MOBILE APPLICATION DEVELOPMENT (3170726)

VVP ENGINEERING COLLEGE

SUBMITTED BY: **DISHEN MAKWANA**

180470107035

G2

V. V. P. Engineering College, Rajkot

Department of Computer Engineering

Vision of the Institute

- To be an exemplary institute, transforming students into competent professionals with human values.

Mission of the Institute

- To provide a conducive academic environment for strengthening technical capabilities of the students.
- To strengthen linkage with industries, alumni and professional bodies.
- To organize various co-curricular and extra-curricular activities for overall development of the students.
- To practice good governance and conduct value- based activities for making students responsible citizens.

Vision of the Department

- Transforming students into globally efficient professionals with moral values.

Mission of the Department

- To provide a strong foundation of computer engineering through effective teaching learning process.
- To enhance industry linkage & alumni network for better placement and real-world exposure.
- To provide various opportunities & platforms for all round development of students &

encourage them for value-based practices.

Program Educational Objectives (PEOs)

Graduates will be able to

- Apply computer engineering theories, principles and skills to meet the challenges of the society.
- Communicate effectively, work collaboratively and manifest professionalism with ethics.
- Exhibit life-long learning attitude and adapt to rapid technological changes in industry.
- Advance their career in industry, pursue higher education or become an entrepreneur.

V.V.P. ENGINEERING COLLEGE

RAJKOT

Certificate

This is to certify that

Mr. DISHEN MAKWANA, Enrollment No: 180470107035, Branch: Computer Engineering, Semester: 7 has satisfactorily completed the course in the subject: **Mobile Application Development (3170726)** within the four walls of V.V.P. Engineering College, Rajkot.

Date of Submission:

Prof. Nivid Limbasiya,
Staff In-Charge

Head of Department,
Department of Computer Engineering,
V.V.P. Engineering College

V. V. P. Engineering College
Department of Computer Engineering
Course Outcomes

Semester: 7th

Subject: Mobile Application Development

Code: 3170726

After learning the course, the students will be able to

Sr. No.	CO statement
CO-1	Understand Android architecture, activities and their life cycle.
CO-2	Apply the knowledge to design user interface using Android UI And Component
CO-3	Manage system database, remote database operations using web services and Firebase
CO-4	Apply knowledge of map, location services, Graphics, android system and background services
CO-5	Publish and distribute Android Application

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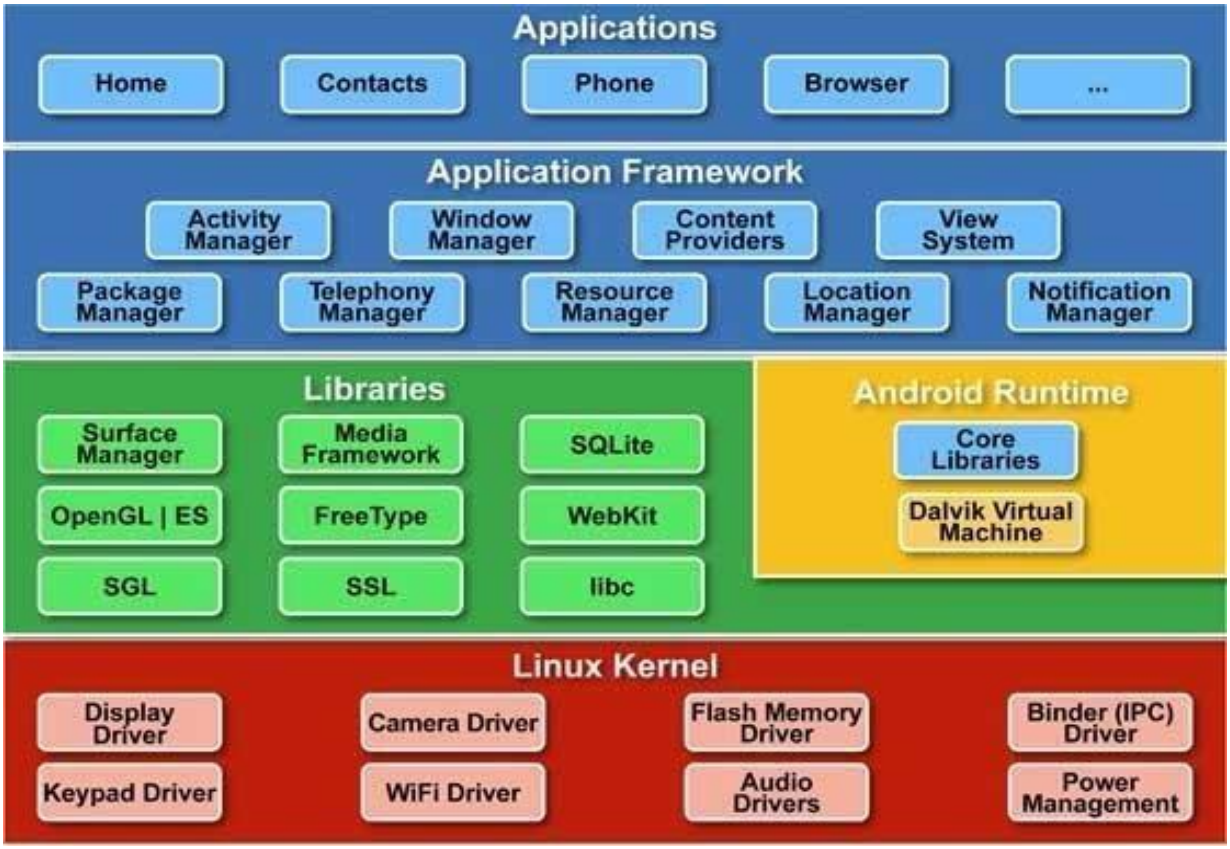
1. Explain the Android Architecture.



Android architecture is a software stack of components to support mobile device needs. Android software stack contains a Linux Kernel, collection of c/cpp libraries which are exposed through an application framework services, runtime, and application.

Following are main components of android architecture those are

1. Applications
2. Android Framework
3. Android Runtime
4. Platform Libraries
5. Linux Kernel

In these components, the Linux Kernel is the main component in android to provide its operating system functions to mobile and Dalvik Virtual Machine (DVM) which is responsible for running a mobile application.

Following is the pictorial representation of android architecture with different components.

Applications
The top layer of the android architecture is Applications. The native and third-party applications like contacts, email, music, gallery, clock, games, etc. whatever we will build those will be installed on this layer only.

The application layer runs within the Android run time using the classes and services made available from the application framework.

Application Framework
The Application Framework provides the classes used to create Android applications. It also provides a generic abstraction for hardware access and manages the user interface and application resources. It basically provides the services through which we can create a particular class and make that class helpful for the Application creation.
The application framework includes services like telephony service, location services, notification manager, NFC service, view system, etc. which we can use for application development as per our requirements.

Android Runtime
Android Runtime environment is an important part of Android rather than an internal part and it contains components like core libraries and the Dalvik virtual machine. The Android run time is the engine that powers our applications along with the libraries and it forms the basis for the application framework.

Dalvik Virtual Machine (DVM) is a register-based virtual machine-like Java Virtual Machine (JVM). It is specially designed and optimized for android to ensure that a device can run multiple instances efficiently. It relies on the Linux kernel for threading and low-level memory management.

The core libraries in android runtime will enable us to implement android applications using standard JAVA programming language.

Platform Libraries
The Platform Libraries includes various C/C++ core libraries and Java-based libraries such as SSL, libc, Graphics, SQLite, Webkit, Media, Surface Manger, OpenGL, etc. to provide support for Android development.

The following are the summary details of some core android libraries available for android development.
- Media library for playing and recording audio and video formats
- The Surface manager library to provide a display management
- SGL and OpenGL Graphics libraries for 2D and 3D graphics
- SQLite is for database support and Free Type for font support
- Web-Kit for web browser support and SSL for Internet security.

Linux Kernel
Linux Kernel is a bottom layer and heart of the android architecture. It manages all the drivers such as display drivers, camera drivers, Bluetooth drivers, audio drivers, memory drivers, etc. which are mainly required for the android device during the runtime.

The Linux Kernel will provide an abstraction layer between the device hardware and the remainder of the stack. It is responsible for memory management, power management, device management, resource access, etc.

2. Implement Dialog Message project.

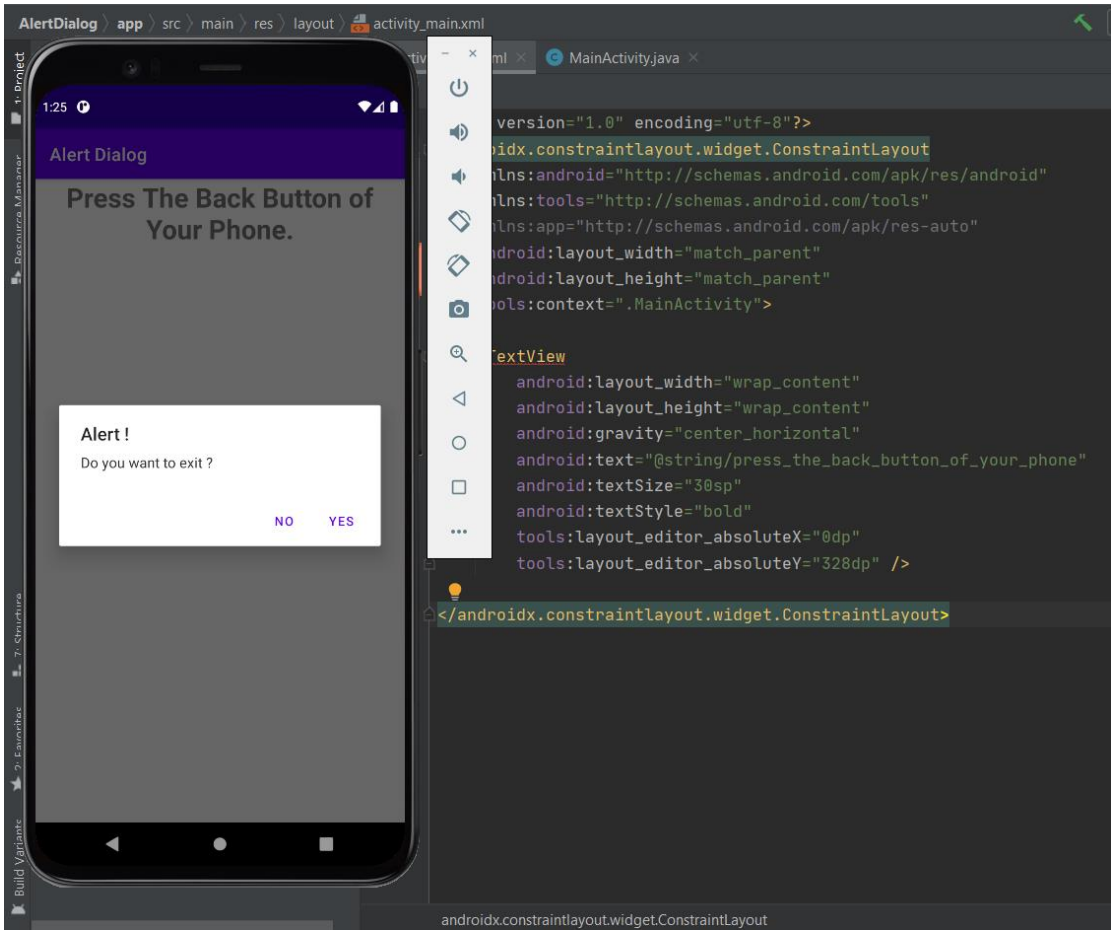
Activity_main.xml

```
<?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="wrap_content"
      android:layout_height="wrap_content"
      android:gravity="center_horizontal"
      android:text="@string/press_the_back_button_of_your_phone"
      android:textSize="30sp"
      android:textStyle="bold"
      tools:layout_editor_absoluteX="0dp"
      tools:layout_editor_absoluteY="328dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.alertdialog;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.content.DialogInterface;

public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
   }
   @Override
   public void onBackPressed()
   {
      AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
      builder.setMessage("Do you want to exit ?");
      builder.setTitle("Alert !");
      builder.setCancelable(false);

      builder.setPositiveButton("Yes", new DialogInterface.OnClickListener() {
                  @Override
                  public void onClick(DialogInterface dialog, int which)
                  {
                     finish();
                  }
```

```
                });
        builder.setNegativeButton("No", new DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialog, int which)
                    {
                        dialog.cancel();
                    }
                });
        AlertDialog alertDialog = builder.create();
        alertDialog.show();
    }
}
```

