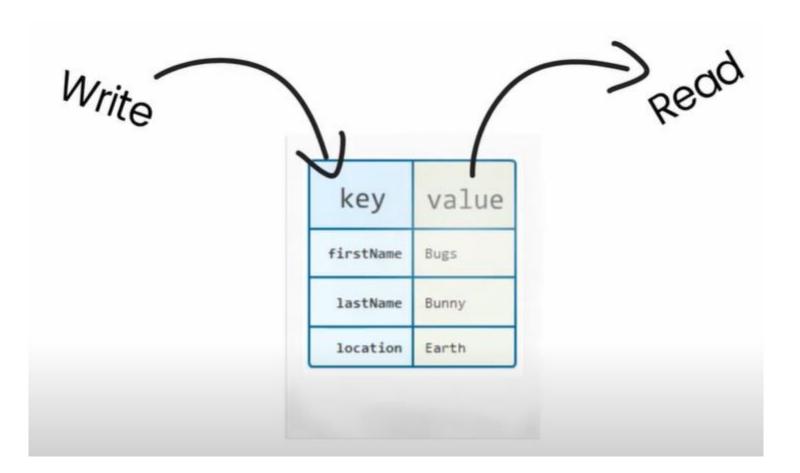# Shared preferences

Shared preferences

- Android provides many ways of storing data of an application.

- One of these ways is called Shared Preferences.

- Shared Preferences allow you to save and retrieve data in the form of key, value pair.

Why we use shared preferences?

The primary purpose of shared preferences is to store user specified configuration details such as user specific settings or keeping the user logged into the application.

User-specified configuration

Settings

User-specified configuration

Logged In

When do we use shared preferences?

- Use shared preferences when you don't need large data and data doesn't require specific structure.
- Use shared preferences when you want to save small data and you want to refer it later when user launches the application.

Shared preferences

• Shared Preferences are suitable in different situations.

• **For example, when the user's settings need to be saved or to store data that can be used in different activities within the app**.

• As you know, onPause() will always be called before your activity is placed in the background or destroyed, So for the data to be saved persistently, it's preferred to save it in onPause(), which could be restored in onCreate() of the activity.

• The data stored using shared preferences are kept private within the scope of the application. However, shared preferences are different from that activity's instance state.

shared_prefs
folder under

DATA/data/
{application package}
directory.

Android stores shared preferences settings as xml file in shared_prefs folder under DATA/data/{application package} directory.

getSharedPreferences()

- In order to use shared preferences, you have to call a method getSharedPreferences() that returns a SharedPreference instance pointing to the file that contains the values of preferences.

- Syntax
  - SharedPreferences sharedpreferences = getSharedPreferences(MyPREFERENCES, Context.MODE_PRIVATE);

- Apart from private there are other modes available

Sr.No	Mode & description
1	MODE_APPEND - This will append the new preferences with the already existing preferences.
2	MODE_ENABLE_WRITE_AHEAD_LOGGING - Database open flag. When it is set , it would enable write ahead logging by default.
3	MODE_MULTI_PROCESS - This method will check for modification of preferences even if the sharedpreference instance has already been loaded.
4	MODE_PRIVATE - By setting this mode, the file can only be accessed using a calling application.
5	MODE_WORLD_READABLE - This mode allows other applications to read the preferences.
6	MODE_WORLD_WRITEABLE - This mode allow other application to write the preferences

- You can save something in the sharedpreferences by using the SharedPreferences. Editor class.
- You will call the edit method of the SharedPreference instance and will receive it in an editor object.
- Its syntax is –
  - Editor editor = sharedpreferences.edit();
  - editor.putString("key", "value");
  - editor.commit();

Methods of editor class

1	apply() - It is an abstract method. It will commit your changes back from the editor to the sharedPreference object you are calling.
2	clear() - It will remove all values from the editor.
3	remove(String key) - It will remove the value whose key has been passed as a parameter.
4	putLong(String key, long value) - It will save a long value in a preference editor
5	putInt(String key, int value) - It will save a integer value in a preference editor
6	putFloat(String key, float value) - It will save a float value in a preference editor

Initialization

```
SharedPreferences  pref = getApplicationContext().getSharedPreferences("MyPref", 0);
// 0 -  for  private mode
Editor editor = pref.edit();
```

Storing Data

- editor.commit() is used in order to save changes to shared preferences.

