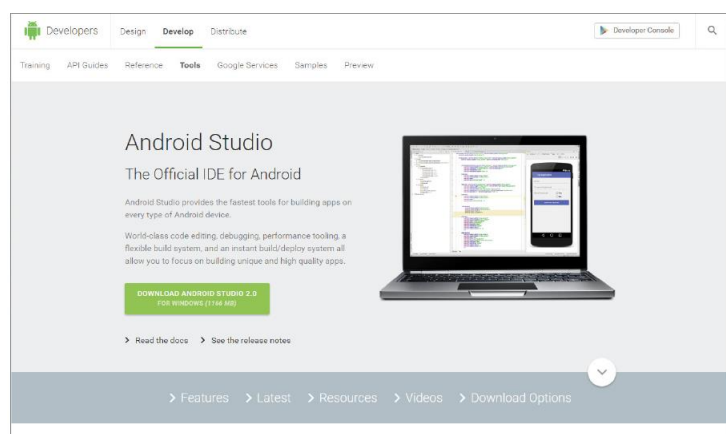# 1. INSTALLATION OF ANDROID STUDIO

The first and most important piece of software you need to download is Android Studio 2. After you have downloaded and installed Android Studio 2, you can use the SDK Manager to download and install multiple versions of the Android SDK.
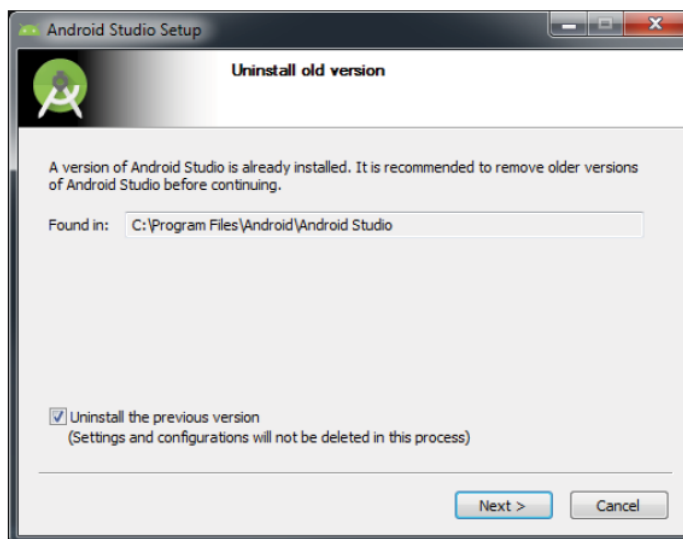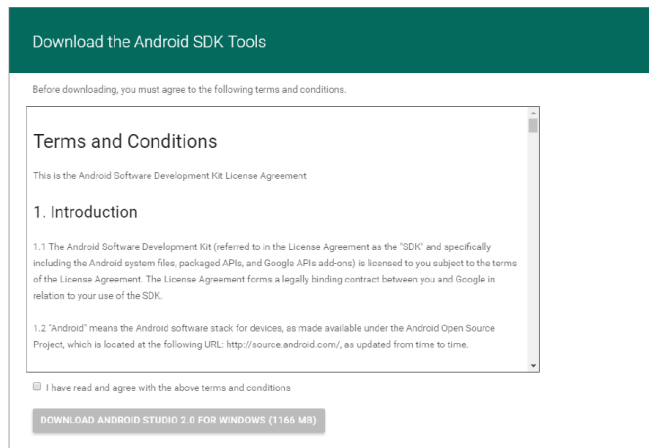
You can download Android Studio 2 from http://developer.android.com/sdk/index.html .

Android Studio 2 is packaged in an executable. Run the install process to set up Android Studio 2.

After you've downloaded and run the setup executable, use the following steps to go through the installation process:

1. Accept the terms and conditions shown in Figure .

2. If you have an older version of Android Studio already installed on your computer, the

Android Studio Setup prompts you to automatically uninstall it. Even though the old version

of Android Studio will be uninstalled, the settings and configurations are retained. You have

an opportunity to reapply those settings and configurations to Android Studio 2 after the

setup has completed. Figure shows the screen where you are prompted to uninstall an old

version of Android Studio.

Download the Android SDK Tools

Before downloading, you must agree to the following terms and conditions.

Terms and Conditions

This is the Android Software Development Kit License Agreement

1. Introduction

1.1 The Android Software Development Kit (referred to in the License Agreement as the "SDK" and specifically including the Android system files, packaged APIs, and Google APIs add-ons) is licensed to you subject to the terms of the License Agreement. The License Agreement forms a legally binding contract between you and Google in relation to your use of the SDK.

1.2 "Android" means the Android software stack for devices, as made available under the Android Open Source Project, which is located at the following URL: http://source.android.com/, as updated from time to time.

☐ I have read and agree with the above terms and conditions

DOWNLOAD ANDROID STUDIO 2.0 FOR WINDOWS (1166 MB)

Android Studio Setup

Uninstall old version

A version of Android Studio is already installed. It is recommended to remove older versions of Android Studio before continuing.

Found in: C:\Program Files\Android\Android Studio

☑ Uninstall the previous version
(Settings and configurations will not be deleted in this process)

Next >   Cancel

3. Click Next on the Welcome to Android Studio Setup screen .

Android Studio Setup

Welcome to Android Studio Setup

Setup will guide you through the installation of Android Studio.

It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.