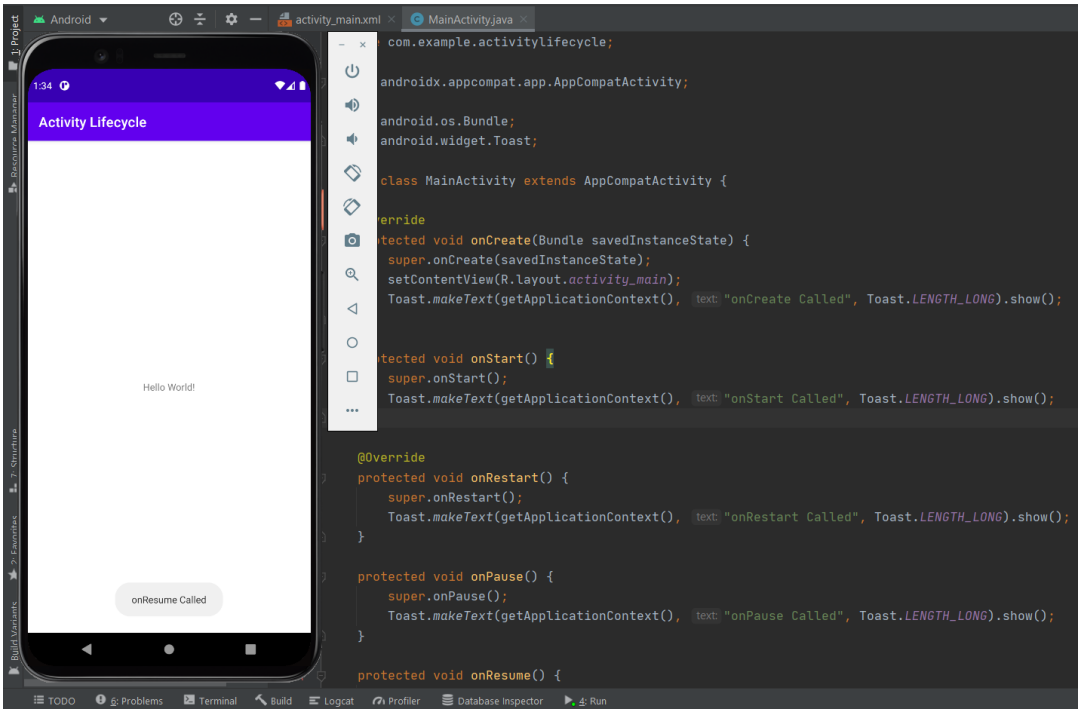


3. Implement Activity lifecycle and fragment life cycle project.

MainActivity.java

```
package com.example.activitylifecycle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Toast.makeText(getApplicationContext(), "onCreate Called",
Toast.LENGTH_LONG).show();
   }

   protected void onStart() {
      super.onStart();
      Toast.makeText(getApplicationContext(), "onStart Called",
Toast.LENGTH_LONG).show();
   }

   @Override
   protected void onRestart() {
      super.onRestart();
      Toast.makeText(getApplicationContext(), "onRestart Called",
Toast.LENGTH_LONG).show();
   }

   protected void onPause() {
      super.onPause();
      Toast.makeText(getApplicationContext(), "onPause Called",
Toast.LENGTH_LONG).show();
   }

   protected void onResume() {
      super.onResume();
      Toast.makeText(getApplicationContext(), "onResume Called",
Toast.LENGTH_LONG).show();
   }

   protected void onStop() {
      super.onStop();
      Toast.makeText(getApplicationContext(), "onStop Called",
Toast.LENGTH_LONG).show();
   }

   protected void onDestroy() {
```

```
        super.onDestroy();
        Toast.makeText(getApplicationContext(), "onDestroy Called",
Toast.LENGTH_LONG).show();
    }
}
```



1. Activity_main.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:background="#168BC34A"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:layout_marginBottom="20dp"
        android:text="@string/heading"
        android:textAlignment="center"
        android:textColor="@android:color/holo_green_light"
        android:textSize="24sp"
        android:textStyle="bold" />
```

```
    <Button
        android:id="@+id/button1"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginEnd="20dp"
        android:background="#4CAF50"
        android:onClick="selectFragment"
        android:text="@string/fragment1_button"
        android:textColor="@android:color/background_light"
        android:textSize="18sp"
        android:textStyle="bold" />

    <Button
        android:id="@+id/button2"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="20dp"
        android:layout_marginBottom="20dp"
        android:background="#4CAF50"
        android:onClick="selectFragment"
        android:text="@string/fragment2_button"
        android:textColor="@android:color/background_light"
        android:textSize="18sp"
        android:textStyle="bold" />

    <fragment
        android:id="@+id/fragment_section"
        android:name="com.example.fragments_backup.FragmentOne"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginStart="10dp"
        android:layout_marginEnd="10dp"
        android:layout_marginBottom="10dp"
        tools:layout="@layout/fragment_one" />
</LinearLayout>
```

MainActivity.java

```
package com.example.fragementlifecycle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import android.app.FragmentManager;
import android.app.FragmentTransaction;
import android.os.Bundle;
import android.view.View;

public class MainActivity extends AppCompatActivity {
```

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

    public void selectFragment(View view) {

        // creating object for Fragment
        Fragment fr;

        // displaying first fragment
        // if button1 is clicked
        if(view == findViewById(R.id.button1)) {
            fr = new FragmentOne();
        }

        // displaying second fragment
        // if button2 is clicked
        else {
            fr = new FragmentTwo();
        }

        FragmentManager fm = getFragmentManager();

        // fragment transaction to add or replace
        // fragments while activity is running
        FragmentTransaction fragmentTransaction = fm.beginTransaction();
        final FragmentTransaction replace =
fragmentTransaction.replace(R.id.fragment_section, fr.requireParentFragment());

        // making a commit after the transaction
        // to assure that the change is effective
        fragmentTransaction.commit();
    }
}
```

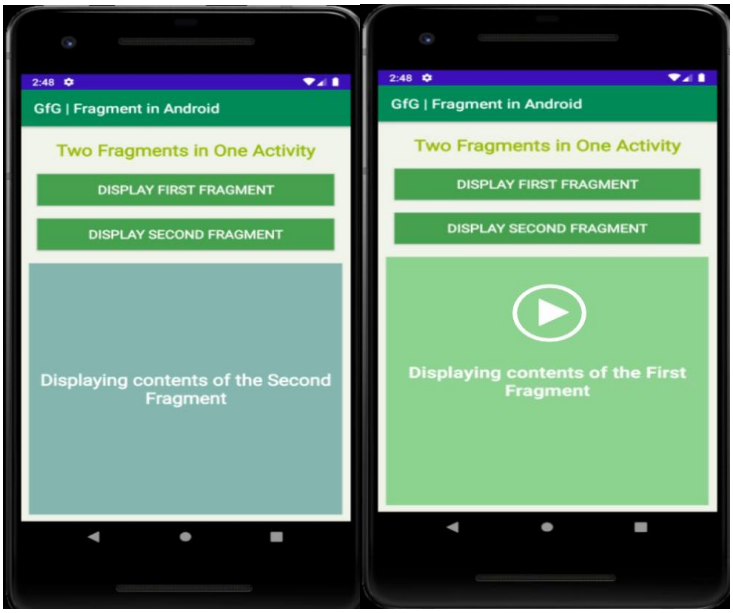
FragementOne.java

```
package com.example.fragementlifecycle;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.fragment.app.Fragment;

public class FragmentOne extends Fragment {
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle
savedInstanceState) {
```

```
        // inflating the layout of the fragment
        // and returning the view component
        return inflater.inflate(R.layout.fragment_one, container, false);
    }
}
```

Fragement_one.xml

```
<?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:background="#5C52CC57"
    android:orientation="vertical">

    <!-- Text to be displayed inside the Fragment -->
    <TextView
        android:id="@+id/textView1"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:gravity="center"
        android:text="@string/fragment1_text1"
        android:textAlignment="center"
        android:textColor="@android:color/background_light"
        android:textSize="24sp"
        android:textStyle="bold" />
</LinearLayout>
```



4. Implement checkbox project.

MainActivity.java

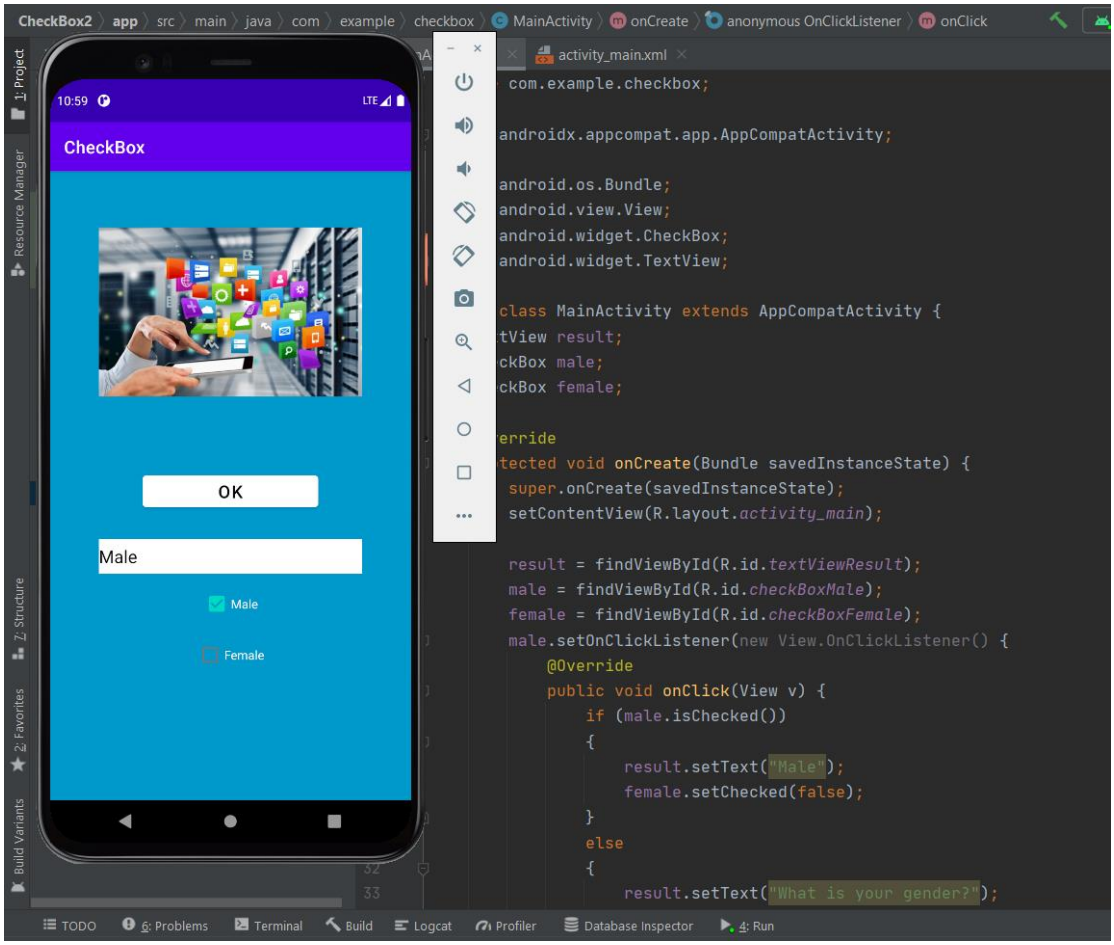
```
package com.example.checkbox;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.CheckBox;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView result;
    CheckBox male;
    CheckBox female;

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

        result = findViewById(R.id.textViewResult);
        male = findViewById(R.id.checkBoxMale);
        female = findViewById(R.id.checkBoxFemale);
        male.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (male.isChecked())
                {
                    result.setText("Male");
                    female.setChecked(false);
                }
                else
                {
                    result.setText("What is your gender?");
                }
            }
        });
        female.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (female.isChecked())
                {
                    result.setText("Female");
                    male.setChecked(false);
                }
                else
                {
                    result.setText("What is your gender?");
                }
            }
```

```
        });
    }
}
```

