1)Hello World - Program

MainActivity.java

```java
package com.example.student.helloworld;

import android.support.v7.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);
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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 World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

2) Sum Of Two Number

MainActivity.java file

```java
package com.example.student.sumoftwonumber;

import android.support.v7.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 edittext1, edittext2;
    private Button buttonSum;

    @Override
```

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

        addListenerOnButton();
    }
    public void addListenerOnButton() {
        edittext1 = (EditText) findViewById(R.id.editText1);
        edittext2 = (EditText) findViewById(R.id.editText2);
        buttonSum = (Button) findViewById(R.id.button);

        buttonSum.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String value1=edittext1.getText().toString();
                String value2=edittext2.getText().toString();
                int a=Integer.parseInt(value1);
                int b=Integer.parseInt(value2);
                int sum=a+b;
                Toast.makeText(getApplicationContext(),String.valueOf(sum),
Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

activity_main.xml file

```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">

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="61dp"
        android:ems="10"
        android:inputType="number"
        tools:layout_editor_absoluteX="84dp"
        tools:layout_editor_absoluteY="53dp" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editText1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="32dp"
        android:ems="10"
        android:inputType="number"
        tools:layout_editor_absoluteX="84dp"
        tools:layout_editor_absoluteY="127dp" />
```

```
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editText2"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="109dp"
        android:text="ADD"
        tools:layout_editor_absoluteX="148dp"
        tools:layout_editor_absoluteY="266dp" />

</RelativeLayout>
```

3) Toast

MainActivity.java file

```java
package com.example.student.toast;

import android.support.v7.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(),"Hello students learning
Android",Toast.LENGTH_SHORT).show();
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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 World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

4) Custom Toast
   MainActivity.java file

```java
package com.example.student.customtoast;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Gravity;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

        //Creating the LayoutInflater instance
        LayoutInflater li = getLayoutInflater();
        //Getting the View object as defined in the customtoast.xml file
        View layout = li.inflate(R.layout.customtoast,(ViewGroup)
findViewById(R.id.custom_toast_layout));

        //Creating the Toast object
        Toast toast = new Toast(getApplicationContext());
        toast.setDuration(Toast.LENGTH_SHORT);
        toast.setGravity(Gravity.CENTER_VERTICAL, 0, 0);
        toast.setView(layout);//setting the view of custom toast layout
        toast.show();
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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 World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

➔ Create a new xml file into res/layout/customtoast.xml file

➔ Click on file name(layout) then right click -> new->Layout Resource File->enter file name (customtoast)->and press enter key from keyboard

customtoast.xml file

```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:id="@+id/custom_toast_layout"
    android:orientation="vertical"
    android:background="#F14E23">

    <ImageView
        android:id="@+id/custom_toast_image"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:contentDescription="Hello world"
        android:src="@drawable/student"/>  //add Image into
res/drawable/(image name->student)

    <TextView
        android:id="@+id/custom_toast_message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:contentDescription="To"
        android:text="@string/stud" />

</LinearLayout>
```

➔ Add some line of code in file of strings.xml file
➔ Its located in res/values/strings.xml

```xml
➔  <resources>
        <string name="app_name">Custom Toast</string>
        <string name="stud">Hello students of jjkcc</string> //Add this
    line
    </resources>
```

➔ Add image into res/drawable/student.png -> then run it android program

5) Toggle Button
   MainActivity.java file