Android Studio

< Back   Next >   Cancel

4. Pick which components of Android Studio you want to install from the screen shown in Figure . Android Studio is selected by default (and cannot be deselected), which makessense given that you are going through all of this trouble for the distinct purpose

2

of installing Android Studio. Android SDK and Android Virtual Device are also selected by default. Click Next to accept the default choices and continue.
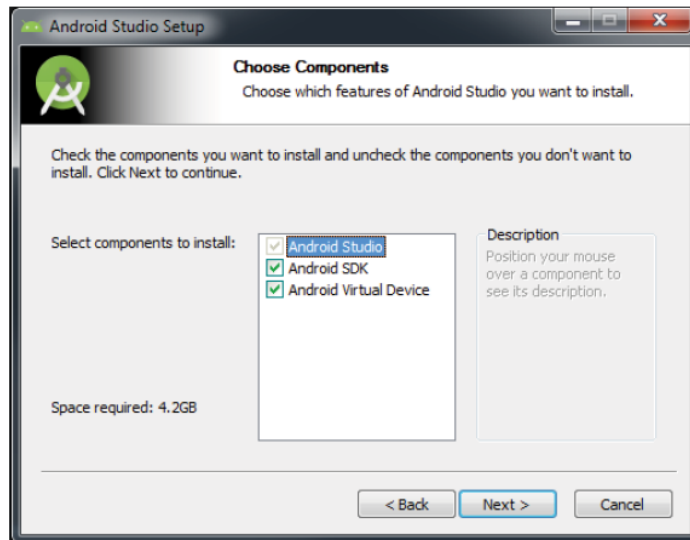
5. You are presented with the License Agreement, as shown in Figure . Click I Agree to continue.
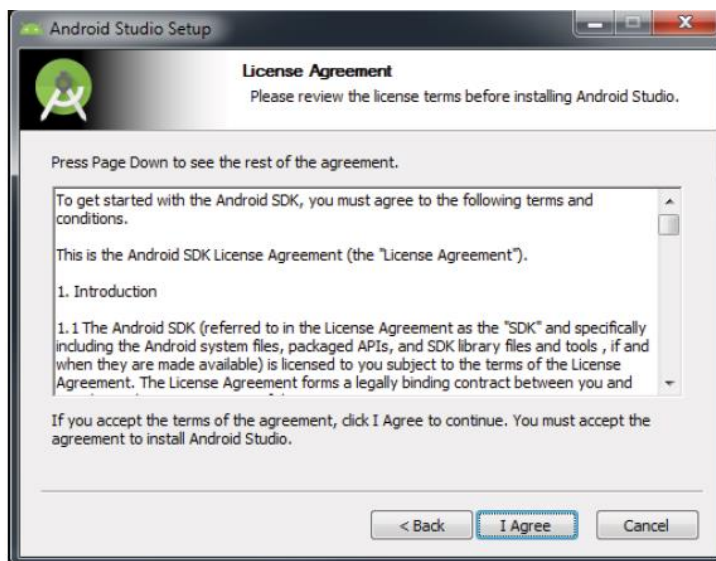
6. On the configuration settings screen, it is best to accept the default locations specified by the setup process and click Next to continue. You see the Choose Start Menu Folder screen (shown in Figure 1-11). Click Install to kick off the Android Studio 2 installation.
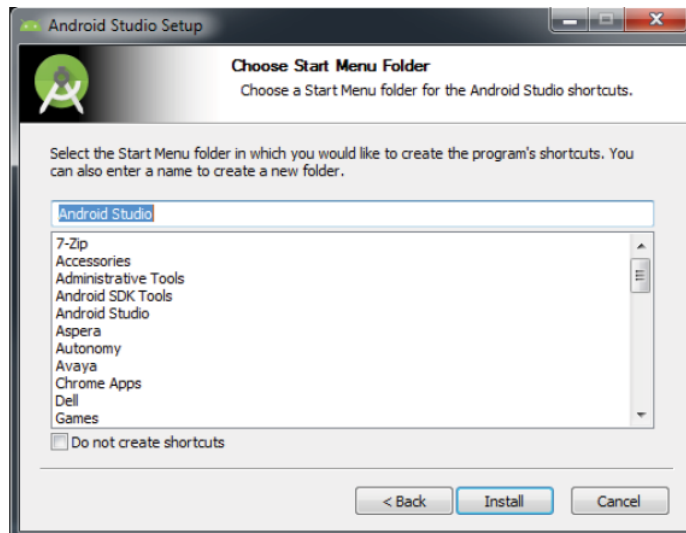
7. Installing Android Studio 2 could take a few minutes, depending on the speed of your computer.

You are presented with a progress bar to help you track the state of the installation.

Android Studio 2 is installed with a default SDK (Software Development Kit), in this case Marshmallow. Later in the process you have the opportunity to install other SDKs.

The Android SDK allows you to develop and write applications geared for a specific version of Android. In other words, applications written with the Marshmallow SDK run on Android devices running Marshmallow, but they also possibly run on other versions depending on which features of the SDK you used in the application.

8. When the install is complete, you will see a Completing Android Studio Setup screen (shown in Figure 1-12). Leave the Start Android Studio box checked and click Finish.
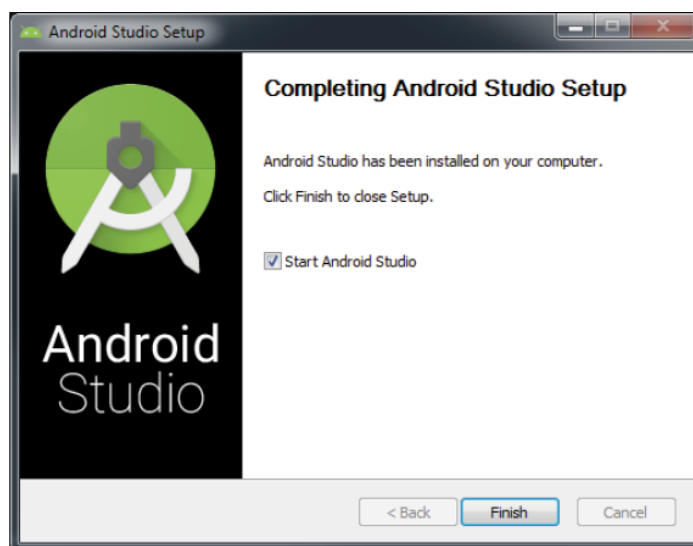
9. Android Studio 2 prompts you to either import settings from a previous version of Android Studio or continue with new settings. If you uninstalled a previous version in the first step of the installation process, Android Studio offers you a chance to recover the settings used in that previous version and apply them to Android Studio 2 .
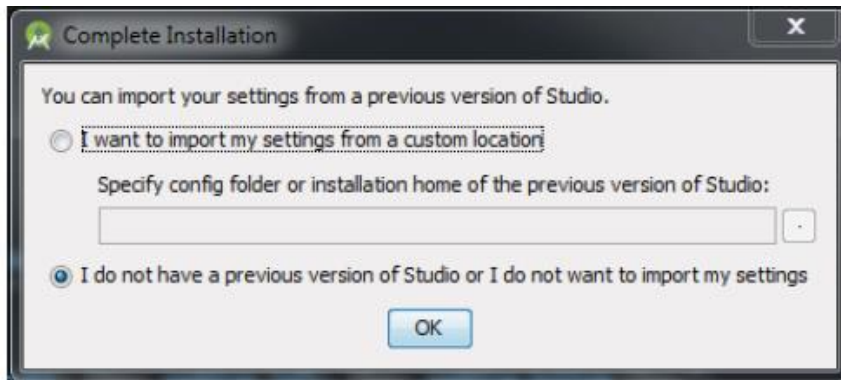
2. Development of Hello World Application.