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:background="@android:color/holo_blue_dark"
    android:gravity="center_horizontal"
    android:orientation="vertical"
    tools:context=".MainActivity">

        <ImageView
            android:id="@+id/imageViewExample"
            android:layout_width="300dp"
            android:layout_height="300dp"
            android:layout_marginTop="10dp"
            android:scaleType="fitCenter"
            app:srcCompat="@drawable/a" />
        <Button
            android:id="@+id/buttonOk"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:layout_marginTop="30dp"
            android:backgroundTint="@color/white"
            android:text="OK"
            android:textColor="@color/black"
            android:textSize="20sp" />
        <TextView
            android:id="@+id/textViewResult"
            android:layout_width="300dp"
            android:layout_height="40dp"
            android:layout_marginTop="30dp"
            android:background="@color/white"
            android:gravity="center_vertical"
            android:text="What is your gender?"
            android:textColor="@color/black"
            android:textSize="20sp"
            tools:layout_editor_absoluteX="335dp"
            tools:layout_editor_absoluteY="583dp" />
        <CheckBox
            android:id="@+id/checkBoxMale"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:text="Male"
```

```
        android:textColor="@color/white" />
    <CheckBox
        android:id="@+id/checkBoxFemale"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Female"
        android:textColor="@color/white" />
</LinearLayout>
```



5. Implement edit text project.

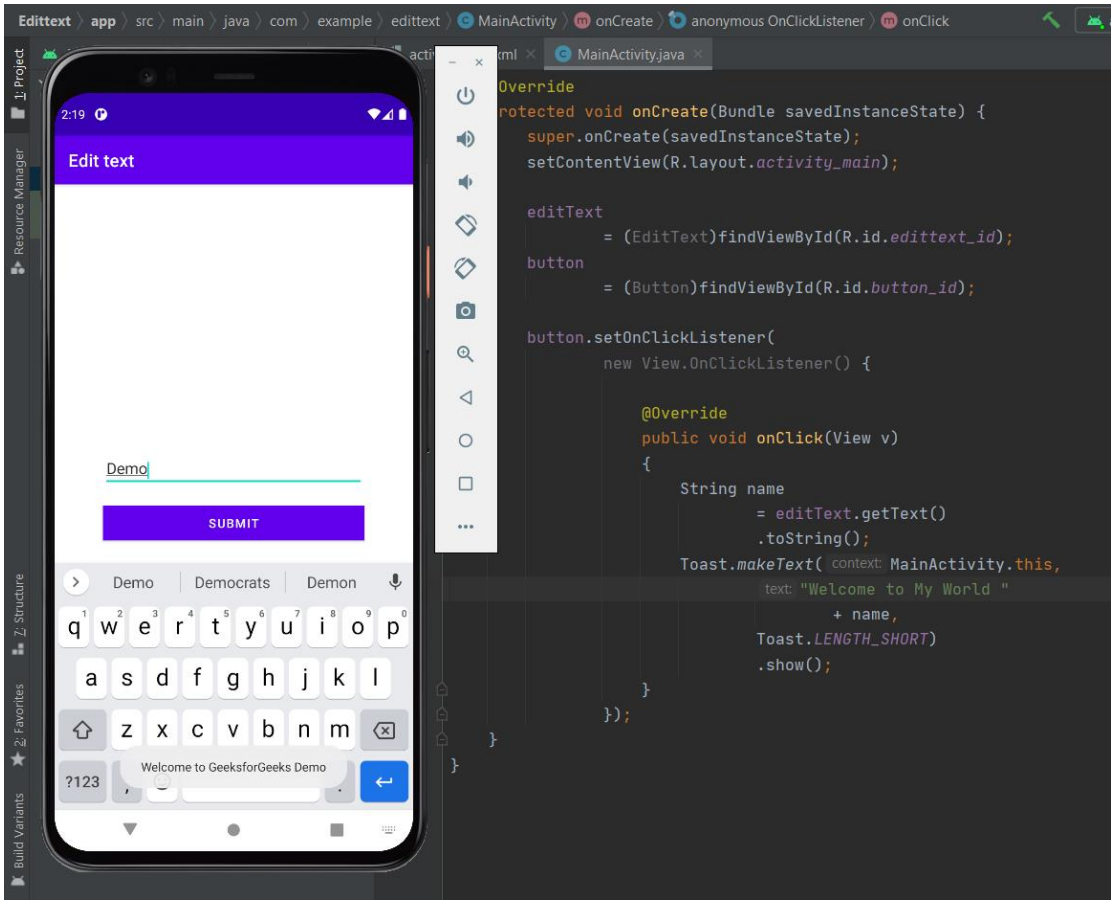
MainActivity.java

```
package com.example.edittext;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private EditText editText;
    private Button button;

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

        editText
                = (EditText)findViewById(R.id.edittext_id);
        button
                = (Button)findViewById(R.id.button_id);

        button.setOnClickListener(
                new View.OnClickListener() {

                    @Override
                    public void onClick(View v)
                    {
                        String name
                                = editText.getText()
                                .toString();
                        Toast.makeText(MainActivity.this,
                                "Welcome to My World "
                                        + name,
                                Toast.LENGTH_SHORT)
                                .show();
                    }
                });
    }
}
```

Activity_main.xml

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

<RelativeLayout
    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:gravity="center">

    <EditText
        android:id="@+id/edittext_id"
        android:layout_width="300dp"
        android:layout_height="40dp"
        android:hint="Enter your Name"/>

    <Button
        android:id="@+id/button_id"
        android:layout_width="300dp"
        android:layout_height="40dp"
        android:layout_below="@+id/edittext_id"
        android:layout_marginTop="20dp"
        android:text="Submit"
        android:textColor="#fff"
        android:background="@color/white"/>
</RelativeLayout>
```



6. Implement Grid view project.

MainActivity.java

```
package com.example.gridview;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.GridView;
import java.util.ArrayList;
public class MainActivity extends AppCompatActivity {

    GridView coursesGV;

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

        coursesGV = findViewById(R.id.idGVcourses);

        ArrayList<CourseModel> courseModelArrayList = new ArrayList<CourseModel>();
        courseModelArrayList.add(new CourseModel("DSA", R.drawable.ic_gfglogo));
        courseModelArrayList.add(new CourseModel("JAVA", R.drawable.ic_gfglogo));
        courseModelArrayList.add(new CourseModel("C++", R.drawable.ic_gfglogo));
        courseModelArrayList.add(new CourseModel("Python", R.drawable.ic_gfglogo));
        courseModelArrayList.add(new CourseModel("Javascript", R.drawable.ic_gfglogo));
        courseModelArrayList.add(new CourseModel("DSA", R.drawable.ic_gfglogo));

        CourseGVAdapter adapter = new CourseGVAdapter(this, courseModelArrayList);
        coursesGV.setAdapter(adapter);
    }
}
```

CourseModel.java

```
package com.example.gridview;
public class CourseModel {
    private String course_name;
    private int imgid;

    public CourseModel(String course_name, int imgid) {
        this.course_name = course_name;
        this.imgid = imgid;
    }

    public String getCourse_name() {
        return course_name;
    }

    public void setCourse_name(String course_name) {
        this.course_name = course_name;
    }
```

```
    public int getImgid() {
        return imgid;
    }

    public void setImgid(int imgid) {
        this.imgid = imgid;
    }
}
```

CourseGVAdapter.java

```
package com.example.gridview;
import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.ImageView;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import java.util.ArrayList;

public class CourseGVAdapter extends ArrayAdapter<CourseModel> {
    public CourseGVAdapter(@NonNull Context context, ArrayList<CourseModel>
courseModelArrayList) {
        super(context, 0, courseModelArrayList);
    }
    @NonNull
    @Override
    public View getView(int position, @Nullable View convertView, @NonNull ViewGroup
parent) {
        View listitemView = convertView;
        if (listitemView == null) {
            // Layout Inflater inflates each item to be displayed in GridView.
            listitemView = LayoutInflater.from(getContext()).inflate(R.layout.card_item, parent,
false);
        }
        CourseModel courseModel = getItem(position);
        TextView courseTV = listitemView.findViewById(R.id.idTVCourse);
        ImageView courseIV = listitemView.findViewById(R.id.idIVcourse);
        courseTV.setText(courseModel.getCourse_name());
        courseIV.setImageResource(courseModel.getImgid());
        return listitemView;
    }
}
```