```java
package com.example.student.togglebutton;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import android.widget.ToggleButton;

public class MainActivity extends AppCompatActivity {
    private ToggleButton toggleButton1, toggleButton2;
    private Button buttonSubmit;
```

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

        addListenerOnButtonClick();
    }
    public void addListenerOnButtonClick(){
        //Getting the ToggleButton and Button instance from the layout xml
file
        toggleButton1=(ToggleButton)findViewById(R.id.toggleButton);
        toggleButton2=(ToggleButton)findViewById(R.id.toggleButton2);
        buttonSubmit=(Button)findViewById(R.id.button);

        //Performing action on button click
        buttonSubmit.setOnClickListener(new View.OnClickListener(){

            @Override
            public void onClick(View view) {
                StringBuilder result = new StringBuilder();
                result.append("ToggleButton1 :
").append(toggleButton1.getText());
                result.append("\nToggleButton2 :
").append(toggleButton2.getText());
                //Displaying the message in toast
                Toast.makeText(getApplicationContext(),
result.toString(),Toast.LENGTH_LONG).show();
            }

        });

    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="8dp"
        android:layout_marginTop="80dp"
        android:text="ToggleButton"
        android:textOff="Off"
        android:textOn="On"
        app:layout_constraintEnd_toStartOf="@+id/toggleButton2"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <ToggleButton
```

```xml
        android:id="@+id/toggleButton2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="60dp"
        android:layout_marginTop="80dp"
        android:text="ToggleButton"
        android:textOff="Off"
        android:textOn="On"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="144dp"
        android:layout_marginLeft="148dp"
        android:text="Submit"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent" />

</android.support.constraint.ConstraintLayout>
```

6) CheckBox
   MainActivity.java file

```java
package com.example.student.checkbox;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.Toast;


public class MainActivity extends AppCompatActivity {
    CheckBox pizza,coffe,burger;
    Button buttonOrder;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        addListenerOnButtonClick();
    }
    public void addListenerOnButtonClick(){
        //Getting instance of CheckBoxes and Button from the
activty_main.xml file
        pizza=(CheckBox)findViewById(R.id.checkBox);
        coffe=(CheckBox)findViewById(R.id.checkBox2);
        burger=(CheckBox)findViewById(R.id.checkBox3);
        buttonOrder=(Button)findViewById(R.id.button);

        //Applying the Listener on the Button click
        buttonOrder.setOnClickListener(new View.OnClickListener(){

            @Override
            public void onClick(View view) {
                int totalamount=0;
```

```java
                StringBuilder result=new StringBuilder();
                result.append("Selected Items:");
                if(pizza.isChecked()){
                    result.append("\nPizza 100Rs");
                    totalamount+=100;
                }
                if(coffe.isChecked()){
                    result.append("\nCoffe 50Rs");
                    totalamount+=50;
                }
                if(burger.isChecked()){
                    result.append("\nBurger 120Rs");
                    totalamount+=120;
                }
                result.append("\nTotal: "+totalamount+"Rs");
                //Displaying the message on the toast
                Toast.makeText(getApplicationContext(), result.toString(),
Toast.LENGTH_LONG).show();
            }

        });
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <CheckBox
        android:id="@+id/checkBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="144dp"
        android:layout_marginTop="68dp"
        android:text="Pizza"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <CheckBox
        android:id="@+id/checkBox2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="144dp"
        android:layout_marginTop="28dp"
        android:text="Coffee"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/checkBox" />

    <CheckBox
        android:id="@+id/checkBox3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="144dp"
```

```xml
            android:layout_marginTop="28dp"
            android:text="Burger"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toBottomOf="@+id/checkBox2" />

    <Button
            android:id="@+id/button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="144dp"
            android:layout_marginTop="184dp"
            android:text="Order"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toBottomOf="@+id/checkBox3" />

</android.support.constraint.ConstraintLayout>
```