activity_main.xml :

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="300dp"
        android:layout_height="64dp"
        android:text="Hello World!"
        android:textSize="50dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
 </androidx.constraintlayout.widget.ConstraintLayout>
```

Mainactivity.java

```java
package com.example.helloworld;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```
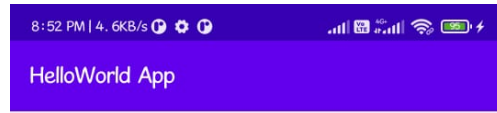
super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);}}

OUTPUT :

3. Design an application to implement activity life cycle.

activity_main.xml :

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello Android Studio!"
        android:textSize="35dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

JAVA :

```java
package com.example.myactivity;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
public class MainActivity extends AppCompatActivity {
    @Override
```

8

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

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    Log.d("onCreate","Invoked");

}

@Override

public void onStart()

{

    super.onStart();

    Log.d("OnStart","Invoked");

}

@Override

public void onResume()

{

    super.onResume();

    Log.d("OnResume","Invoked");

}

@Override

public void onPause()

{

    super.onPause();

    Log.d("OnPause","Invoked");

}

@Override

public void onStop()

{

    super.onStop();

    Log.d("OnStop","Invoked");

}
```

9

```java
@Override

public void onRestart()

{

    super.onRestart();

    Log.d("OnRestart","Invoked");

}

@Override

public void onDestroy()

{

    super.onDestroy();

    Log.d("OnDestroy","Invoked");

}

}
```

OUTPUT :

```
2022-09-14 20:39:45.944 25821-25821/com.example.myactivity D/onCreate: Invoked
2022-09-14 20:39:45.953 25821-25821/com.example.myactivity D/OnStart: Invoked
2022-09-14 20:39:45.959 25821-25821/com.example.myactivity D/OnResume: Invoked
2022-09-14 20:39:50.115 25821-25821/com.example.myactivity D/OnPause: Invoked
2022-09-14 20:39:50.767 25821-25821/com.example.myactivity D/OnStop: Invoked
2022-09-14 20:39:50.862 25821-25821/com.example.myactivity D/OnRestart: Invoked
2022-09-14 20:39:50.871 25821-25821/com.example.myactivity D/OnStart: Invoked
2022-09-14 20:39:50.887 25821-25821/com.example.myactivity D/OnResume: Invoked
2022-09-14 20:39:52.855 25821-25821/com.example.myactivity D/OnPause: Invoked
2022-09-14 20:39:53.556 25821-25821/com.example.myactivity D/OnStop: Invoked
2022-09-14 20:39:54.428 25821-25821/com.example.myactivity D/OnRestart: Invoked
2022-09-14 20:39:54.429 25821-25821/com.example.myactivity D/OnStart: Invoked
2022-09-14 20:39:54.432 25821-25821/com.example.myactivity D/OnResume: Invoked
2022-09-14 20:39:56.444 25821-25821/com.example.myactivity D/OnPause: Invoked
```

4. Design an android application to create page using Intent and one Button and pass the Values from one Activity to second Activity.

activity_main.xml

```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/tv1"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/textView"
        android:layout_width="300dp"
        android:layout_height="85dp"
        android:text="Hello and Welcome To Android Studio"
        android:textColor="#4BEA20"
        android:textSize="34dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.414"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.99" />
    <EditText
        android:id="@+id/name"
```

```
        android:layout_width="317dp"

        android:layout_height="50dp"

        android:ems="10"

        android:inputType="textPersonName"

        android:hint="enter your username"

        app:layout_constraintBottom_toTopOf="@+id/textView"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.497"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.141" />

    <EditText

        android:id="@+id/email"

        android:layout_width="317dp"

        android:layout_height="50dp"

        android:ems="10"

        android:inputType="textEmailAddress"

        android:hint="enter your email-id"

        app:layout_constraintBottom_toTopOf="@+id/textView"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.403"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/name"

        app:layout_constraintVertical_bias="0.134" />

    <Button

        android:id="@+id/button"

        android:layout_width="162dp"

        android:layout_height="46dp"

        android:text="Submit"
```

```
        app:layout_constraintBottom_toTopOf="@+id/textView"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.497"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/email"

        app:layout_constraintVertical_bias="0.269" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Mainactivity.java

```java
package com.example.activity1;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        Button b=findViewById(R.id.button);

        EditText u=findViewById(R.id.name);

        EditText e=findViewById(R.id.email);

        b.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {

                String name=u.getText().toString();
```

```
        String email=e.getText().toString();

        Intent intent=new Intent(MainActivity.this,MainActivity2.class);

        intent.putExtra("username",name);

        intent.putExtra("email",email);

        startActivity(intent);

    }

  });

  }

}
```

activity_main2.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/tv1"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity2">
  <TextView
    android:id="@+id/t1"
    android:layout_width="383dp"
    android:layout_height="153dp"
    android:textColor="#C31212"
    android:textSize="30dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
```

```
      app:layout_constraintStart_toStartOf="parent"

      app:layout_constraintTop_toTopOf="parent"

      app:layout_constraintVertical_bias="0.17" />

  <TextView

      android:id="@+id/t2"

      android:layout_width="359dp"

      android:layout_height="136dp"

      app:layout_constraintBottom_toBottomOf="parent"

      app:layout_constraintEnd_toEndOf="parent"

      app:layout_constraintStart_toStartOf="parent"

      app:layout_constraintTop_toBottomOf="@+id/t1"

      app:layout_constraintVertical_bias="0.258" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Mainactivity2.java

```java
package com.example.activity1;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.widget.TextView;

public class MainActivity2 extends AppCompatActivity {

  @Override

  protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main2);

    TextView t1=findViewById(R.id.t1);

    TextView t2=findViewById(R.id.t2);

      Intent intent=getIntent();

      String str1=intent.getStringExtra("username");
```

```
        String str2=intent.getStringExtra("email");

        t1.setText(str1+"\n"+str2);

    }

  }
```

OUTPUT :
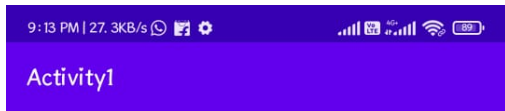
5. Demonstrate Login validation by reading User Name and Password from User.