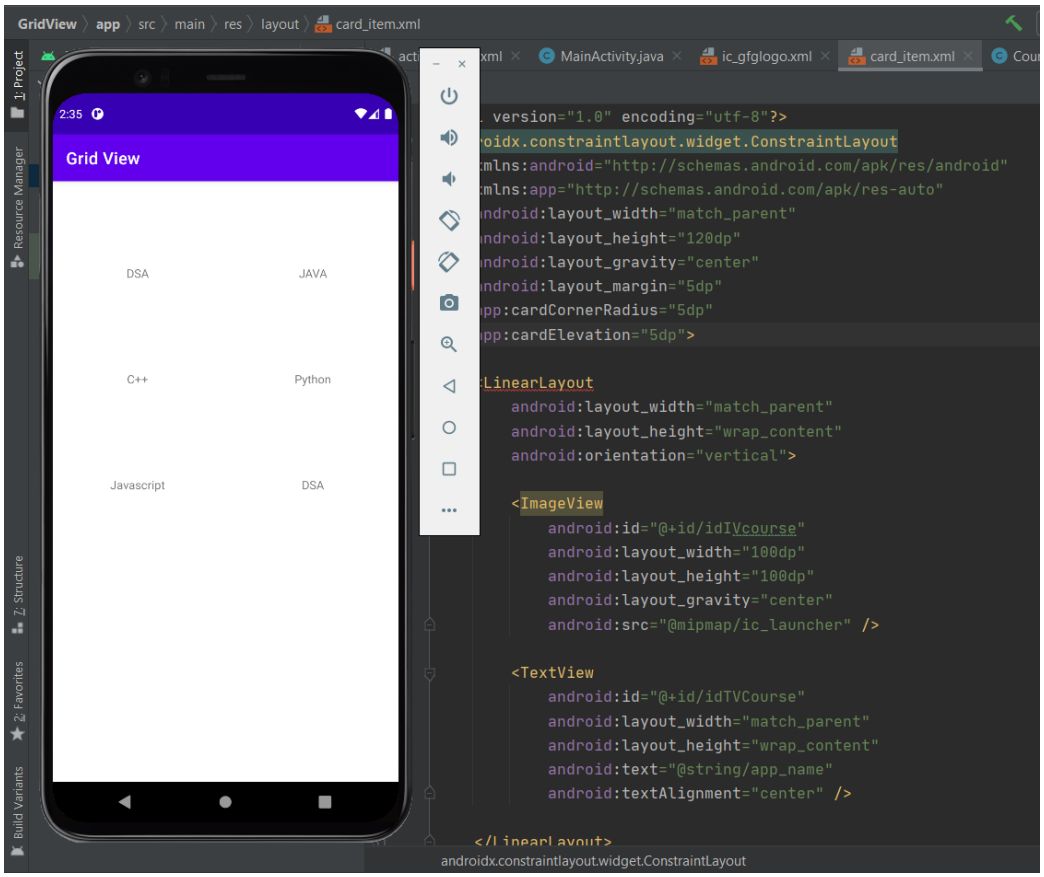
Card_item.xml

```
<?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"
    android:layout_width="match_parent"
    android:layout_height="120dp"
    android:layout_gravity="center"
    android:layout_margin="5dp"
    app:cardCornerRadius="5dp"
    app:cardElevation="5dp">

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

        <ImageView
            android:id="@+id/idIVcourse"
            android:layout_width="100dp"
            android:layout_height="100dp"
            android:layout_gravity="center"
            android:src="@mipmap/ic_launcher" />
        <TextView
            android:id="@+id/idTVCourse"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="@string/app_name"
            android:textAlignment="center" />
    </LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_main.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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <GridView
        android:id="@+id/idGVcourses"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:horizontalSpacing="6dp"
        android:numColumns="2"
        android:verticalSpacing="6dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```


GridView
app
src
main
res
layout
card_item.xml
MainActivity.java
ic_gfglogo.xml
card_item.xml
1: Project
Resource Manager
Z: Structure
2: Favorites
Build Variants
2:35
Grid View
DSA
JAVA
C++
Python
Javascript
DSA
version="1.0" encoding="utf-8"?>
oidx.constraintlayout.widget.ConstraintLayout
mlns:android="http://schemas.android.com/apk/res/android"
mlns:app="http://schemas.android.com/apk/res-auto"
ndroid:layout_width="match_parent"
ndroid:layout_height="120dp"
ndroid:layout_gravity="center"
ndroid:layout_margin="5dp"
pp:cardCornerRadius="5dp"
pp:cardElevation="5dp">
LinearLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="vertical">
<ImageView
android:id="@+id/idIVcourse"
android:layout_width="100dp"
android:layout_height="100dp"
android:layout_gravity="center"
android:src="@mipmap/ic_launcher" />
<TextView
android:id="@+id/idTVCourse"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="@string/app_name"
android:textAlignment="center" />
androidx.constraintlayout.widget.ConstraintLayout

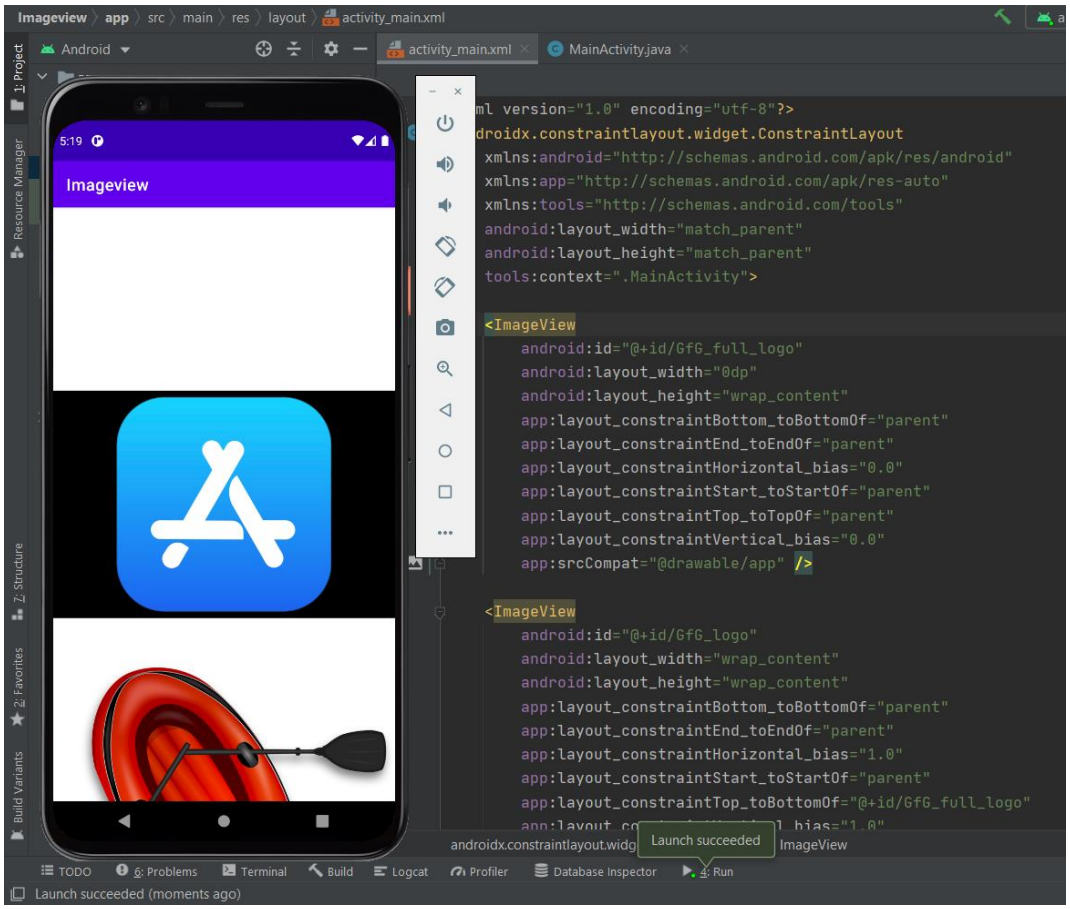
7. Implement Image view project.

Activity_main.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">

    <ImageView
        android:id="@+id/GfG_full_logo"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0"
        app:srcCompat="@drawable/app" />

    <ImageView
        android:id="@+id/GfG_logo"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="1.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/GfG_full_logo"
        app:layout_constraintVertical_bias="1.0"
        app:srcCompat="@drawable/demo" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.imageview;
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);
    }
}
```


Imageview
app
src
main
res
layout
activity_main.xml
MainActivity.java
Android
5:19
Imageview
<ImageView
android:id="@+id/GfG_full_logo"
android:layout_width="0dp"
android:layout_height="wrap_content"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.0"
app:srcCompat="@drawable/app" />
<ImageView
android:id="@+id/GfG_logo"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/GfG_full_logo"
Launch succeeded
ImageView
TODO
6: Problems
Terminal
Build
Logcat
Profiler
Database Inspector
4: Run
Launch succeeded (moments ago)

8. Implement Intent project.

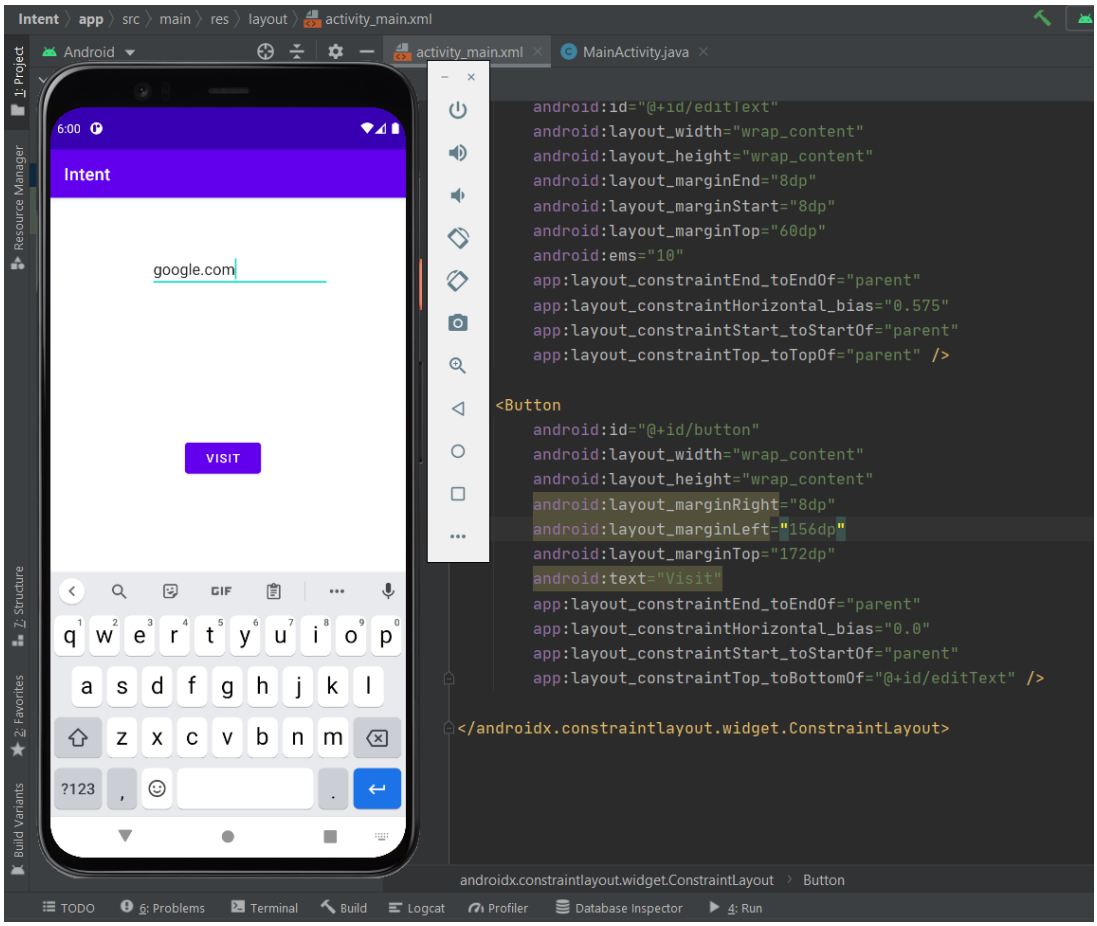
Activity_main.xml

```
<?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/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="60dp"
        android:ems="10"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.575"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="8dp"
        android:layout_marginLeft="156dp"
        android:layout_marginTop="172dp"
        android:text="Visit"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.intent;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
```

```
    Button button;
    EditText editText;

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

        button = findViewById(R.id.button);
        editText =  findViewById(R.id.editText);

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String url=editText.getText().toString();
                Intent intent=new Intent(Intent.ACTION_VIEW, Uri.parse(url));
                startActivity(intent);
            }
        });
    }
}
```



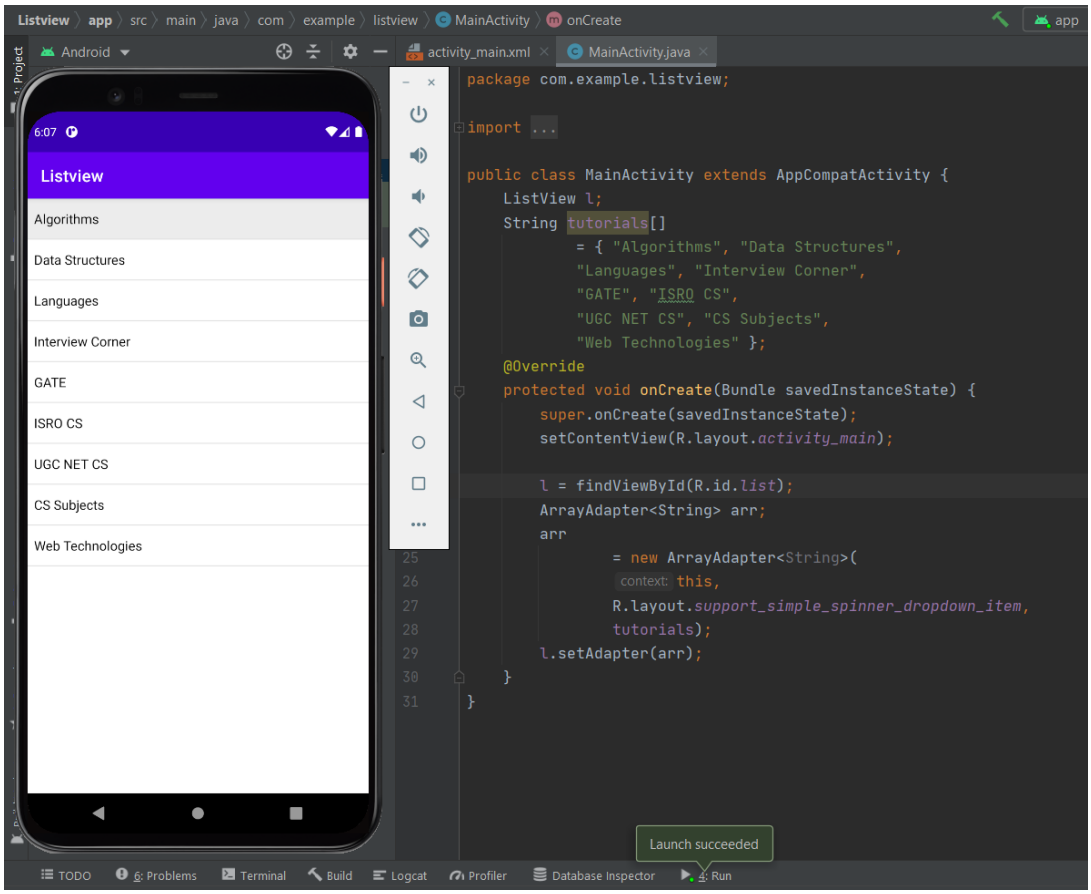
9. Implement List view project.