7) Radio Button
   MainActivity.java file

```java
package com.example.student.radiobutton;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    RadioButton genderradioButton;
    RadioGroup radioGroup;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        radioGroup=(RadioGroup)findViewById(R.id.radioGroup);
    }
    public void onclickbuttonMethod(View v){
        int selectedId = radioGroup.getCheckedRadioButtonId();
        genderradioButton = (RadioButton) findViewById(selectedId);
        if(selectedId==-1){
            Toast.makeText(MainActivity.this,"Nothing selected",
Toast.LENGTH_SHORT).show();
        }
        else{
            Toast.makeText(MainActivity.this,genderradioButton.getText(),
Toast.LENGTH_SHORT).show();
        }

    }
}
```

activity_main.xml

```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:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:gravity="center_horizontal"
        android:textSize="22dp"
        android:text="Single Radio Buttons" />



    <!--    Default RadioButtons   -->

    <RadioButton
        android:id="@+id/radioButton1"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:text="Radio Button 1"
        android:layout_marginTop="20dp"

        android:textSize="20dp" />
    <RadioButton
        android:id="@+id/radioButton2"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Radio Button 2"
        android:layout_marginTop="10dp"

        android:textSize="20dp" />


    <View
        android:layout_width="fill_parent"
        android:layout_height="1dp"
        android:layout_marginTop="20dp"
        android:background="#B8B894" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:gravity="center_horizontal"
        android:textSize="22dp"
        android:text="Radio button inside RadioGroup" />


    <!--    Customized RadioButtons   -->
```

```xml
    <RadioGroup
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/radioGroup">

        <RadioButton
            android:id="@+id/radioMale"
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="  Male"
            android:layout_marginTop="10dp"
            android:checked="false"
            android:textSize="20dp" />

        <RadioButton
            android:id="@+id/radioFemale"
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:text="   Female"
            android:layout_marginTop="20dp"
            android:checked="false"

            android:textSize="20dp" />
    </RadioGroup>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Selected"
        android:id="@+id/button"
        android:onClick="onclickbuttonMethod"
        android:layout_gravity="center_horizontal" />

</LinearLayout>
```

8) Alert Dialog Box
   MainActivity.java file

```java
package com.example.student.alertdialogbox;

import android.content.DialogInterface;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.app.AlertDialog;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button closeButton;
    AlertDialog.Builder builder;

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

        closeButton = (Button) findViewById(R.id.button);
        builder = new AlertDialog.Builder(this);
        closeButton.setOnClickListener(new View.OnClickListener() {
```

```java
            @Override
            public void onClick(View v) {

                //Uncomment the below code to Set the message and title
from the strings.xml file
                builder.setMessage(R.string.dialog_message)
.setTitle(R.string.dialog_title);

                //Setting message manually and performing action on button
click
                builder.setMessage("Do you want to close this application
?")
                        .setCancelable(false)
                        .setPositiveButton("Yes", new
DialogInterface.OnClickListener() {
                            public void onClick(DialogInterface dialog, int
id) {

                                finish();
                                Toast.makeText(getApplicationContext(),"you
choose yes action for alertbox",
                                        Toast.LENGTH_SHORT).show();
                            }
                        })
                        .setNegativeButton("No", new
DialogInterface.OnClickListener() {
                            public void onClick(DialogInterface dialog, int
id) {
                                //  Action for 'NO' Button
                                dialog.cancel();
                                Toast.makeText(getApplicationContext(),"you
choose no action for alertbox",
                                        Toast.LENGTH_SHORT).show();
                            }
                        });
                //Creating dialog box
                AlertDialog alert = builder.create();
                //Setting the title manually
                alert.setTitle("AlertDialogExample");
                alert.show();
            }
        });
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/button"
        android:text="@string/close"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

→ Add some line of code into res/values/strings.xml file (Location of File where you found it)

```
<resources>
    <string name="app_name">AlertDialogBox</string>
    <string name="dialog_message">Welcome to Alert Dialog</string> //Add
this line
    <string name="dialog_title">Android Alert Dialog</string> //Add this
line
    <string name="close">CloseApp</string> //Add this line
</resources>
```

9) Spinner
   MainActivity.java file

```
package com.example.student.spinner;

import android.support.v7.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[] country = { "India", "USA", "China", "Japan", "Other"};

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

        //Getting the instance of Spinner and applying
OnItemSelectedListener on it
        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,country);