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/username"
        android:layout_width="300dp"
        android:layout_height="70dp"
        android:layout_marginStart="30dp"
        android:layout_marginTop="68dp"
        android:layout_marginEnd="68dp"
        android:ems="10"
        android:hint="User Name"
        android:inputType="textPersonName"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="MissingConstraints" />
    <EditText
        android:id="@+id/password"
        android:layout_width="300dp"
        android:layout_height="70dp"
```

```xml
        android:layout_marginTop="68dp"

        android:ems="10"

        android:hint="Password"

        android:inputType="textPassword"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.381"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/username"

        app:layout_constraintVertical_bias="0.0"

        tools:ignore="MissingConstraints" />

    <Button

        android:id="@+id/button"

        android:layout_width="189dp"

        android:layout_height="82dp"

        android:layout_marginStart="52dp"

        android:layout_marginTop="80dp"

        android:text="Login"

        app:layout_constraintStart_toStartOf="@+id/password"

        app:layout_constraintTop_toBottomOf="@+id/password"

        tools:ignore="MissingConstraints" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Mainactivity.java

```java
package com.example.loginvalidation;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;
```

```java
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    EditText username;
    EditText password;
    Button b;
    String un = "abcd";
    String psd = "xyz";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        username = findViewById(R.id.username);
        password = findViewById(R.id.password);
        b = findViewById(R.id.button);
        b.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (username.getText().toString().equals(un) &&
                        password.getText().toString().equals(psd)) {
                    Toast.makeText(MainActivity.this,
                            "Login Success", Toast.LENGTH_LONG).show();
                } else
                    Toast.makeText(MainActivity.this,
                            "Login Failed",
                            Toast.LENGTH_LONG).show();
            }
        });
    }
}
```
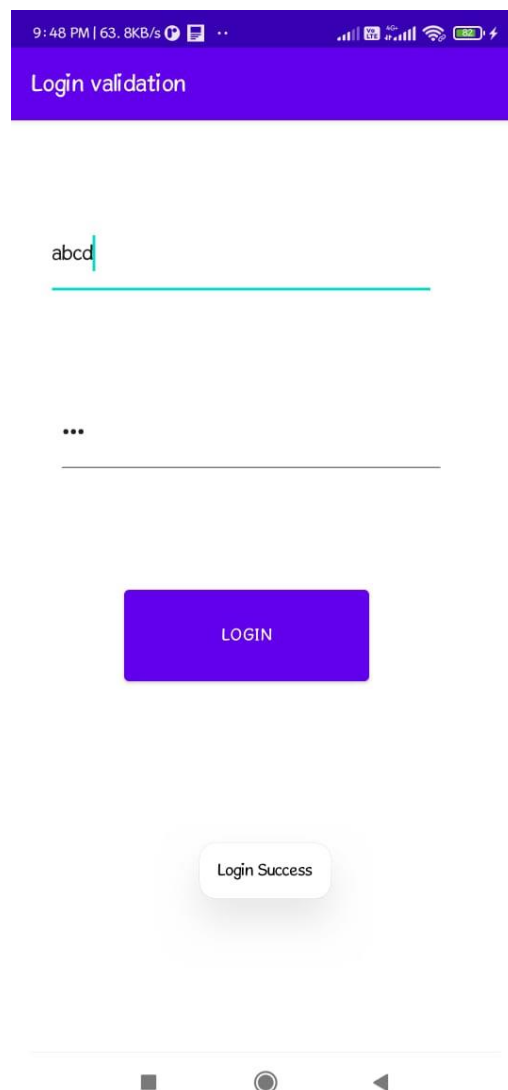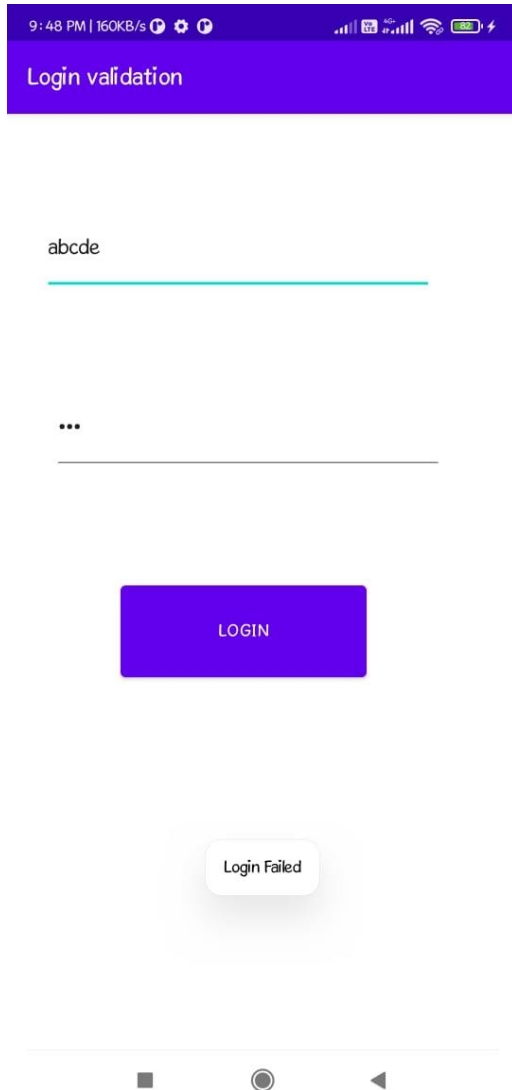
OUTPUT :