MainActivity.java

```
package com.example.listview;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class MainActivity extends AppCompatActivity {
   ListView l;
   String tutorials[]
         = { "Algorithms", "Data Structures",
         "Languages", "Interview Corner",
         "GATE", "ISRO CS",
         "UGC NET CS", "CS Subjects",
         "Web Technologies" };
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      l = findViewById(R.id.list);
      ArrayAdapter<String> arr;
      arr = new ArrayAdapter<String>(this, R.layout.support_simple_spinner_dropdown_item,
tutorials);
      l.setAdapter(arr);
   }
}
```

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"
   tools:context=".MainActivity">
   <ListView
      android:id="@+id/list"
      android:layout_width="match_parent"
      android:layout_height="match_parent"/>
</LinearLayout>
```


Listview
Algorithms
Data Structures
Languages
Interview Corner
GATE
ISRO CS
UGC NET CS
CS Subjects
Web Technologies
package com.example.listview;
import ...
public class MainActivity extends AppCompatActivity {
ListView l;
String tutorials[]
= { "Algorithms", "Data Structures",
"Languages", "Interview Corner",
"GATE", "ISRO CS",
"UGC NET CS", "CS Subjects",
"Web Technologies" };
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
l = findViewById(R.id.list);
ArrayAdapter<String> arr;
arr
= new ArrayAdapter<String>(
context: this,
R.layout.support_simple_spinner_dropdown_item,
tutorials);
l.setAdapter(arr);
}
}
Launch succeeded

10.Implement radio button project.

MainActivity.java

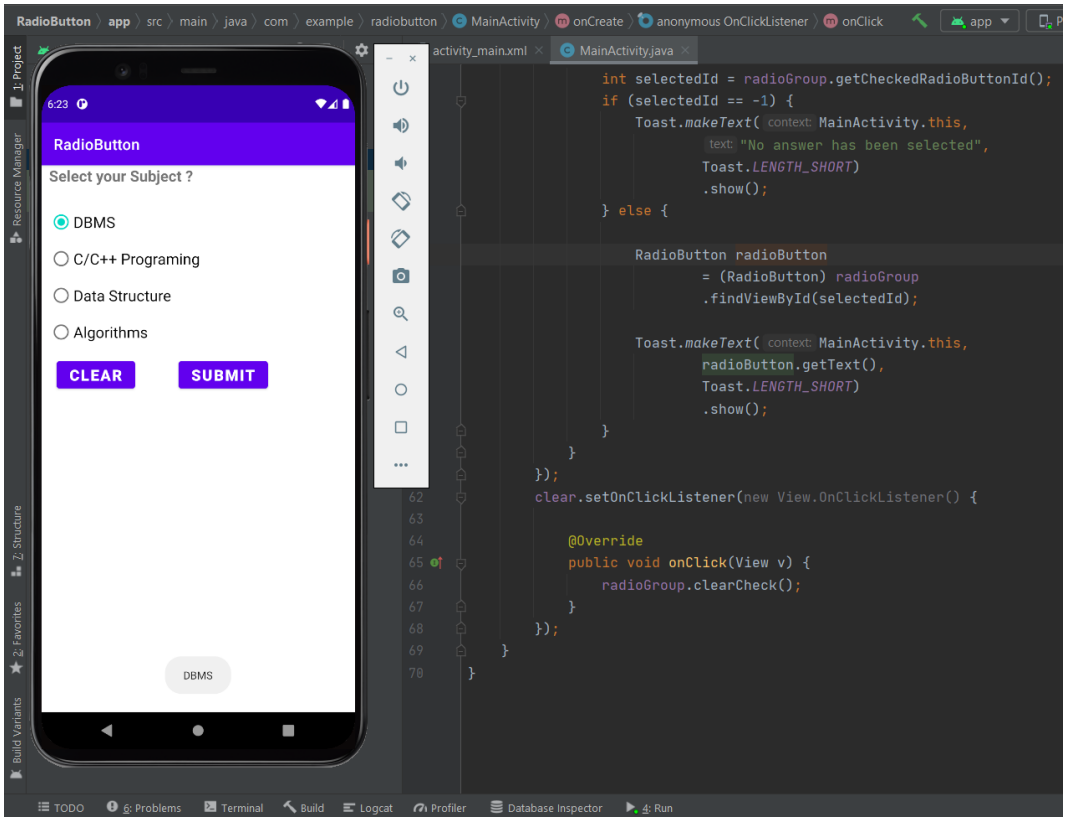
```
package com.example.radiobutton;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    private RadioGroup radioGroup;
    Button submit, clear;

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

        submit = (Button) findViewById(R.id.submit);
        clear = (Button) findViewById(R.id.clear);
        radioGroup = (RadioGroup) findViewById(R.id.groupradio);

        radioGroup.clearCheck();

        radioGroup.setOnCheckedChangeListener(
                new RadioGroup
                        .OnCheckedChangeListener() {
                    @Override
                    public void onCheckedChanged(RadioGroup group, int checkedId) {
                        RadioButton
                                radioButton
                                = (RadioButton) group
                                .findViewById(checkedId);
                    }
                });
        submit.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                int selectedId = radioGroup.getCheckedRadioButtonId();
                if (selectedId == -1) {
                    Toast.makeText(MainActivity.this,
                            "No answer has been selected",
                            Toast.LENGTH_SHORT)
                            .show();
                } else {
```

```
                RadioButton radioButton
                        = (RadioButton) radioGroup
                        .findViewById(selectedId);

                Toast.makeText(MainActivity.this,
                        radioButton.getText(),
                        Toast.LENGTH_SHORT)
                        .show();
            }
        }
    });
    clear.setOnClickListener(new View.OnClickListener() {

        @Override
        public void onClick(View v) {
            radioGroup.clearCheck();
        }
    });
  }
}
```

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   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="Select your Subject ?"
      android:textStyle="bold"
      android:layout_marginLeft="10dp"
      android:textSize="20dp"/>

   <RadioGroup
      android:layout_marginTop="50dp"
      android:id="@+id/groupradio"
      android:layout_marginLeft="10dp"
      android:layout_width="fill_parent"
      android:layout_height="wrap_content">

      <RadioButton
         android:layout_width="fill_parent"
         android:layout_height="wrap_content"
```

```
            android:id="@+id/radia_id1"
            android:text="DBMS"
            android:textSize="20dp"/>

        <RadioButton
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:id="@+id/radia_id2"
            android:text="C/C++ Programing"
            android:textSize="20dp"/>

        <RadioButton
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:id="@+id/radia_id3"
            android:text="Data Structure"
            android:textSize="20dp"/>

        <RadioButton
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:id="@+id/radia_id4"
            android:text="Algorithms"
            android:textSize="20dp"/>
    </RadioGroup>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit"
        android:id="@+id/submit"
        android:textStyle="bold"
        android:textSize="20dp"
        android:layout_marginTop="250dp"
        android:layout_marginLeft="180dp"
        />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Clear"
        android:id="@+id/clear"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="250dp"
        android:layout_marginLeft="20dp"
        />
</RelativeLayout>
```


RadioButton
Select your Subject ?
DBMS
C/C++ Programing
Data Structure
Algorithms
CLEAR
SUBMIT
DBMS
int selectedId = radioGroup.getCheckedRadioButtonId();
if (selectedId == -1) {
Toast.makeText(context: MainActivity.this,
text: "No answer has been selected",
Toast.LENGTH_SHORT)
.show();
} else {
RadioButton radioButton
= (RadioButton) radioGroup
.findViewById(selectedId);
Toast.makeText(context: MainActivity.this,
radioButton.getText(),
Toast.LENGTH_SHORT)
.show();
clear.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
radioGroup.clearCheck();

11.Implement Recycler view project.

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.v7.widget.RecyclerView
   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:scrollbars="vertical"
   android:id="@+id/recyclerView"
   tools:context="example.javatpoint.com.recyclerviewlist.MainActivity">
</android.support.v7.widget.RecyclerView>
```

MainActivity.java

```
package com.example.recyclerview;
import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      MyListData[] myListData = new MyListData[] {
            new MyListData("Email", android.R.drawable.ic_dialog_email),
            new MyListData("Info", android.R.drawable.ic_dialog_info),
            new MyListData("Delete", android.R.drawable.ic_delete),
            new MyListData("Dialer", android.R.drawable.ic_dialog_dialer),
            new MyListData("Alert", android.R.drawable.ic_dialog_alert),
            new MyListData("Map", android.R.drawable.ic_dialog_map),
            new MyListData("Email", android.R.drawable.ic_dialog_email),
            new MyListData("Info", android.R.drawable.ic_dialog_info),
            new MyListData("Delete", android.R.drawable.ic_delete),
            new MyListData("Dialer", android.R.drawable.ic_dialog_dialer),
            new MyListData("Alert", android.R.drawable.ic_dialog_alert),
            new MyListData("Map", android.R.drawable.ic_dialog_map),
      };

      RecyclerView recyclerView = (RecyclerView) findViewById(R.id.recyclerView);
      MyListAdapter adapter = new MyListAdapter(myListData);
      recyclerView.setHasFixedSize(true);
      recyclerView.setLayoutManager(new LinearLayoutManager(this));
      recyclerView.setAdapter(adapter);
   }
}
```

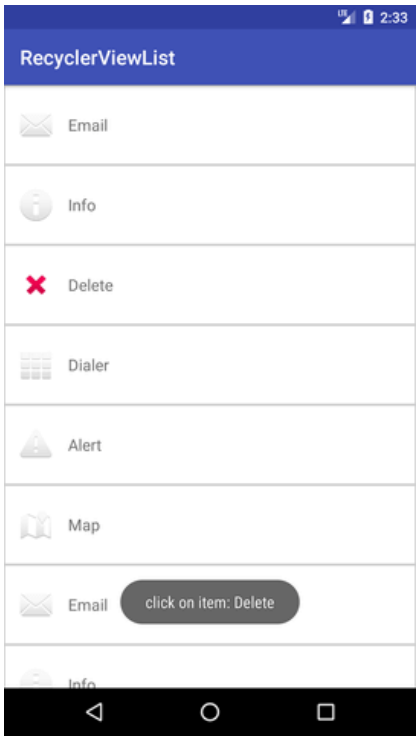
MyListAdapter.java