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(),country[position] ,
```

```java
Toast.LENGTH_LONG).show();
    }
    @Override
    public void onNothingSelected(AdapterView<?> arg0) {
        // TODO Auto-generated method stub
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="149dp"
        android:layout_height="40dp"
        android:layout_marginBottom="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.502"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.498" />

</android.support.constraint.ConstraintLayout>
```

10) Auto Complete Text View
   MainActivity.java file

```java
package com.example.student.autocompletetextview;

import android.graphics.Color;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;

public class MainActivity extends AppCompatActivity {
    String[] language
={"C","C++","Java",".NET","iPhone","Android","ASP.NET","PHP","Python","DWDM
","Data Structure","Wordpress","Maths","Linux"};

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

        //Creating the instance of ArrayAdapter containing list of language
names
```

```java
        ArrayAdapter<String> adapter = new ArrayAdapter<String>
                (this,android.R.layout.select_dialog_item,language);
        //Getting the instance of AutoCompleteTextView
        AutoCompleteTextView actv =
(AutoCompleteTextView)findViewById(R.id.autoCompleteTextView);
        actv.setThreshold(1);//will start working from first character
        actv.setAdapter(adapter);//setting the adapter data into the
AutoCompleteTextView
        actv.setTextColor(Color.RED);
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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="What is your favourite programming language?"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.032" />

    <AutoCompleteTextView
        android:id="@+id/autoCompleteTextView"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="92dp"
        android:layout_marginTop="144dp"
        android:text=""
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

11) List View

MainActivity.java

```java
package com.example.student.listview;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    ListView listView;
    TextView textView;
    String[] listItem;

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

        listView=(ListView)findViewById(R.id.listView);
        textView=(TextView)findViewById(R.id.textView);
        listItem = getResources().getStringArray(R.array.array_technology);
        final ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
                android.R.layout.simple_list_item_1, android.R.id.text1,
listItem);
        listView.setAdapter(adapter);

        listView.setOnItemClickListener(new
AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> adapterView, View view,
int position, long l) {
                // TODO Auto-generated method stub
                String value=adapter.getItem(position);

Toast.makeText(getApplicationContext(),value,Toast.LENGTH_SHORT).show();

            }
        });
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <ListView
        android:id="@+id/listView"
```

```xml
            android:layout_width="match_parent"
            android:layout_height="fill_parent" />

</android.support.constraint.ConstraintLayout>
```

➔ Create new xml file into res/layout/mylist.xml
➔ How to create xml file-> click on res then right click -> new -> Layout Resource
   File -> enter file name (mylist)-> and click on Ok button

mylist.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<TextView xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Medium Text"
    android:textStyle="bold"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="5dp"
    android:padding="2dp"
    android:textColor="#4d4d4d"
    />
```

➔ Add some code of strings.xml file
➔ Its located into res/values/strings.xml file
   strings.xml file

```xml
<resources>
    <string name="app_name">ListView</string>
    <string-array name="array_technology">
        <item>Android</item>
        <item>Java</item>
        <item>Php</item>
        <item>HTML</item>
        <item>Linux</item>
        <item>Python</item>
        <item>Data Structure</item>
        <item>C++</item>
        <item>Maths</item>
        <item>Oracle</item>
        <item>.Net</item>
        <item>C Sharp</item>
        <item>C Language</item>
        <item>SAD</item>
        <item>CF and ET</item>
        <item>Wordpress</item>
        <item>DWDM</item>
        <item>Network</item>
    </string-array>
</resources>
```

12) Rating Bar

MainActivity.java file

```java
package com.example.student.ratingbar;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RatingBar;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    RatingBar ratingbar;
    Button button;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        addListenerOnButtonClick();
    }
    public void addListenerOnButtonClick(){
        ratingbar=(RatingBar)findViewById(R.id.ratingBar);
        button=(Button)findViewById(R.id.button);
        //Performing action on Button Click
        button.setOnClickListener(new View.OnClickListener(){