6. Create an application that takes the Student data (Name, Regd.Number, Email and Mobile number) from the user and display the same, when the user clicks the OK button.

activity_main.xml

```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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/name"
        android:layout_width="315dp"
        android:layout_height="55dp"
        android:ems="10"
        android:hint="name"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.059" />
    <EditText
        android:id="@+id/regno"
        android:layout_width="315dp"
        android:layout_height="55dp"
        android:ems="10"
```

```
    android:inputType="textPersonName"

    android:hint="Regd.No"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/name"

    app:layout_constraintVertical_bias="0.05" />

<EditText

    android:id="@+id/email"

    android:layout_width="315dp"

    android:layout_height="55dp"

    android:ems="10"

    android:inputType="textEmailAddress"

    android:hint="email"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.496"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/regno"

    app:layout_constraintVertical_bias="0.069" />

<Button

    android:id="@+id/button"

    android:layout_width="163dp"

    android:layout_height="43dp"

    android:text="submit"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/mobile"

    app:layout_constraintVertical_bias="0.128" />
```

```xml
    <TextView

        android:id="@+id/view"

        android:layout_width="363dp"

        android:layout_height="228dp"

        android:textColor="#27DF2E"

        android:textSize="30dp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/button"

        app:layout_constraintVertical_bias="0.843" />

    <EditText

        android:id="@+id/mobile"

        android:layout_width="315dp"

        android:layout_height="55dp"

        android:ems="10"

        android:inputType="textPersonName"

        android:hint="Mobile Number"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.428"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/email"

        app:layout_constraintVertical_bias="0.076" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Mainactivity.java

```java
package com.example.helloworld;

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

```java
import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

  @Override

  protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    EditText n=findViewById(R.id.name);

    EditText r=findViewById(R.id.regno);

    EditText e=findViewById(R.id.email);

    EditText m=findViewById(R.id.mobile);

    Button   b=findViewById(R.id.button);

    TextView tv=findViewById(R.id.view);

    b.setOnClickListener(new View.OnClickListener() {

      @Override

      public void onClick(View view) {

        String s1=n.getText().toString();

        String s2=r.getText().toString();

        String s3=e.getText().toString();

        String s4=m.getText().toString();

        tv.setText("name :"+s1+"\n"+"Regd.No :"+s2+"\n"+"email :"+s3+"\n"+"Mobile :"+s4);

      }

    });

  }

}
```
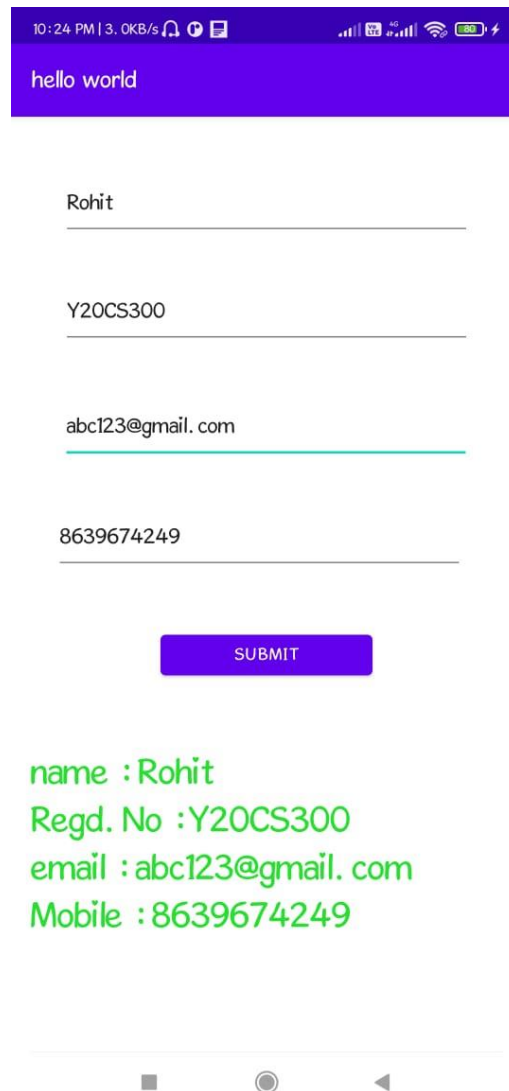
OUTPUT :

25

7. Design Arithmetic calculator.

activity_main.xml

```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"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_marginBottom="1pt"
        android:layout_height="wrap_content"
        android:ems="10"
        android:layout_weight="1"
        android:background="@color/black"
        android:gravity="right|center"
        android:textColor="@color/white"
        android:textSize="20pt"
        android:inputType="textPersonName"
        android:text="0" />
    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
        <TableRow
```

```xml
android:layout_marginBottom="1pt"

android:layout_width="match_parent"

android:layout_height="match_parent">

<Button

   android:id="@+id/btnSeven"

   android:text="@string/_7"

   android:onClick="numberEvent"

   android:layout_marginRight="1pt"

   android:layout_height="30pt"

   android:layout_weight="1"

   android:textColor="@color/white"

   android:layout_width="30pt"

   android:background="@color/purple_200">

</Button>

<Button

   android:id="@+id/btnEight"

   android:text="@string/_8"

   android:layout_marginRight="1pt"

   android:onClick="numberEvent"

   android:layout_height="30pt"

   android:layout_weight="1"

   android:textColor="@color/white"

   android:layout_width="30pt"

   android:background="@color/purple_200">

   </Button>

<Button

   android:id="@+id/btnNine"

   android:text="@string/_9"

   android:layout_marginRight="1pt"
```

```
            android:onClick="numberEvent"

            android:layout_height="30pt"

            android:layout_weight="1"

            android:textColor="@color/white"

            android:layout_width="30pt"

            android:background="@color/purple_200">

        </Button>

      <Button

            android:id="@+id/btnDivide"

            android:text="@string/div"

            android:onClick="operatorEvent"

            android:layout_marginRight="1pt"

            android:layout_height="30pt"

            android:textColor="@color/white"

            android:layout_weight="1"

            android:layout_width="30pt"

            android:background="@color/purple_200">

        </Button>

    </TableRow>

</TableLayout>

<TableLayout

    android:layout_width="match_parent"

    android:layout_height="wrap_content">

    <TableRow

        android:layout_marginBottom="1pt"

        android:layout_width="match_parent"

        android:layout_height="match_parent">

        <Button

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

