1. **Create “Hello World" application that will display “Hello World" in the middle of the screen using the TextView Widget in red color.**

```
<?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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:foregroundGravity="center"
        android:gravity="center_horizontal|center_vertical"
        android:text="Hello World !"
        android:textSize="50sp"
        android:textColor="#FD3C3C"
        tools:ignore="InefficientWeight" />
</LinearLayout>
```

2. **Create a Registration page to demonstrate Basic widgets available in Android.**

```
<?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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

        <EditText
            android:id="@+id/et_username"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Enter Username"
            android:inputType="textPersonName" />

       <EditText
            android:id="@+id/et_email"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Enter Email"
            android:inputType="textEmailAddress" />

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

        <Button
            android:id="@+id/btn_register"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="16dp"
            android:text="Register"
            android:backgroundTint="#3b5998"
            android:textColor="#FFFFFF" />

</LinearLayout>
```

3. **Create a sample application with a login module (Check username and password). On successful login, change TextView to “Login Successful."**

```
<?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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

                <EditText
                    android:id="@+id/et_username"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:hint="Enter Username"
                    android:inputType="text" />
            <EditText
                android:id="@+id/et_password"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:hint="Enter Password"
                android:inputType="textPassword" />

            <Button
                android:id="@+id/btn_login"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="16dp"
                android:text="Login" />

            <TextView
                android:id="@+id/tv_status"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_marginTop="16dp"
                android:text=""
                android:textSize="18sp"
                android:textColor="#000000" />

        </LinearLayout>
```

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```
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
```

```
 EditText etUsername = findViewById(R.id.et_username);
EditText etPassword = findViewById(R.id.et_password);
Button btnLogin = findViewById(R.id.btn_login);
TextView tvStatus = findViewById(R.id.tv_status);

btnLogin.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String username = etUsername.getText().toString();
        String password = etPassword.getText().toString();

        if (username.equals("admin") && password.equals("password123")) {
            tvStatus.setText("Login Successful");
        } else {
            tvStatus.setText("Login Failed");
        }
    }
});
}
}
```

4. **Create an application for demonstration of Scroll View in Android.**

```
<?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">


    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical">

    <ScrollView
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:layout_weight="1"
                android:orientation="vertical">

                <TextView
                android:id="@+id/textView"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:layout_margin="20dp"
                android:textSize="40sp"
                android:text="TextView" />

            <TextView
                android:id="@+id/textView2"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:layout_margin="20dp"
                android:textSize="40sp"
                android:text="TextView" />

            <TextView
```

```
    android:id="@+id/textView3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />

<TextView
    android:id="@+id/textView4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />

<TextView
    android:id="@+id/textView5"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />

<TextView
    android:id="@+id/textView6"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />
<TextView
    android:id="@+id/textView63"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />
<TextView
    android:id="@+id/textView61"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />
<TextView
```

```
    android:id="@+id/textView6545"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />
<TextView
    android:id="@+id/textView6223"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:layout_margin="20dp"
    android:textSize="40sp"
    android:text="TextView" />
</LinearLayout>
```

5. Demonstrate the use of intent in Android.

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

        <Button
            android:id="@+id/btn_next_activity"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Go to Next Activity" />

</LinearLayout>
```

Activity_second.xml

```
<?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=".activity_second">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="page 2"
        tools:ignore="MissingConstraints" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Mainactivity.java

```
public class MainActivity extends AppCompatActivity
{
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button btnNextActivity = findViewById(R.id.btn_next_activity);

        btnNextActivity.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(MainActivity.this, activity_second.class);
                startActivity(intent); // Start the new activity
            }
        });

    }
}
```

6. **Create an application for a calculator.**

```
<?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:padding="16dp">

        <EditText
            android:id="@+id/et_number1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Enter First Number"
            android:inputType="numberDecimal" />

    <EditText
        android:id="@+id/et_number2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Second Number"
        android:inputType="numberDecimal" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_marginTop="16dp">

            <Button
                android:id="@+id/btn_add"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:text="Add" />

            <Button
                android:id="@+id/btn_subtract"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:text="Subtract" />
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_marginTop="8dp">

            <Button
```

```
            android:id="@+id/btn_multiply"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Multiply" />

        <Button
            android:id="@+id/btn_divide"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Divide" />
</LinearLayout>

<TextView
            android:id="@+id/tv_result"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="16dp"
            android:text="Result: "
            android:textSize="18sp"
            android:textColor="#000000" />

</LinearLayout>
```

Mainactivity.java

```
public class MainActivity extends AppCompatActivity {

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

        EditText etNumber1 = findViewById(R.id.et_number1);
        EditText etNumber2 = findViewById(R.id.et_number2);
        Button btnAdd = findViewById(R.id.btn_add);
        Button btnSubtract = findViewById(R.id.btn_subtract);
        Button btnMultiply = findViewById(R.id.btn_multiply);
        Button btnDivide = findViewById(R.id.btn_divide);
        TextView tvResult = findViewById(R.id.tv_result);

        btnAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                calculateResult(etNumber1, etNumber2, tvResult, "add");
            }
        });
```

```
btnSubtract.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        calculateResult(etNumber1, etNumber2, tvResult, "subtract");
    }
});

btnMultiply.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        calculateResult(etNumber1, etNumber2, tvResult, "multiply");
    }
});
```

```
        btnDivide.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                calculateResult(etNumber1, etNumber2, tvResult, "divide");
            }
        });
    }

    private void calculateResult(EditText etNumber1, EditText etNumber2, TextView tvResult,
String operation) {
        double num1 = Double.parseDouble(etNumber1.getText().toString());
        double num2 = Double.parseDouble(etNumber2.getText().toString());
        double result = 0;

        switch (operation) {
            case "add":
                result = num1 + num2;
                break;
            case "subtract":
                result = num1 - num2;
                break;
            case "multiply":
                result = num1 * num2;
                break;
            case "divide":
                if (num2 != 0) {
                    result = num1 / num2;
                } else {
                    tvResult.setText("Error: Division by zero");
                    return;
                }
                break;
        }
        tvResult.setText("Result: " + result);
    }
}
```