            @Override
            public void onClick(View arg0) {
                //Getting the rating and displaying it on the toast
                String rating=String.valueOf(ratingbar.getRating());
                Toast.makeText(getApplicationContext(), rating,
Toast.LENGTH_LONG).show();
            }

        });
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="submit"
        android:id="@+id/button"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
```

```xml
        app:layout_constraintVertical_bias="0.615" />

    <RatingBar
        android:id="@+id/ratingBar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="72dp"
        android:layout_marginTop="60dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

13) Seek Bar
   MainActivity.java file

```java
package com.example.student.seekbar;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.SeekBar;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    SeekBar seekBar;

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

        seekBar=(SeekBar)findViewById(R.id.seekBar);
        seekBar.setOnSeekBarChangeListener(new
SeekBar.OnSeekBarChangeListener() {
            @Override
            public void onProgressChanged(SeekBar seekBar, int progress,
                                          boolean fromUser) {
                Toast.makeText(getApplicationContext(),"seekbar progress:
"+progress, Toast.LENGTH_SHORT).show();
            }

            @Override
            public void onStartTrackingTouch(SeekBar seekBar) {
                Toast.makeText(getApplicationContext(),"seekbar touch
started!", Toast.LENGTH_SHORT).show();
            }

            @Override
            public void onStopTrackingTouch(SeekBar seekBar) {
                Toast.makeText(getApplicationContext(),"seekbar touch
stopped!", Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <SeekBar
        android:id="@+id/seekBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="372dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

14) Date Picker
MainActivty.java

```java
package com.example.student.datepicker;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    DatePicker picker;
    Button displayDate;
    TextView textview1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textview1=(TextView)findViewById(R.id.textView1);
        picker=(DatePicker)findViewById(R.id.datePicker);
        displayDate=(Button)findViewById(R.id.button1);

        textview1.setText("Current Date: "+getCurrentDate());

        displayDate.setOnClickListener(new View.OnClickListener(){
            @Override
            public void onClick(View view) {

                textview1.setText("Change Date: "+getCurrentDate());
            }
```

```
        });

    }
    public String getCurrentDate(){
        StringBuilder builder=new StringBuilder();;
        builder.append((picker.getMonth() + 1)+"/");//month is 0 based
        builder.append(picker.getDayOfMonth()+"/");
        builder.append(picker.getYear());
        return builder.toString();
    }
}
```

activity_main.xml file

```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:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/button1"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_marginBottom="102dp"
        android:layout_marginLeft="30dp"
        android:layout_marginStart="30dp"
        android:text="" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="20dp"
        android:text="Change Date" />

    <DatePicker
        android:id="@+id/datePicker"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="36dp" />

</RelativeLayout>
```

15) Time Picker

MainActivity.java file

```java
package com.example.student.timepicker;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.TimePicker;

public class MainActivity extends AppCompatActivity {
    TextView textview1;
    TimePicker timepicker;
    Button changetime;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textview1=(TextView)findViewById(R.id.textView1);
        timepicker=(TimePicker)findViewById(R.id.timePicker);
        //Uncomment the below line of code for 24 hour view
        timepicker.setIs24HourView(true);
        changetime=(Button)findViewById(R.id.button1);

        textview1.setText(getCurrentTime());

        changetime.setOnClickListener(new View.OnClickListener(){
            @Override
            public void onClick(View view) {
                textview1.setText(getCurrentTime());
            }
        });

    }

    public String getCurrentTime(){
        String currentTime="Current Time:
"+timepicker.getCurrentHour()+":"+timepicker.getCurrentMinute();
        return currentTime;
    }
}
```

activity_main.xml file

```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:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/button1"
```

```xml
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_marginBottom="102dp"
        android:layout_marginLeft="30dp"
        android:layout_marginStart="30dp"
        android:text="" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="20dp"
        android:text="Change Time" />

    <TimePicker
        android:id="@+id/timePicker"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="36dp" />