```
    android:text="@string/_4"

    android:layout_marginRight="1pt"

    android:onClick="numberEvent"

    android:textColor="@color/white"

    android:layout_height="30pt"

    android:layout_weight="1"

    android:layout_width="30pt"

    android:background="@color/purple_200">

    </Button>

<Button

    android:id="@+id/btnFive"

    android:text="@string/_5"

    android:layout_marginRight="1pt"

    android:layout_height="30pt"

    android:textColor="@color/white"

    android:onClick="numberEvent"

    android:layout_weight="1"

    android:layout_width="30pt"

    android:background="@color/purple_200">

    </Button>

<Button

    android:id="@+id/btnSix"

    android:text="@string/_6"

    android:layout_marginRight="1pt"

    android:onClick="numberEvent"

    android:layout_height="30pt"

    android:textColor="@color/white"

    android:layout_weight="1"

    android:layout_width="30pt"
```

```xml
        android:background="@color/purple_200">

        </Button>

    <Button

        android:id="@+id/btnMultiply"

        android:text="@string/multiply"

        android:onClick="operatorEvent"

        android:layout_marginRight="1pt"

        android:layout_height="30pt"

        android:textColor="@color/white"

        android:layout_weight="1"

        android:layout_width="30pt"

        android:background="@color/purple_200">

        </Button>

    </TableRow>

</TableLayout>

<TableLayout

    android:layout_width="match_parent"

    android:layout_height="wrap_content">

    <TableRow

        android:layout_width="match_parent"

        android:layout_marginBottom="1pt"

        android:layout_height="match_parent">

        <Button

        android:id="@+id/btnOne"

        android:text="@string/one"

        android:layout_marginRight="1pt"

        android:layout_height="30pt"

        android:layout_weight="1"

        android:textColor="@color/white"
```

```xml
        android:onClick="numberEvent"

        android:layout_width="30pt"

        android:background="@color/purple_200">

      </Button>

    <Button

        android:id="@+id/btnTwo"

        android:text="@string/two"

        android:layout_marginRight="1pt"

        android:layout_height="30pt"

        android:textColor="@color/white"

        android:layout_weight="1"

        android:onClick="numberEvent"

        android:layout_width="30pt"

        android:background="@color/purple_200">

      </Button>

    <Button

        android:id="@+id/btnThree"

        android:text="@string/three"

        android:layout_marginRight="1pt"

        android:layout_height="30pt"

        android:layout_weight="1"

        android:layout_width="30pt"

        android:textColor="@color/white"

        android:onClick="numberEvent"

        android:background="@color/purple_200">

      </Button>

    <Button

        android:id="@+id/btnMinus"

        android:text="@string/minus"
```

```
        android:layout_marginRight="1pt"

        android:layout_height="30pt"

        android:onClick="operatorEvent"

        android:textColor="@color/white"

        android:layout_weight="1"

        android:layout_width="30pt"

        android:background="@color/purple_200">

        </Button>

    </TableRow>

</TableLayout>

<TableLayout

    android:layout_width="match_parent"

    android:layout_height="wrap_content">


    <TableRow

        android:layout_width="match_parent"

        android:layout_height="match_parent"

        android:layout_marginBottom="1pt">

        <Button

            android:id="@+id/btnAC"

            android:text="@string/percent"

            android:layout_marginRight="1pt"

            android:onClick="percentEvent"

            android:layout_height="30pt"

            android:layout_weight="1"

            android:layout_width="30pt"

            android:background="@color/purple_200">

        </Button>

        <Button
```

```xml
    android:id="@+id/btnZero"

    android:text="@string/zero"

    android:layout_marginRight="1pt"

    android:layout_height="30pt"

    android:layout_weight="1"

    android:textColor="@color/white"

    android:layout_width="30pt"

    android:onClick="numberEvent"

    android:background="@color/purple_200">

    </Button>

<Button

    android:id="@+id/btnDot"

    android:text="."

    android:layout_marginRight="1pt"

    android:layout_height="30pt"

    android:onClick="numberEvent"

    android:layout_weight="1"

    android:textColor="@color/white"

    android:layout_width="30pt"

    android:background="@color/purple_200">

    </Button>

<Button

    android:id="@+id/btnPlus"

    android:text="@string/plus"

    android:layout_marginRight="1pt"

    android:layout_height="30pt"

    android:layout_weight="1"

    android:textColor="@color/white"

    android:onClick="operatorEvent"
```

```
        android:layout_width="30pt"

        android:background="@color/purple_200">

        </Button>

    </TableRow>

</TableLayout>

<TableLayout

    android:layout_width="match_parent"

    android:layout_height="wrap_content">

    <TableRow

        android:layout_width="match_parent"

        android:layout_marginBottom="1pt"

        android:layout_height="match_parent">

        <Button

            android:id="@+id/btnC"

            android:text="@string/cancel"

            android:layout_marginRight="1pt"

            android:layout_height="30pt"

            android:layout_weight="1"

            android:layout_width="30pt"

            android:onClick="clearEvent"

            android:background="@color/purple_200">

            </Button>

        <Button

            android:id="@+id/btnEqual"

            android:text="@string/equal"

            android:layout_marginRight="1pt"

            android:layout_height="30pt"

            android:layout_weight="1"

            android:onClick="equalEvent"
```

```xml
            android:textColor="@color/white"

            android:layout_width="30pt"

            android:background="@color/purple_200">

            </Button>

        </TableRow>

    </TableLayout>

</LinearLayout>
```

Mainactivity.java

```java
package com.example.tutorial;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    boolean isNewOperator = true;

    EditText edt1;

    String operator = "+";

    String initialNumber = "";

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);


        edt1 = findViewById(R.id.editText);

    }

    public void numberEvent(View view) {

        if(isNewOperator)
```

```
    edt1.setText("");

isNewOperator = false;

String number = edt1.getText().toString();

if(view.getId() == R.id.btnOne){

    number += "1";

}

else if(view.getId() == R.id.btnTwo){

    number += "2";