```
package com.example.recyclerview;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ImageView;
import android.widget.RelativeLayout;
import android.widget.TextView;
import android.widget.Toast;
import androidx.recyclerview.widget.RecyclerView;
public class MyListAdapter extends RecyclerView.Adapter<MyListAdapter.ViewHolder>
{
   private MyListData[] listdata;
   // RecyclerView recyclerView;
   public MyListAdapter(MyListData[] listdata) {
      this.listdata = listdata;
   }
   @Override
   public ViewHolder onCreateViewHolder(ViewGroup parent, int viewType) {
      LayoutInflater layoutInflater = LayoutInflater.from(parent.getContext());
      View listItem= layoutInflater.inflate(R.layout.list_item, parent, false);
      ViewHolder viewHolder = new ViewHolder(listItem);
      return viewHolder;
   }
   @Override
   public void onBindViewHolder(ViewHolder holder, int position) {
      final MyListData myListData = listdata[position];
      holder.textView.setText(listdata[position].getDescription());
      holder.imageView.setImageResource(listdata[position].getImgId());
      holder.relativeLayout.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            Toast.makeText(view.getContext(),"click on item:
"+myListData.getDescription(),Toast.LENGTH_LONG).show();
         }
      });
   }
   @Override
   public int getItemCount() {
      return listdata.length;
   }
   public static class ViewHolder extends RecyclerView.ViewHolder {
      public ImageView imageView;
      public TextView textView;
      public RelativeLayout relativeLayout;
      public ViewHolder(View itemView) {
         super(itemView);
         this.imageView = (ImageView) itemView.findViewById(R.id.imageView);
         this.textView = (TextView) itemView.findViewById(R.id.textView);
         relativeLayout = (RelativeLayout)itemView.findViewById(R.id.relativeLayout);
      }
   }
```

}

List_item.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/relativeLayout"
    android:layout_width="match_parent"
    android:layout_height="?android:attr/listPreferredItemHeightLarge"
    android:background="@drawable/border">
    <ImageView
        android:id="@+id/imageView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerVertical="true"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_marginStart="@dimen/activity_horizontal_margin"
        android:layout_marginEnd="@dimen/activity_horizontal_margin"
        android:contentDescription="Icon" />
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:layout_toEndOf="@id/imageView"
        android:layout_toRightOf="@id/imageView"
        android:gravity="center_vertical"
        android:textSize="16sp"/>
</RelativeLayout>
```



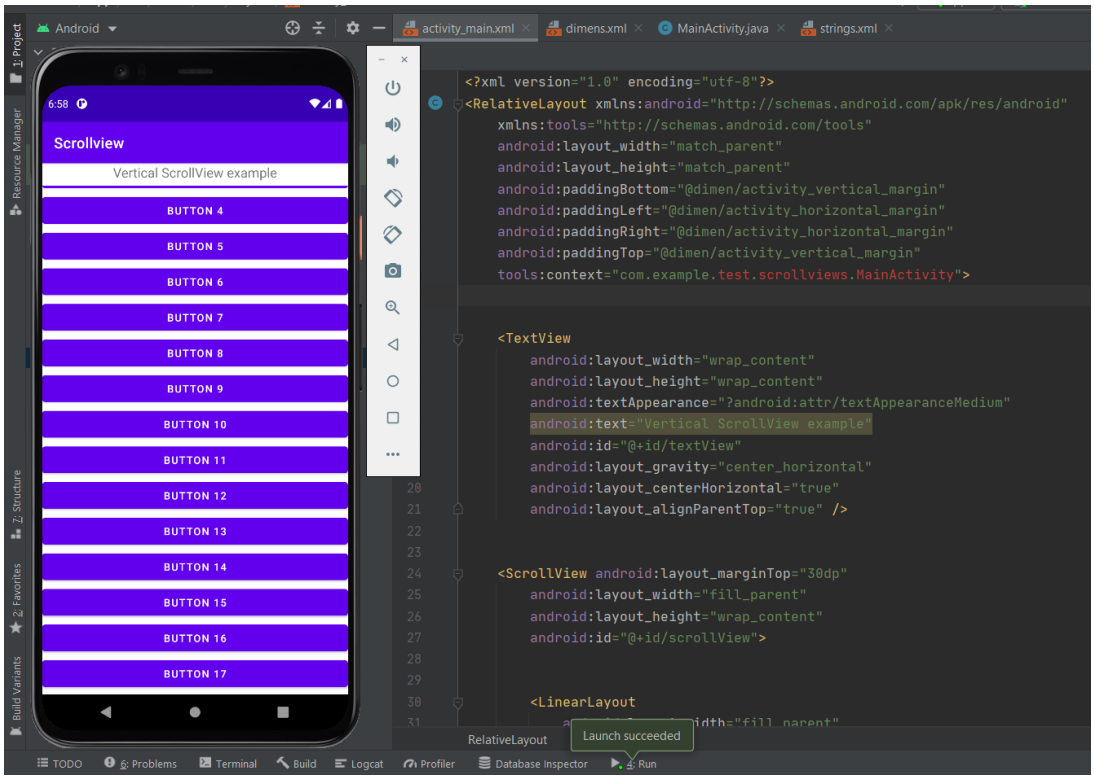
12.Implement Scroll view project.

Activity_main.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"
   android:paddingBottom="@dimen/activity_vertical_margin"
   android:paddingLeft="@dimen/activity_horizontal_margin"
   android:paddingRight="@dimen/activity_horizontal_margin"
   android:paddingTop="@dimen/activity_vertical_margin"
   tools:context="com.example.test.scrollviews.MainActivity">

   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:textAppearance="?android:attr/textAppearanceMedium"
      android:text="Vertical ScrollView example"
      android:id="@+id/textView"
      android:layout_gravity="center_horizontal"
      android:layout_centerHorizontal="true"
      android:layout_alignParentTop="true" />

   <ScrollView android:layout_marginTop="30dp"
      android:layout_width="fill_parent"
      android:layout_height="wrap_content"
      android:id="@+id/scrollView">

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

         <Button
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="Button 1" />
         <Button
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="Button 2" />
         <Button
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="Button 3" />
         <Button
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="Button 4" />
```

```
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 5" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 6" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 7" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 8" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 9" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 10" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 11" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 12" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 13" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 14" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 15" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
   android:text="Button 16" />
<Button
   android:layout_width="fill_parent"
   android:layout_height="wrap_content"
```

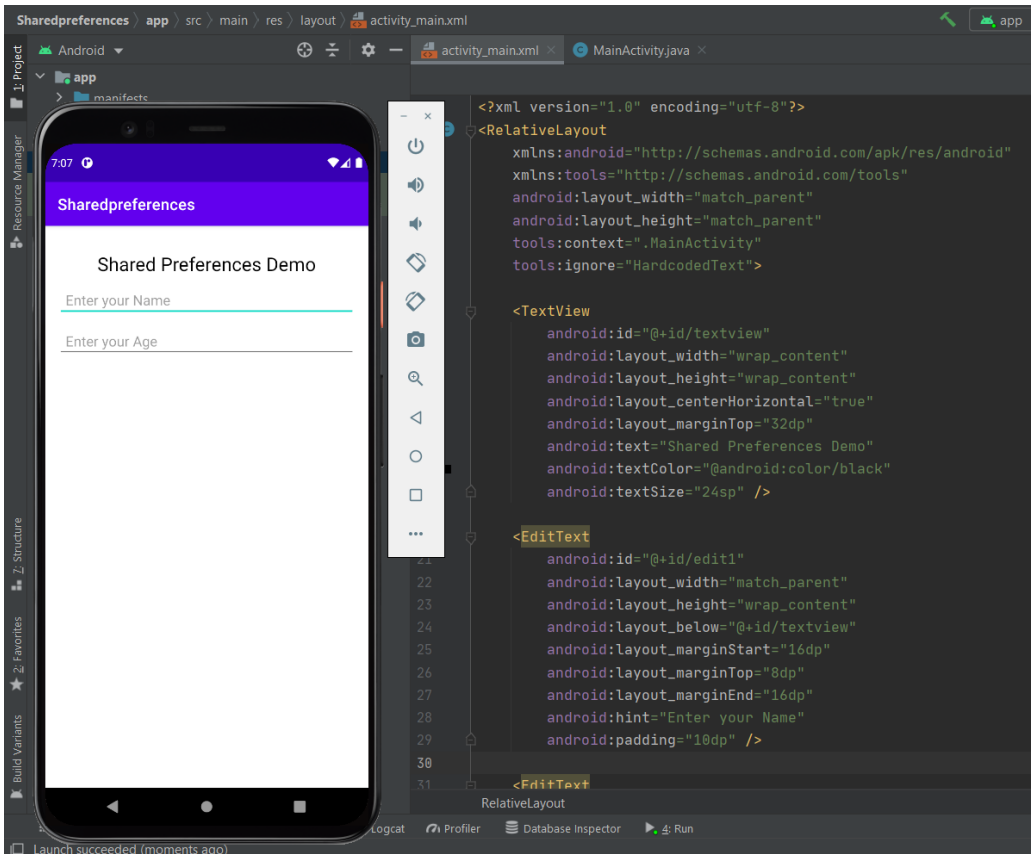
```
            android:text="Button 17" />
        <Button
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="Button 18" />

        <Button
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="Button 19" />
        <Button
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="Button 20" />
    </LinearLayout>
  </ScrollView>
</RelativeLayout>
```



13.Implement Shared preferences project.

Activity_main.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>
```


Sharedpreferences
app
src
main
res
layout
activity_main.xml
app
Android
activity_main.xml
MainActivity.java
app
manifests
7:07
Sharedpreferences
Shared Preferences Demo
Enter your Name
Enter your Age
<?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" />
RelativeLayout
Logcat
Profiler
Database Inspector
4: Run
Launch succeeded (moments ago)

14.Implement Spinner Project.

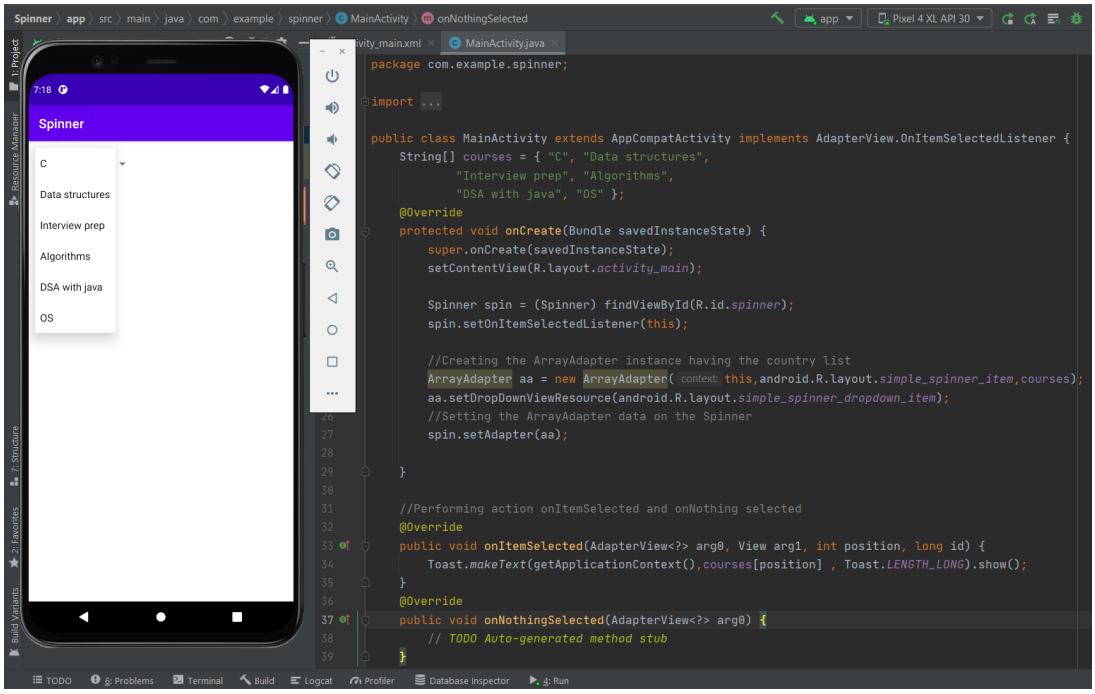
MainActivity.java

```
package com.example.spinner;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemSelectedListener {
   String[] courses = { "C", "Data structures",
         "Interview prep", "Algorithms",
         "DSA with java", "OS" };
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      Spinner spin = (Spinner) findViewById(R.id.spinner);
      spin.setOnItemSelectedListener(this);

      //Creating the ArrayAdapter instance having the country list
      ArrayAdapter aa = new ArrayAdapter(this,android.R.layout.simple_spinner_item,courses);
      aa.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
      //Setting the ArrayAdapter data on the Spinner
      spin.setAdapter(aa);

   }

   //Performing action onItemSelected and onNothing selected
   @Override
   public void onItemSelected(AdapterView<?> arg0, View arg1, int position, long id) {
      Toast.makeText(getApplicationContext(),courses[position] ,
Toast.LENGTH_LONG).show();
   }
   @Override
   public void onNothingSelected(AdapterView<?> arg0) {
      // TODO Auto-generated method stub
   }
}
```

