
1. Create Login Form in Android

Aim:

To design a simple login form in Android with username and password fields.

XML Layout (activity_main.xml):

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
```

```
    android:layout_width="match_parent"
```

```
    android:layout_height="match_parent"
```

```
    android:orientation="vertical"
```

```
    android:gravity="center"
```

```
    android:padding="20dp">
```

```
    <EditText
```

```
        android:id="@+id/etUsername"
```

```
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
```

```
        android:hint="Enter Username"
```

```
        android:inputType="text"/>
```

```
    <EditText
```

```
        android:id="@+id/etPassword"
```

```
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
```

```
        android:hint="Enter Password"
```

```
        android:inputType="textPassword"/>
```

```
    <Button
```

```
        android:id="@+id/btnLogin"
```

```
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
```

```
        android:text="Login"/>
```

</LinearLayout>

Java Code (MainActivity.java):

```
package com.example.loginform;
```

```
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.*;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    EditText etUsername, etPassword;
```

```
    Button btnLogin;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```
        etUsername = findViewById(R.id.etUsername);
```

```
        etPassword = findViewById(R.id.etPassword);
```

```
        btnLogin = findViewById(R.id.btnLogin);
```

```
        btnLogin.setOnClickListener(new View.OnClickListener() {
```

```
            @Override
```

```
            public void onClick(View v) {
```

```
                String user = etUsername.getText().toString();
```

```
                String pass = etPassword.getText().toString();
```

```
                if(user.equals("admin") && pass.equals("1234")){
```

```
                    Toast.makeText(MainActivity.this, "Login Successful", Toast.LENGTH_SHORT).show();
```

```
                } else {
```

```

        Toast.makeText(MainActivity.this, "Invalid Username or Password",
        Toast.LENGTH_SHORT).show();

    }

}

});

}

}

```

Output:

- If the username = admin and password = 1234, a **Toast** displays *"Login Successful"*.
 - Otherwise, *"Invalid Username or Password"*.
-

2. Login Application Connect to Next Page

Aim:

To design a login application that moves to another page (new Activity) after successful login.

Step 1: Create Two Activities

- MainActivity.java → Login Page
- SecondActivity.java → Next Page

Login Page XML (activity_main.xml):

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:orientation="vertical"

    android:gravity="center"

    android:padding="20dp">

    <EditText

        android:id="@+id/etUsername"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:hint="Enter Username"/>

```

```
<EditText
    android:id="@+id/etPassword"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter Password"
    android:inputType="textPassword"/>
```

```
<Button
    android:id="@+id/btnLogin"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Login"/>
```

```
</LinearLayout>
```

Next Page XML (activity_second.xml):

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center">
```

```
<TextView
    android:id="@+id/tvWelcome"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Welcome to Next Page"
    android:textSize="22sp"/>
```

```
</LinearLayout>
```

MainActivity.java:

```
package com.example.loginapp;
```

```
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.content.Intent;
```

```
import android.os.Bundle;

import android.view.View;

import android.widget.*;

public class MainActivity extends AppCompatActivity {

    EditText etUsername, etPassword;

    Button btnLogin;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        etUsername = findViewById(R.id.etUsername);

        etPassword = findViewById(R.id.etPassword);

        btnLogin = findViewById(R.id.btnLogin);

        btnLogin.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                String user = etUsername.getText().toString();

                String pass = etPassword.getText().toString();

                if(user.equals("admin") && pass.equals("1234")){

                    Intent i = new Intent(MainActivity.this, SecondActivity.class);

                    startActivity(i);

                } else {

                    Toast.makeText(MainActivity.this, "Invalid Login", Toast.LENGTH_SHORT).show();

                }

            }

        });

    }

};
```

```
}  
}
```

SecondActivity.java:

```
package com.example.loginapp;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.widget.TextView;  
  
public class SecondActivity extends AppCompatActivity {  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_second);  
  
        TextView tv = findViewById(R.id.tvWelcome);  
        tv.setText("Welcome! You are logged in successfully.");  
    }  
}
```

Manifest File (AndroidManifest.xml):

Make sure to declare the second activity:

```
<application ...>  
    <activity android:name=".SecondActivity"/>  
</application>
```

Output:

- If login is successful → moves to **SecondActivity** page.
- If login fails → shows a **Toast message**.

3. Android application change background colour of

layout

Step 1: XML Layout (activity_main.xml)

```
<RelativeLayout

    xmlns:android="http://schemas.android.com/apk/res/android"

    android:id="@+id/mainLayout"

    android:layout_width="match_parent"

    android:layout_height="match_parent">


    <TextView

        android:id="@+id/textView"

        android:text="Background Color Changing"

        android:layout_centerInParent="true"

        android:textSize="20sp"

        android:textColor="#000000"/>

</RelativeLayout>
```

Step 2: Java Activity (MainActivity.java)

```
import android.graphics.Color;

import android.os.Bundle;

import android.os.Handler;

import android.widget.RelativeLayout;


import androidx.appcompat.app.AppCompatActivity;


import java.util.Random;


public class MainActivity extends AppCompatActivity {


    RelativeLayout mainLayout;

    Handler handler = new Handler();

    Random random = new Random();


    @Override

    protected void onCreate(Bundle savedInstanceState) {
```

```

super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);

mainLayout = findViewById(R.id.mainLayout);

// Start changing background color automatically
handler.postDelayed(changeColorRunnable, 1000); // start after 1 sec
}

Runnable changeColorRunnable = new Runnable() {
    @Override
    public void run() {
        // Generate random color
        int color = Color.rgb(random.nextInt(256), random.nextInt(256), random.nextInt(256));
        mainLayout.setBackgroundColor(color);

        // Repeat every 1 second
        handler.postDelayed(this, 1000);
    }
};
}

```

✓ Explanation:

- We use a Handler to run code repeatedly.
- Random generates random RGB colors.
- postDelayed ensures it runs every 1 second.

4 > Create chatting application in Android.

1. Create Project

- Android Studio → New Project → Empty Activity
- Language: **Java**
- Minimum SDK: API 21+

2. Layout (activity_main.xml)

```
<LinearLayout

    xmlns:android="http://schemas.android.com/apk/res/android"

    android:orientation="vertical"

    android:layout_width="match_parent"

    android:layout_height="match_parent">

    <ListView

        android:id="@+id/listView"

        android:layout_width="match_parent"

        android:layout_height="0dp"

        android:layout_weight="1"/>

    <LinearLayout

        android:orientation="horizontal"

        android:layout_width="match_parent"

        android:layout_height="wrap_content">

        <EditText

            android:id="@+id/messageEditText"

            android:layout_width="0dp"

            android:layout_weight="1"

            android:hint="Type message"/>

        <Button

            android:id="@+id/sendButton"

            android:layout_width="wrap_content"

            android:text="Send"/>

    </LinearLayout>

</LinearLayout>
```

3. MainActivity.java

```
package com.example.simplechat;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

    ListView listView;
    EditText messageEditText;
    Button sendButton;
    ArrayList<String> messages;
    ArrayAdapter<String> adapter;

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

        listView = findViewById(R.id.listView);
        messageEditText = findViewById(R.id.messageEditText);
        sendButton = findViewById(R.id.sendButton);
    }
}
```

```
messages = new ArrayList<>();

adapter = new ArrayAdapter<>(this, android.R.layout.simple_list_item_1, messages);

listView.setAdapter(adapter);


sendButton.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        String msg = messageEditText.getText().toString();

        if(!msg.isEmpty()){

            messages.add("You: " + msg);

            adapter.notifyDataSetChanged();

            messageEditText.setText("");


            // Simulate a reply from "Friend"

            messages.add("Friend: " + "Got your message!");

            adapter.notifyDataSetChanged();

        }

    }

});

}
```

✓ **How this works:**

1. You type a message → press **Send** → it shows in the list.
 2. The app immediately simulates a reply from **Friend**.
 3. Everything is **stored locally** in an ArrayList.
-