}

else if(view.getId() == R.id.btnThree){

    number += "3";

}

else if(view.getId() == R.id.btnFour){

    number += "4";

}

else if(view.getId() == R.id.btnFive){

    number += "5";

}

else if(view.getId() == R.id.btnSix){

    number += "6";

}

else if(view.getId() == R.id.btnSeven){

    number += "7";

}

else if(view.getId() == R.id.btnEight){

    number += "8";

}

else if(view.getId() == R.id.btnNine){

    number += "9";
```

```java
    }
    else if(view.getId() == R.id.btnZero){

      number += "0";

    }
    else if(view.getId() == R.id.btnDot){

      number += ".";

    }
    edt1.setText(number);

}
public void operatorEvent(View view) {

    isNewOperator =true;

    initialNumber = edt1.getText().toString();

    if(view.getId() == R.id.btnMultiply){

      operator = "*";}

    else if(view.getId() == R.id.btnMinus){

      operator = "-";}

    else if(view.getId() == R.id.btnDivide){

      operator = "/";}

    else if(view.getId() == R.id.btnPlus){

      operator = "+";

    }

}
public void equalEvent(View view) {

    String newNumber = edt1.getText().toString();

    double output = 0.0;

    if(operator == "+")

      output = Double.parseDouble(initialNumber) + Double.parseDouble(newNumber);

    if(operator == "/")

      output = Double.parseDouble(initialNumber) / Double.parseDouble(newNumber);
```

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```java
        if(operator == "*")

            output = Double.parseDouble(initialNumber) * Double.parseDouble(newNumber);

        if(operator == "-")

            output = Double.parseDouble(initialNumber) - Double.parseDouble(newNumber);

        edt1.setText(output+"");

    }

    public void clearEvent(View view) {

        edt1.setText("0");

        isNewOperator = true;

    }

    public void percentEvent(View view) {

        double num = Double.parseDouble(edt1.getText().toString())/100;

        edt1.setText(num+"");

        isNewOperator = true;

    }

}
```

OUTPUT :
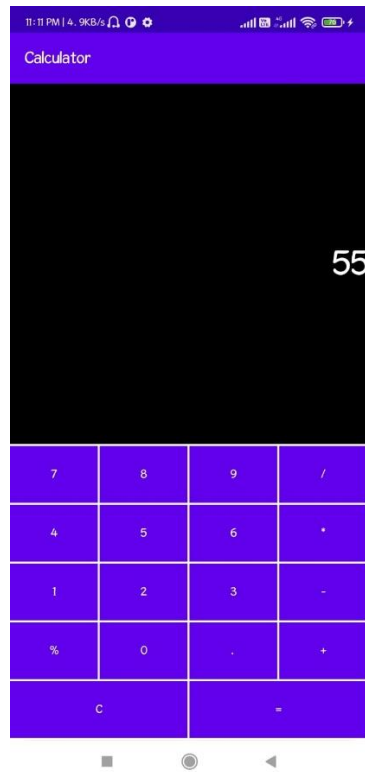
8. Develop an application to display images using Image Switcher.

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:id="@+id/activity_main"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context="com.example.imagedisplay.MainActivity">
<ImageView android:layout_width="200dp"
android:layout_height="200dp"
android:layout_centerHorizontal="true"
android:id="@+id/img1"/>
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/img1"
android:layout_centerHorizontal="true"
android:text="Change Image"
android:id="@+id/button"/>
</RelativeLayout>
```

Mainactivity.java

```java
package com.example.imagedisplay;
import android.app.Activity;
```

```java
import android.os.Bundle;

import android.widget.Button;

import android.widget.ImageView;

import android.view.View;

import androidx.appcompat.app.AppCompatActivity;

import android.view.View.OnClickListener;

public class MainActivity extends AppCompatActivity {

Button b1;

ImageView iv;

boolean flag;

int images[]={R.drawable.a1,R.drawable.a2,R.drawable.a3};

int i=0;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);

iv=(ImageView) findViewById(R.id.img1);

b1=(Button) findViewById(R.id.button);

flag=true; b1.setOnClickListener(new View.OnClickListener() {

@Override public void onClick(View v) {

iv.setImageResource(images[i]);

i++;

if(i==3)

i=0;

}

});

}

}
```
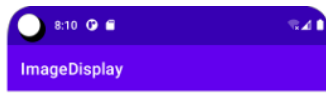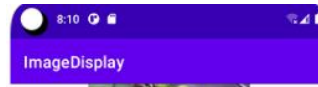
OUTPUT :

9. Design an android application for menu.

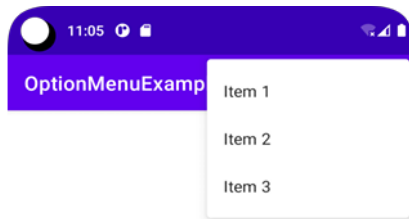## Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayoutxmlns: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"
tools:context=".MainActivity">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Hello World!"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.optionmenuexample;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;
```

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```java
public class MainActivityextends AppCompatActivity{
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
//Toolbar toolbar= (Toolbar) findViewById(R.id.toolbar);
//setSupportActionBar(toolbar);
} @Override
public booleanonCreateOptionsMenu(Menu menu) {
// Inflate the menu; this adds items to the action bar if it is present.
getMenuInflater().inflate(R.menu.menu_main, menu);
return true;
}
@Override
public booleanonOptionsItemSelected(MenuItemitem) {
intid = item.getItemId();
switch (id){
case R.id.item1:
Toast.makeText(getApplicationContext(),"Item 1 Selected",Toast.LENGTH_LONG).show();
return true;
case R.id.item2:
Toast.makeText(getApplicationContext(),"Item 2 Selected",Toast.LENGTH_LONG).show();
return true;
case R.id.item3:
Toast.makeText(getApplicationContext(),"Item 3 Selected",Toast.LENGTH_LONG).show();
return true;
default: return super.onOptionsItemSelected(item);
}
}
}
```
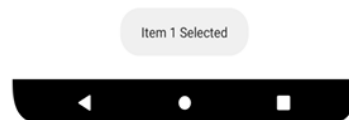
45

OUTPUT :
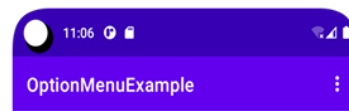
10. Create a user registration application that stores the user details in a database table.

activity_main.xml