Activity_main.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">

<Spinner
    android:id="@+id/spinner"
    android:layout_height="50dp"
    android:layout_width="160dp"
    android:layout_marginEnd="10dp"
    android:layout_marginStart="10dp"
    android:layout_marginBottom="10dp"
    android:layout_marginTop="10dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```



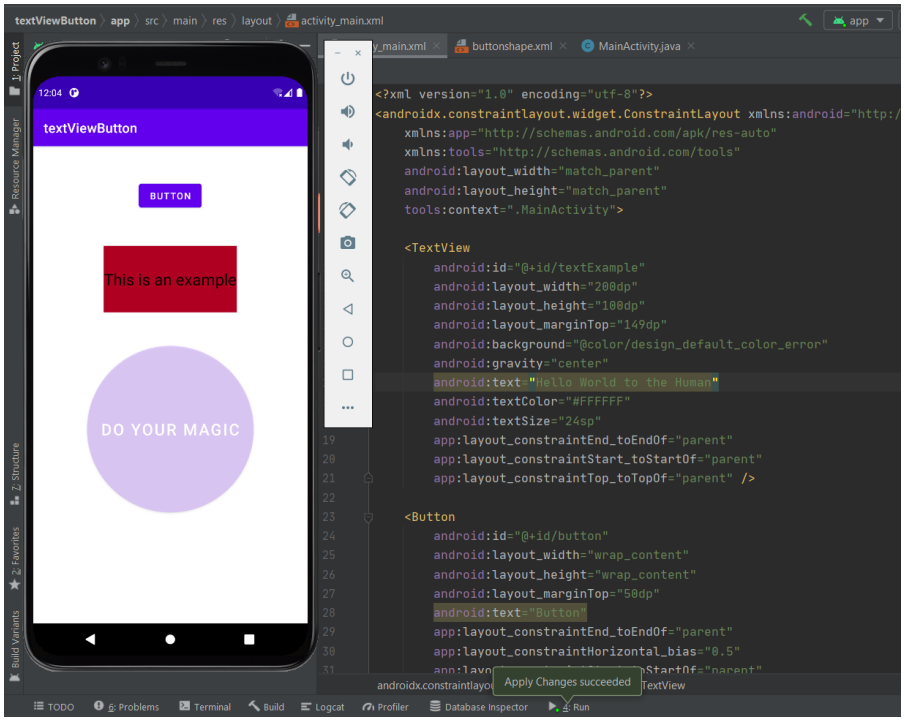
15.Implement text view button project.

Activity_main.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:id="@+id/textExample"
        android:layout_width="200dp"
        android:layout_height="100dp"
        android:layout_marginTop="149dp"
        android:background="@color/design_default_color_error"
        android:gravity="center"
        android:text="Hello World to the Human"
        android:textColor="#FFFFFF"
        android:textSize="24sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:text="Button"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <Button
        android:id="@+id/domagic"
        android:layout_width="250dp"
        android:layout_height="250dp"
        android:layout_marginTop="50dp"
        app:backgroundTint="@color/purple_200"
        android:background="@drawable/buttonshape"
        android:text="Do Your Magic"
        android:textColor="@color/white"
        android:textSize="24sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textExample" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.textviewbutton;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
    TextView text;
    Button button;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        text = findViewById(R.id.textExample);
        button = findViewById(R.id.domagic);
        text.setTextColor(Color.BLACK);
        text.setText("This is an example");
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                button.setBackgroundColor(Color.BLACK);
                text.setText("I have done my magic");
                text.setVisibility(View.INVISIBLE);
                button.setVisibility(View.INVISIBLE);
            }
        });
    }
}
```



16.Implement todo list project.

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:background="@android:color/holo_blue_bright"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:orientation="horizontal">
        <EditText
            android:id="@+id/editText"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="4"
            android:ems="10"
            android:hint=" Add new item"
            android:inputType="textPersonName" />
        <Button
            android:id="@+id/button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Add" />
    </LinearLayout>
    <ListView
        android:id="@+id/list"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />
</LinearLayout>
```

MainActivity.java

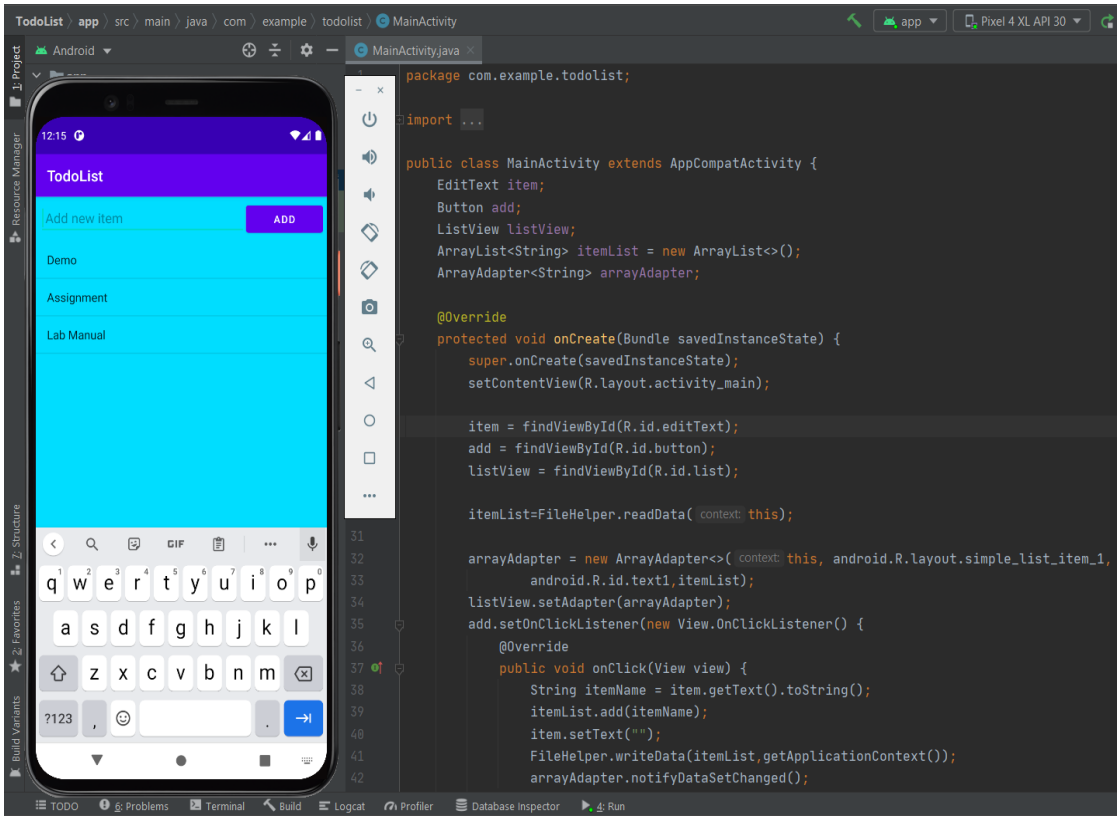
```
package com.example.todolist;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;

import java.util.ArrayList;
```

```
public class MainActivity extends AppCompatActivity {
   EditText item;
   Button add;
   ListView listView;
   ArrayList<String> itemList = new ArrayList<>();
   ArrayAdapter<String> arrayAdapter;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      item = findViewById(R.id.editText);
      add = findViewById(R.id.button);
      listView = findViewById(R.id.list);
      itemList=FileHelper.readData(this);
      arrayAdapter = new ArrayAdapter<>(this, android.R.layout.simple_list_item_1,
            android.R.id.text1,itemList);
      listView.setAdapter(arrayAdapter);
      add.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            String itemName = item.getText().toString();
            itemList.add(itemName);
            item.setText("");
            FileHelper.writeData(itemList,getApplicationContext());
            arrayAdapter.notifyDataSetChanged();
         }
      });
   }
}
```

FileHelper.java

```
package com.example.todolist;
import android.content.Context;
import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.ObjectInputStream;
import java.io.ObjectOutputStream;
import java.util.ArrayList;

public class FileHelper {
   public static final String FILENAME = "listinfo.dat";
   public static void writeData(ArrayList<String> item, Context context)
   {
      try {
         FileOutputStream fos =
context.openFileOutput(FILENAME,Context.MODE_PRIVATE);
         ObjectOutputStream oas = new ObjectOutputStream(fos);
```

```
            oas.writeObject(item);
            oas.close();
        } catch (FileNotFoundException e) {
            e.printStackTrace();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
    public static ArrayList<String> readData(Context context)
    {
        ArrayList<String> itemList = null;
        try {
            FileInputStream fis = context.openFileInput(FILENAME);
            ObjectInputStream ois = new ObjectInputStream(fis);
            itemList = (ArrayList<String>) ois.readObject();
        } catch (FileNotFoundException e) {
            itemList = new ArrayList<>();
            e.printStackTrace();
        } catch (IOException e) {
            e.printStackTrace();
        } catch (ClassNotFoundException e) {
            e.printStackTrace();
        }
        return itemList;
    }
}
```



17.Implement toggle button project.

