1.Develop an application that uses GUI components, Font and Colors.

Xml code

*<?*xml version="1.0" encoding="utf-8"*?>*<androidx.constraintlayout.widget.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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Jagadhesh"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="change in color"  
 tools:layout\_editor\_absoluteX="120dp"  
 tools:layout\_editor\_absoluteY="452dp" />  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="change in size"  
 tools:layout\_editor\_absoluteX="142dp"  
 tools:layout\_editor\_absoluteY="163dp" />  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="TextView"  
 tools:layout\_editor\_absoluteX="150dp"  
 tools:layout\_editor\_absoluteY="80dp" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

Java code

import  
 android.app.Activity;  
import android.graphics.Color;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
  
public class MainActivity extends Activity {  
  
 int ch = 1;  
 float font = 30;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_main);  
  
 final TextView t = (TextView) findViewById(R.id.textView3);  
 Button b1 = (Button) findViewById(R.id.button);  
 Button b2 = (Button) findViewById(R.id.button2);  
  
 b1.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 t.setTextSize(font);  
 font = font + 5;  
 if (font == 50) {  
 font = 30;  
 }  
 }  
 });  
  
 b2.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 switch (ch) {  
 case 1:  
 t.setTextColor(Color.*RED*);  
 break;  
 case 2:  
 t.setTextColor(Color.*GREEN*);  
 break;  
 case 3:  
 t.setTextColor(Color.*BLUE*);  
 break;  
 case 4:  
 t.setTextColor(Color.*CYAN*);  
 break;  
 case 5:  
 t.setTextColor(Color.*YELLOW*);  
 break;  
 case 6:  
 t.setTextColor(Color.*MAGENTA*);  
 break;  
 }  
 ch++;  
 if (ch == 7)  
 ch = 1;  
 }  
 });  
 }  
}

2 .Develop an application that uses Layout Managers and event listeners.

android:id="@+id/main\_layout"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical"

android:padding="20dp"

tools:context=".MainActivity">

<!-- TextView -->

<TextView

android:id="@+id/textView"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Hello! Press the button below."

android:textSize="20sp"

android:gravity="center"

android:padding="16dp" />

<!-- Button -->

<Button

android:id="@+id/button"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Click Me"

android:layout\_gravity="center"

android:padding="12dp" />

java code

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

TextView textView;

Button button;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

// Initialize views

textView = findViewById(R.id.textView);

button = findViewById(R.id.button);

// Set Event Listener on Button

button.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

textView.setText("Button Clicked! Event Listener Worked 🎉");

}

});

}

}

3. Implement an application that draws basic graphical primitives on the screen.

<TextView

android:id="@+id/text1"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_centerInParent="true"

android:layout\_marginLeft="30dp"

android:layout\_marginTop="20dp"

android:layout\_marginRight="30dp"

android:fontFamily="@font/ptserifbold"

android:text="@string/splash\_screen"

android:textAlignment="center"

android:textColor="#689F38"

android:textSize="34sp" />

</RelativeLayout>

**Java Code**

package com.example.splashscreen;

import android.os.Bundle;

import androidx.activity.EdgeToEdge;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

EdgeToEdge.enable(this);

setContentView(R.layout.activity\_main);

}

}

4. Design an Authentication form using validation check.

<?xml version="1.0" encoding="utf-8"?>

<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="textPersonName" />

<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="match\_parent"

android:layout\_height="wrap\_content"

android:text="Login" />

</LinearLayout>

Java code

import android.os.Bundle;

import android.widget.\*;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

EditText user = findViewById(R.id.etUsername);

EditText pass = findViewById(R.id.etPassword);

Button login = findViewById(R.id.btnLogin);

login.setOnClickListener(v -> {

if(user.getText().toString().equals("admin") &&

pass.getText().toString().equals("1234")) {

Toast.makeText(this, "Login Success", Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(this, "Login Failed", Toast.LENGTH\_SHORT).show();

}

});

}

}

5. Develop an application that makes use of Notification Manager.

Xml code

<?xml version="1.0" encoding="utf-8"?>

<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">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Notification Example"

android:textSize="20sp"

android:textStyle="bold" />

</LinearLayout>

Java code

package com.example.notificationapp;

import android.app.NotificationManager;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

import androidx.core.app.NotificationCompat;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

NotificationCompat.Builder builder = new NotificationCompat.Builder(this)

.setSmallIcon(android.R.drawable.ic\_dialog\_info)

.setContentTitle("Notification")

.setContentText("Hello! This is a simple notification");

NotificationManager manager = (NotificationManager) getSystemService(NOTIFICATION\_SERVICE);

manager.notify(1, builder.build());

}

}

6. Implement an application that uses Multi-threading.

<?xml version="1.0" encoding="utf-8"?>

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:gravity="center"

android:orientation="vertical"

android:padding="20dp">

<TextView

android:id="@+id/textView"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Starting..."

android:textSize="24sp" />

</LinearLayout>

Java code

package com.example.multithreadapp;

import android.os.Bundle;

import android.os.Handler;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

TextView textView;

Handler handler = new Handler(); // To update UI from background thread

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

textView = findViewById(R.id.textView);

// Start a background thread

new Thread(() -> {

for (int i = 1; i <= 5; i++) {

int finalI = i;

// Update UI using Handler

handler.post(() -> textView.setText("Count: " + finalI));

try {

Thread.sleep(1000); // wait 1 second

} catch (InterruptedException e) {

e.printStackTrace();

}

}

}).start();

}

}

7. Implement an application that writes data to the SD card.

Xml code

<?xml version="1.0" encoding="utf-8"?>

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:gravity="center"

android:orientation="vertical">

<Button

android:id="@+id/btnWrite"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Write File" />

</LinearLayout>

Java code

package com.example.sdcardapp;

import android.os.Bundle;

import android.os.Environment;

import android.widget.Button;

import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import java.io.File;

import java.io.FileOutputStream;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle b) {

super.onCreate(b);

setContentView(R.layout.activity\_main); // Connects XML layout

Button btn = findViewById(R.id.btnWrite);

btn.setOnClickListener(v -> {

try {

File f = new File(Environment.getExternalStorageDirectory(), "myfile.txt");

new FileOutputStream(f).write("Hello SD Card!".getBytes());

Toast.makeText(this, "Saved!", Toast.LENGTH\_SHORT).show();

} catch (Exception e) {

Toast.makeText(this, "Error", Toast.LENGTH\_SHORT).show();

}

});

}

}

8. Implement an application that creates an alert upon receiving a message.

<?xml version="1.0" encoding="utf-8"?>

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:gravity="center"

android:orientation="vertical"

android:padding="20dp">

<Button

android:id="@+id/btnMessage"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Receive Message" />

</LinearLayout>

Java code

package com.example.alertapp;

import android.app.AlertDialog;

import android.os.Bundle;

import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle b) {

super.onCreate(b);

setContentView(R.layout.activity\_main); // Connect XML

Button btn = findViewById(R.id.btnMessage);

btn.setOnClickListener(v -> {

new AlertDialog.Builder(this)

.setTitle("Message")

.setMessage("You got a new message!")

.setPositiveButton("OK", null)

.show();

});

}

}