</RelativeLayout>
```

16)Activity Life Cycle
    MainActivity.java file

```java
package com.example.student.activitylifecycle;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d("lifecycle","onCreate invoked");
    }
    @Override
    protected void onStart() {
        super.onStart();
        Log.d("lifecycle","onStart invoked");
    }
    @Override
    protected void onResume() {
        super.onResume();
        Log.d("lifecycle","onResume invoked");
    }
    @Override
    protected void onPause() {
        super.onPause();
        Log.d("lifecycle","onPause invoked");
    }
```

```java
        @Override
    protected void onStop() {
        super.onStop();
        Log.d("lifecycle","onStop invoked");
    }
        @Override
    protected void onRestart() {
        super.onRestart();
        Log.d("lifecycle","onRestart invoked");
    }
        @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.d("lifecycle","onDestroy invoked");
    }
}
```

activity_main.xml file (No any changes of default file create)

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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 World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

17) Implicit Intent
MainActivity.java file

```java
package com.example.student.implicitintent;

import android.content.Intent;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
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
```

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

        button =(Button)findViewById(R.id.button);
        editText = (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);
            }
        });
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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" />

</android.support.constraint.ConstraintLayout>
```

18) Explicit Intent
    (rename of MainActivity.java to FirstActivity.java)
→ How to rename file -> click on file(MainActivity.java) then right click->
    Refactor-> Rename (Shortcut Key :- shift+F6)
    FirstActivity.java file

```java
package com.example.student.explicitintent;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;

public class FirstActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_first);
    }
    public void callSecondActivity(View view){
        Intent i = new Intent(getApplicationContext(),
SecondActivity.class);
        i.putExtra("Value1", "Android By BCA Sem 6 students");
        i.putExtra("Value2", "Simple Example");
        // Set the request code to any code you like, you can identify the
        // callback via this code
        startActivity(i);
    }
}
```

activity_first.xml file (Rename file from activity_main.xml to activity_first.xml)

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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=".FirstActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:text="First Activity"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.454"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.06" />
```

```xml
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="392dp"
        android:onClick="callSecondActivity"
        android:text="Call second activity"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

➔ Create new Empty Activity file
➔ How to create -> click on your file name (Example :
   com.example.student.explicitintent) then Right click on file ->new ->Activity ->
   find Empty Activity and select it -> enter name of activity -> SecondActivity
   and layout name automatically change to activity_second

SecondActivity.java file

```java
package com.example.student.explicitintent;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;

public class SecondActivity extends AppCompatActivity {

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

        Bundle extras = getIntent().getExtras();
        String value1 = extras.getString("Value1");
        String value2 = extras.getString("Value2");
        Toast.makeText(getApplicationContext(),"Values are:\n First value:
"+value1+
                "\n Second Value: "+value2, Toast.LENGTH_LONG).show();
    }
    public void callFirstActivity(View view){
        Intent i = new Intent(getApplicationContext(),
FirstActivity.class);
        startActivity(i);
    }
}
```

activity_second.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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=".SecondActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:text="Second Activity"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.454"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.06" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="392dp"
        android:onClick="callFirstActivity"
        android:text="Call first activity"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

19) Start Activity For Result
    MainActivity.java file

```java
package com.example.student.startactivityforresult;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.content.Intent;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView textView1;
    Button button1;
```

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

        textView1=(TextView)findViewById(R.id.textView1);
        button1=(Button)findViewById(R.id.button1);
        button1.setOnClickListener(new OnClickListener() {
            @Override
            public void onClick(View arg0) {
                Intent intent=new
Intent(MainActivity.this,SecondActivity.class);
                startActivityForResult(intent, 2);// Activity is started
with requestCode 2
            }
        });
    }
    // Call Back method  to get the Message form other Activity
    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent
data)
    {
        super.onActivityResult(requestCode, resultCode, data);
        // check if the request code is same as what is passed  here it is
2
        if(requestCode==2)
        {
            String message=data.getStringExtra("MESSAGE");
            textView1.setText(message);
        }
    }
}
```

activity_main.xml file