- editor.putBoolean("key_name", true);   // Storing boolean - true/false
- editor.putString("key_name", "string value");   // Storing string
- editor.putInt("key_name", "int value") ;   // Storing integer
- editor.putFloat("key_name", "float value");   //Storing float
- editor.putLong("key_name", "long value");   // Storing long

editor.commit(); // commit changes

Retrieving Data

Data can be retrieved from saved preferences by calling methods listed below

- pref.getString("key_name", null); / getting String
- pref.getInt("key_name", -1); / getting Integer
- pref.getFloat("key_name", null); / getting Float
- pref.getLong("key_name", null); / getting Long
- pref.getBoolean("key_name", null); / getting boolean

Clearing or Deleting Data

– remove("key_name") is used to delete that particular value.

– clear() is used to remove all data

•Example

    editor.remove("name");   // will delete key name
    editor.remove("email"); // will delete key email
    editor.commit(); // commit changes
    editor.clear();

- **Write an android program for shared preference to store value in name-value pairs.**
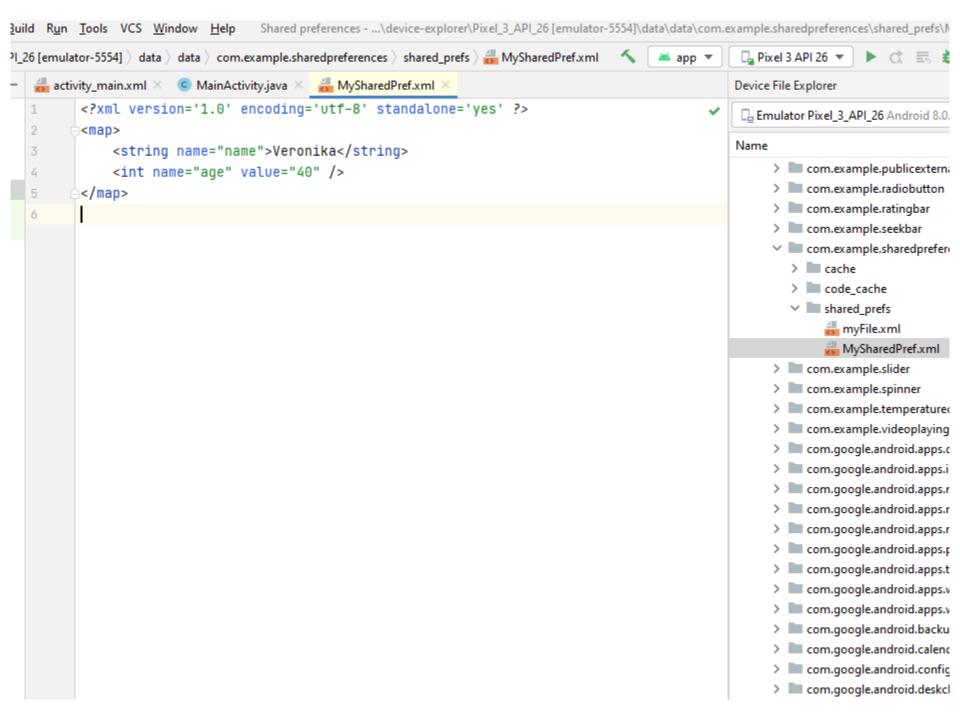
activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    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"
    tools:context=".MainActivity"
    tools:ignore="HardcodedText">

    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="32dp"
        android:text="Shared Preferences Demo"
        android:textColor="@android:color/black"
        android:textSize="24sp" />

    <EditText
        android:id="@+id/edit1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textview"
        android:layout_marginStart="16dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="16dp"
        android:hint="Enter your Name"
        android:padding="10dp" />

    <EditText
        android:id="@+id/edit2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/edit1"
        android:layout_marginStart="16dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="16dp"
        android:hint="Enter your Age"
        android:padding="10dp" />

</RelativeLayout>
```

MainActivity.java

```java
package com.example.sharedpreferences;

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    private EditText name, age;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.edit1);
        age = findViewById(R.id.edit2);
    }
    @Override
    protected void onResume() {
        super.onResume();
        SharedPreferences sh = getSharedPreferences("MySharedPref", MODE_PRIVATE);
        String s1 = sh.getString("name", "");
        int a = sh.getInt("age", 0);
        name.setText(s1);
        age.setText(String.valueOf(a));
    }