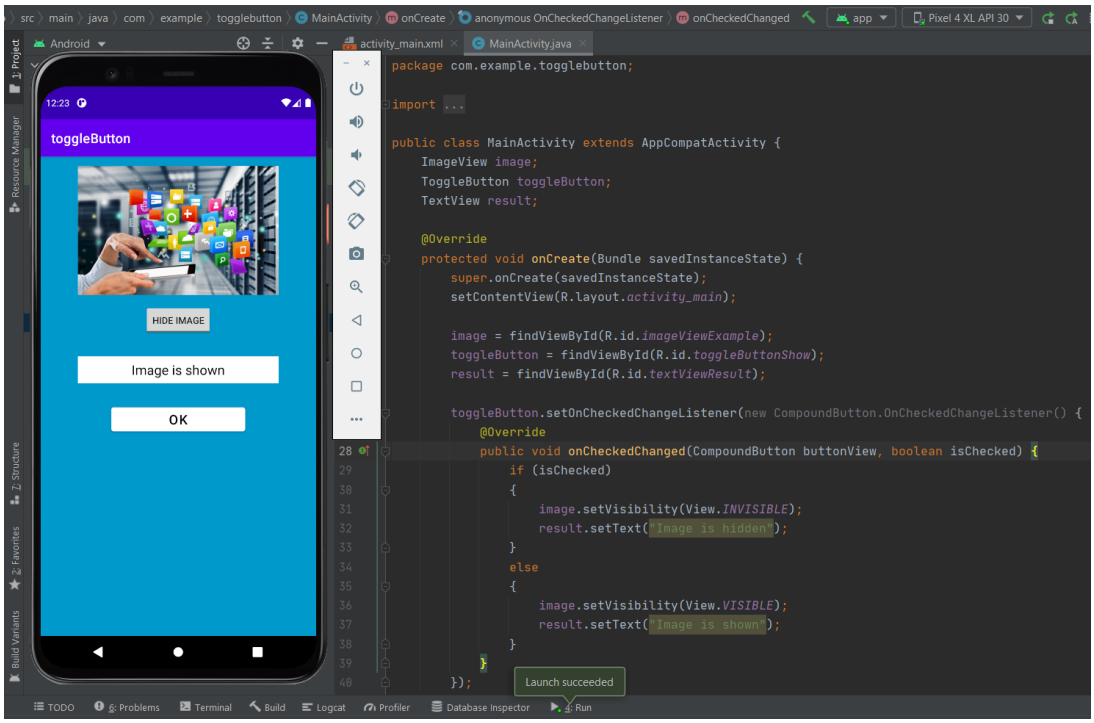
MainActivity.java

```
package com.example.togglebutton;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.CompoundButton;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.ToggleButton;

public class MainActivity extends AppCompatActivity {
   ImageView image;
   ToggleButton toggleButton;
   TextView result;

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

      image = findViewById(R.id.imageViewExample);
      toggleButton = findViewById(R.id.toggleButtonShow);
      result = findViewById(R.id.textViewResult);

      toggleButton.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
         @Override
         public void onCheckedChanged(CompoundButton buttonView, boolean isChecked) {
            if (isChecked)
            {
               image.setVisibility(View.INVISIBLE);
               result.setText("Image is hidden");
            }
            else
            {
               image.setVisibility(View.VISIBLE);
               result.setText("Image is shown");
            }
         }
      });
   }
}
```

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:background="@android:color/holo_blue_dark"
    android:gravity="center_horizontal"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/imageViewExample"
        android:layout_width="300dp"
        android:layout_height="200dp"
        android:layout_marginTop="10dp"
        android:scaleType="fitCenter"
        app:srcCompat="@drawable/a" />

    <ToggleButton
        android:id="@+id/toggleButtonShow"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="ToggleButton"
        android:textOff="Hide Image"
        android:textOn="Show Image" />

    <TextView
        android:id="@+id/textViewResult"
        android:layout_width="300dp"
        android:layout_height="40dp"
        android:layout_marginTop="30dp"
        android:background="@color/white"
        android:gravity="center"
        android:text="What is your gender?"
        android:textColor="@color/black"
        android:textSize="20sp" />

    <Button
        android:id="@+id/buttonOk"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:backgroundTint="@color/white"
        android:text="OK"
        android:textColor="@color/black"
        android:textSize="20sp" />

</LinearLayout>
```


toggleButton
HIDE IMAGE
Image is shown
OK
Launch succeeded

18.Implement Unit Converter project.

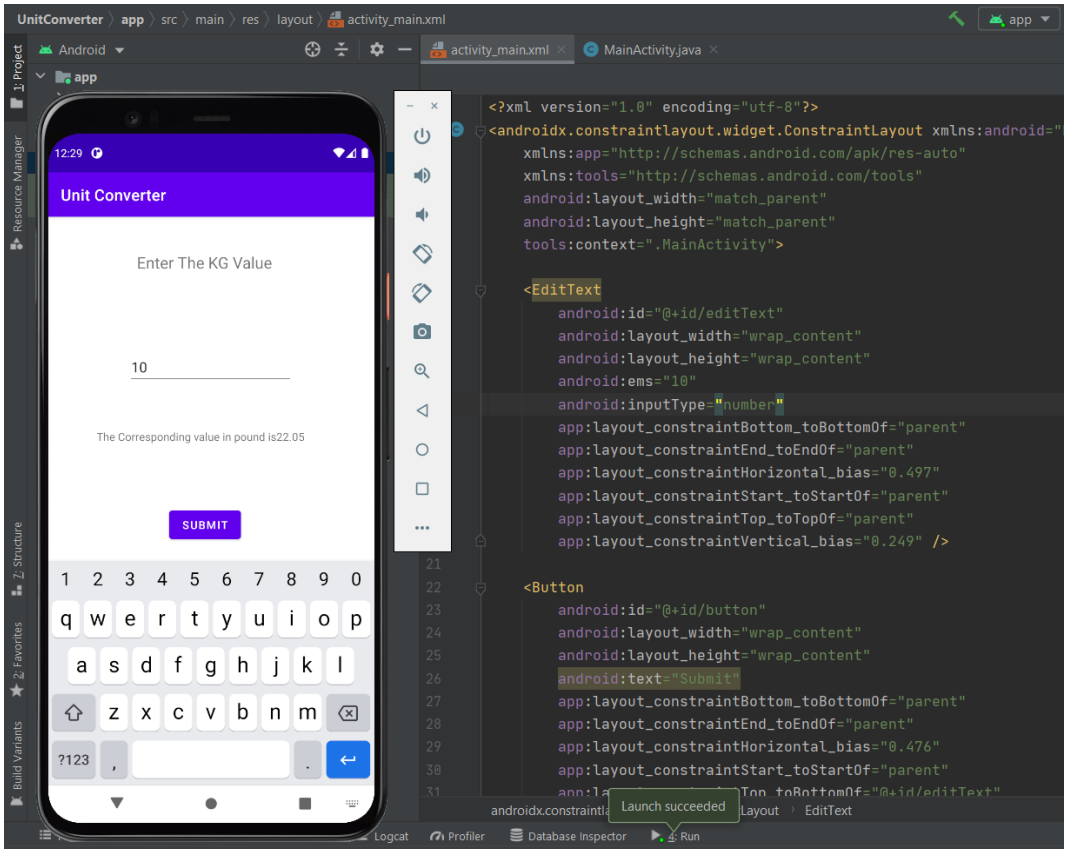
Activity_main.xml

```
<?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/editText"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:ems="10"
      android:inputType="number"
      app:layout_constraintBottom_toBottomOf="parent"
      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="0.249" />

   <Button
      android:id="@+id/button"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Submit"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintHorizontal_bias="0.476"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toBottomOf="@+id/editText"
      app:layout_constraintVertical_bias="0.334" />

   <TextView
      android:id="@+id/textView"
      android:layout_width="289dp"
      android:layout_height="41dp"
      app:layout_constraintBottom_toTopOf="@+id/button"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toBottomOf="@+id/editText" />

   <TextView
      android:id="@+id/textView2"
      android:layout_width="219dp"
      android:layout_height="68dp"
```

```
        android:text="Enter The KG Value"
        android:textSize="20sp"
        app:layout_constraintBottom_toTopOf="@+id/editText"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.583"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.446" />

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

MainActivity.java

```
package com.example.unitconverter;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    private Button button;
    private TextView textView;
    private EditText editText;

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

        button = findViewById(R.id.button);
        textView = findViewById(R.id.textView);
        editText = findViewById(R.id.editText);
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Toast.makeText(MainActivity.this, "WE Got the answer",
Toast.LENGTH_SHORT).show();
                String s = editText.getText().toString();
                int kg = Integer.parseInt(s);
                double pound = 2.205 * kg ;
                textView.setText("The Corresponding value in pound is" + pound);
            }
        });
    }
}
```


UnitConverter app src main res layout activity_main.xml
app
Android
activity_main.xml
MainActivity.java
app
12:29
Unit Converter
Enter The KG Value
10
The Corresponding value in pound is22.05
SUBMIT
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns: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/editText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="number"
app:layout_constraintBottom_toBottomOf="parent"
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="0.249" />
<Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Submit"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.476"
app:layout_constraintStart_toStartOf="parent"
Launch succeeded
Logcat
Profiler
Database Inspector
Run

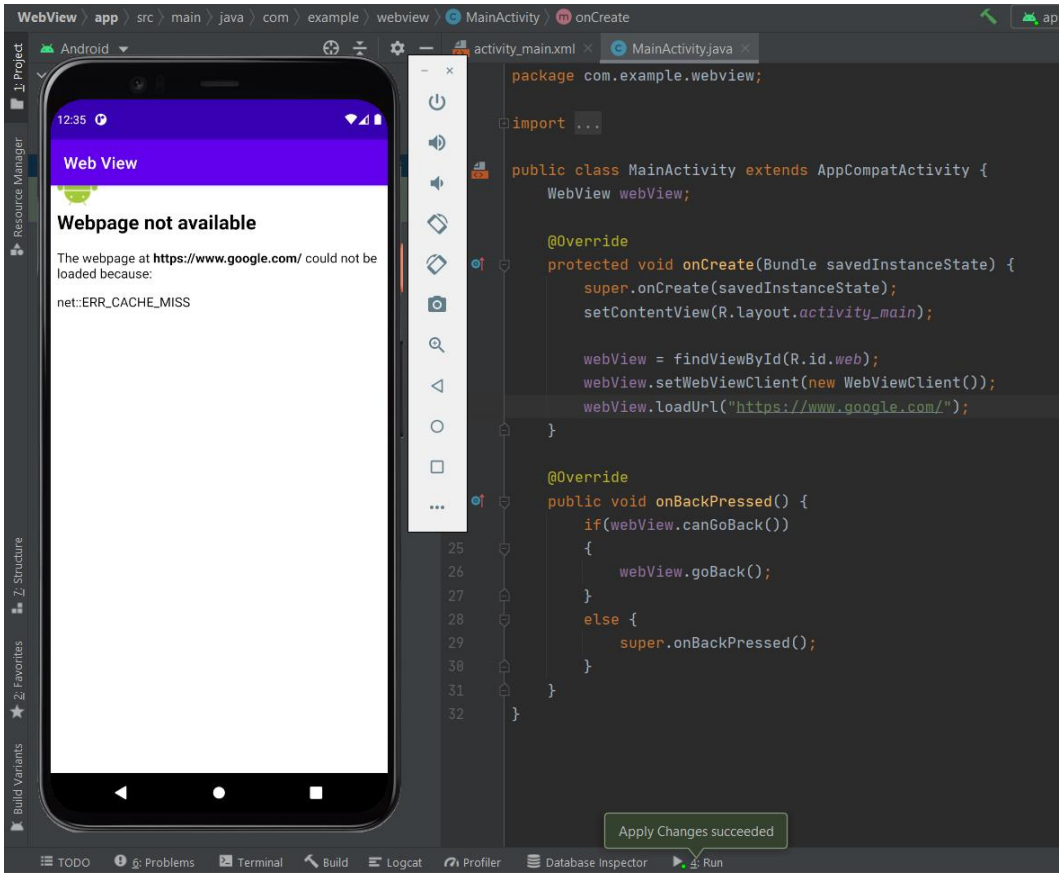
19.Implement web view project.

MainActivity.java

```
package com.example.webview;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.webkit.WebView;
import android.webkit.WebViewClient;

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

      webView = findViewById(R.id.web);
      webView.setWebViewClient(new WebViewClient());
      webView.loadUrl("https://www.google.com/");
   }

   @Override
   public void onBackPressed() {
      if(webView.canGoBack())
      {
         webView.goBack();
      }
      else {
         super.onBackPressed();
      }
   }
}
```

Activity_main.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">
   <WebView
      android:id="@+id/web"
      android:layout_width="match_parent"
      android:layout_height="match_parent" />

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


WebView app src main java com example webview MainActivity onCreate
Android
activity_main.xml
MainActivity.java
12:35
Web View
Webpage not available
The webpage at https://www.google.com/ could not be loaded because:
net::ERR_CACHE_MISS
package com.example.webview;
import ...
public class MainActivity extends AppCompatActivity {
WebView webView;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
webView = findViewById(R.id.web);
webView.setWebViewClient(new WebViewClient());
webView.loadUrl("https://www.google.com/");
}
@Override
public void onBackPressed() {
if(webView.canGoBack())
{
webView.goBack();
}
else {
super.onBackPressed();
}
}
}
Apply Changes succeeded
TODO
6: Problems
Terminal
Build
Logcat
Profiler
Database Inspector
4: Run
1: Project
Resource Manager
7: Structure
2: Favorites
Build Variants