```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"
    tools:context=".MainActivity"
    android:orientation="vertical">
    <EditText
        android:id="@+id/student_id"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
        android:ems="10"
        android:inputType="number"
        android:hint="Student ID"/>
    <EditText
        android:id="@+id/student_name"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Student Name"/>
    <Button
```

```
        android:layout_width="match_parent"

        android:layout_height="0dp"

        android:layout_weight="1"

        android:text="Load All Students"

        android:onClick="loadStudents"/>

    <TextView

        android:id="@+id/result"

        android:layout_width="match_parent"

        android:layout_height="0dp"

        android:layout_weight="1"

        android:hint="Result"

        android:textSize="30dp"/>

    <Button

        android:layout_width="match_parent"

        android:layout_height="0dp"

        android:layout_weight="1"

        android:onClick="addStudent"

        android:text="ADD" />

    <Button

        android:layout_width="match_parent"

        android:layout_height="0dp"

        android:layout_weight="1"

        android:onClick="updateStudent"

        android:text="UPDATE"/>

    <Button

        android:layout_width="match_parent"

        android:layout_height="0dp"

        android:layout_weight="1"

        android:onClick="deleteStudent"

        android:text="DELETE By Id"/>

</LinearLayout>
```

MainActivity.java

```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"
    tools:context=".MainActivity"
    android:orientation="vertical">
    <EditText
        android:id="@+id/student_id"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
        android:ems="10"
        android:inputType="number"
        android:hint="Student ID" />
    <EditText
        android:id="@+id/student_name"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Student Name" />
    <Button
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
```

```xml
      android:text="Load All Students"

      android:onClick="loadStudents" />

  <TextView

    android:id="@+id/result"

    android:layout_width="match_parent"

    android:layout_height="0dp"

    android:layout_weight="1"

    android:hint="Result"

    android:textSize="30dp" />

  <Button

    android:layout_width="match_parent"

    android:layout_height="0dp"

    android:layout_weight="1"

    android:onClick="addStudent"

    android:text="ADD" />

  <Button

    android:layout_width="match_parent"

    android:layout_height="0dp"

    android:layout_weight="1"

    android:onClick="updateStudent"

    android:text="UPDATE" />

  <Button

    android:layout_width="match_parent"

    android:layout_height="0dp"

    android:layout_weight="1"

    android:onClick="deleteStudent"

    android:text="DELETE By Id" />

</LinearLayout>
```

MyDbHandler.java

```java
package com.example.sqlitedemo2;

import android.content.ContentValues;

import android.content.Context;

import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

public class MyDBHandler extends SQLiteOpenHelper {

    private static final int DATABASE_VERSION = 1;

    private static final String DATABASE_NAME = "studentDB.db";

    private static final String TABLE_STUDENTS = "students";

    private static final String COLUMN_ID = "StudentID";

    private static final String COLUMN_NAME = "StudentName";

    MyDBHandler(Context context)

    {

        super(context, DATABASE_NAME, null, DATABASE_VERSION);

    }

    @Override

    public void onCreate(SQLiteDatabase db) {

        String CREATE_STUDENT_TABLE = "CREATE TABLE " +

            TABLE_STUDENTS + "(" + COLUMN_ID + " INTEGER PRIMARY KEY," + COLUMN_NAME

            + " TEXT " + ")";

        db.execSQL(CREATE_STUDENT_TABLE);

    }

    @Override

    public void onUpgrade(SQLiteDatabase db, int oldVersion,

                int newVersion) {

        db.execSQL("DROP TABLE IF EXISTS " + TABLE_STUDENTS);

        onCreate(db);

    }
```

```java
String loadHandler() {

    String result = "";

    String query = "Select*FROM " + TABLE_STUDENTS;

    SQLiteDatabase db = this.getWritableDatabase();

    Cursor cursor = db.rawQuery(query, null);

    while (cursor.moveToNext()) {

        int result_0 = cursor.getInt(0);

        String result_1 = cursor.getString(1);

        result += String.valueOf(result_0) + " " + result_1 +

            System.getProperty("line.separator");

    }

    cursor.close();

    db.close();

    if(result.equals(""))

        result="No Record Found";

    return result;

}

long addHandler(Student student) {

    long id;

    ContentValues values = new ContentValues();

    values.put(COLUMN_ID, student.getID());

    values.put(COLUMN_NAME, student.getStudentName());

    SQLiteDatabase db = this.getWritableDatabase();

    id = db.insert(TABLE_STUDENTS, null, values);

    db.close();

    return id;

}

boolean updateHandler(int ID, String name) {

    SQLiteDatabase db = this.getWritableDatabase();

    ContentValues args = new ContentValues();

    args.put(COLUMN_ID, ID);
```

```
        args.put(COLUMN_NAME, name);

        return db.update(TABLE_STUDENTS, args, COLUMN_ID + "=" + ID, null) > 0;

    }

    boolean deleteHandler(int ID) {

        boolean result = false;

        String query = "Select*FROM " + TABLE_STUDENTS + " WHERE " + COLUMN_ID + " = '" +
String.valueOf(ID) + "'";

        SQLiteDatabase db = this.getWritableDatabase();

        Cursor cursor = db.rawQuery(query, null);

        Student student = new Student();

        if (cursor.moveToFirst()) {

            student.setID(Integer.parseInt(cursor.getString(0)));

            db.delete(TABLE_STUDENTS, COLUMN_ID + "=?",

                new String[] {

                    String.valueOf(student.getID())

                });

            cursor.close();

            result = true;

        }

        db.close();

        return result;

    }

}
```

Student.java

```java
package com.example.sqlitedemo2;
public class Student {
    private int id;
    private String studentName;
    Student() {
    }
    Student(int id, String studentName) {
        this.id = id;
        this.studentName = studentName;
    }
    void setID(int id) {
        this.id = id;
    }
    int getID() {
        return this.id;
    }
    void setStudentName(String studentname) {
        this.studentName = studentname;
    }
    String getStudentName() {
        return this.studentName;
    }
}
```

package com.example.sqlitedemo2;

OUTPUT :