    @Override
    protected void onPause() {
        super.onPause();
        SharedPreferences sharedPreferences = getSharedPreferences("MySharedPref",
MODE_PRIVATE);
        SharedPreferences.Editor myEdit = sharedPreferences.edit();
        myEdit.putString("name", name.getText().toString());
        myEdit.putInt("age", Integer.parseInt(age.getText().toString()));
        myEdit.apply();
    }
}
```

PI_26 [emulator-5554] › data › data › com.example.sharedpreferences › shared_prefs › MySharedPref.xml   app ▾   Pixel 3 API 26 ▾

activity_main.xml ×   C MainActivity.java ×   MySharedPref.xml ×

```xml
1   <?xml version='1.0' encoding='utf-8' standalone='yes' ?>
2   <map>
3       <string name="name">Veronika</string>
4       <int name="age" value="40" />
5   </map>
6
```

Device File Explorer

Emulator Pixel_3_API_26 Android 8.0.

Name

> com.example.publicexterna
> com.example.radiobutton
> com.example.ratingbar
> com.example.seekbar
∨ com.example.sharedprefer
  > cache
  > code_cache
  ∨ shared_prefs
       myFile.xml
       MySharedPref.xml
> com.example.slider
> com.example.spinner
> com.example.temperatured
> com.example.videoplaying
> com.google.android.apps.c
> com.google.android.apps.i
> com.google.android.apps.r
> com.google.android.apps.r
> com.google.android.apps.r
> com.google.android.apps.p
> com.google.android.apps.t
> com.google.android.apps.v
> com.google.android.apps.v
> com.google.android.backu
> com.google.android.calend
> com.google.android.config
> com.google.android.deskcl

Create a login form with remember me checkbox. Save the username and password if the checkbox is checked using shared preference and show the welcome page when the login button is clicked.

```
activity_main.xml

<?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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center_horizontal"
    android:layout_margin="20dp"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/editTextText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="text" />
    <EditText
        android:id="@+id/editTextNumberPassword"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="numberPassword" />
    <CheckBox
        android:id="@+id/checkBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Remember Me" />
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="login" />
</LinearLayout>
```

```java
MainActivity.java
package com.example.loginsharedpreference;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    Button login;
    EditText name,pwd;
    CheckBox remember;
    SharedPreferences pref;
    Intent intent;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        login = findViewById(R.id.btn_login);
        name = findViewById(R.id.username);
        pwd = findViewById(R.id.password);
        remember = findViewById(R.id.cb_remember_me);
        pref = getSharedPreferences("user_details",MODE_PRIVATE);
        intent = new Intent(MainActivity.this, HomeScreen.class);
        if(pref.contains("username") && pref.contains("password")){
            startActivity(intent);}
```

```java
login.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String username = name.getText().toString();
            String password = pwd.getText().toString();
            if(username.equals("john") && password.equals("123") &&
remember.isChecked()){
                SharedPreferences.Editor editor = pref.edit();
                editor.putString("username",username);
                editor.putString("password",password);
                editor.commit();
                Toast.makeText(getApplicationContext() , "Login Successful",
Toast.LENGTH_LONG).show();
                startActivity(intent);
            }
            else if (username.equals("john") && password.equals("123"))
            {
                Toast.makeText(getApplicationContext() , "Login Successful",
Toast.LENGTH_LONG).show();
                startActivity(intent);
            }
            else{
                Toast.makeText(getApplicationContext() , "Invalid
credentials", Toast.LENGTH_LONG).show();
            }
        }
    });
    }
}
```

activity_home_screen.xml

```xml
<?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:gravity="center"
    android:orientation="vertical"
    tools:context=".HomeScreen">

    <TextView
        android:id="@+id/tv_display"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:padding="24dp"
        android:text="You are Logged In"
        android:textStyle="bold"
        android:textSize="24sp"
        android:textColor="#000000"/>

    <Button
        android:id="@+id/btn_logout"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="#FFFFFF"
        android:background="#000000"
        android:text="Logout" />

</LinearLayout>
```

HomeScreen.java

```java
package com.example.loginsharedpreference;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class HomeScreen extends AppCompatActivity {
    TextView tv_display;
    Button btn_logout;
    SharedPreferences prf;
    Intent intent;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_home_screen);
        tv_display = findViewById(R.id.tv_display);
        btn_logout = findViewById(R.id.btn_logout);
        prf = getSharedPreferences("user_details",MODE_PRIVATE);
        tv_display.setText("Hello, "+ prf.getString("username",null));
        btn_logout.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                SharedPreferences.Editor editor = prf.edit();
                editor.clear();
                editor.commit();
                intent = new Intent(HomeScreen.this, MainActivity.class);
                startActivity(intent);
            }
        });
    }
}
```

Reference

https://www.youtube.com/watch?v=LHaxq3YdxZU