```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:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/button1"
        android:layout_alignParentTop="true"
        android:layout_marginTop="48dp"
        android:text="Default Message" />
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="42dp"
        android:text="GetMessage" />
</RelativeLayout>
```

➔ Create new empty activity and given to name of SecondActivity and activity_second

SecondActivity.java file

```java
package com.example.student.startactivityforresult;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.content.Intent;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;

public class SecondActivity extends AppCompatActivity {
    EditText editText1;
    Button button1;

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

        editText1=(EditText)findViewById(R.id.editText1);
        button1=(Button)findViewById(R.id.button1);
        button1.setOnClickListener(new OnClickListener() {
            @Override
            public void onClick(View arg0) {
                String message=editText1.getText().toString();
                Intent intent=new Intent();
                intent.putExtra("MESSAGE",message);
                setResult(2,intent);
                finish();//finishing activity
            }
        });
    }
}
```

activity_second.xml file

```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=".SecondActivity">

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_marginTop="61dp"
        android:layout_toRightOf="@+id/textView1"
        android:ems="10" />
    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
```

```
            android:layout_height="wrap_content"
            android:layout_alignBaseline="@+id/editText1"
            android:layout_alignBottom="@+id/editText1"
            android:layout_alignParentLeft="true"
            android:text="Enter Message:" />
    <Button
            android:id="@+id/button1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_below="@+id/editText1"
            android:layout_centerHorizontal="true"
            android:layout_marginTop="34dp"
            android:text="Submit" />

</RelativeLayout>
```

20) Hide Title Bar

MainActivity.java file

```java
package com.example.student.hidetitlebar;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Window;
import android.view.WindowManager;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE); //will hide the
title
        getSupportActionBar().hide(); // hide the title bar

this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
                WindowManager.LayoutParams.FLAG_FULLSCREEN); //enable full
screen
        setContentView(R.layout.activity_main);
    }
}
```

activity_main.xml file (No any changes of this file)

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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 World!"
        app:layout_constraintBottom_toBottomOf="parent"
```

```
                app:layout_constraintLeft_toLeftOf="parent"
                app:layout_constraintRight_toRightOf="parent"
                app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

21)Screen Orientation

MainActivity.java file

```java
package com.example.student.screenorientation;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button button1;

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

        button1=(Button)findViewById(R.id.button1);
    }
    public void onClick(View v) {
        Intent intent = new Intent(MainActivity.this,SecondActivity.class);
        startActivity(intent);

    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="8dp"
        android:layout_marginTop="112dp"
        android:onClick="onClick"
        android:text="Launch next activity"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.612"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText1"
        app:layout_constraintVertical_bias="0.613" />
```

```xml
    <TextView
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="124dp"
        android:ems="10"
        android:textSize="22dp"
        android:text="This activity is portrait orientation"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.502"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

➔ Create new empty activity and given to name of SecondActivity and activity_second
SecondActivity.java file (No any changes of this file)

```java
package com.example.student.screenorientation;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class SecondActivity extends AppCompatActivity {

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

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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=".SecondActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="180dp"
        android:text="this is landscape orientation"
        android:textSize="22dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.502"
```

```
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

➔ Add some line of code in AndroidManifest.xml file
➔ Its located into app -> manifests -> AndroidManifest.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.student.screenorientation">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.ScreenOrientation">
        <activity
            android:name=".SecondActivity"
            android:screenOrientation="landscape" //Add to this line here
            android:exported="false" />
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER"
/>
            </intent-filter>
        </activity>

    </application>

</manifest>
```

22) Android Fragments
    MainActivity.java file (No any changes of this file)

```java
package com.example.student.androidfragments;

import android.support.v7.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);
    }
}
```

activity_main.xml file

```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"
    tools:context=".MainActivity">

    <fragment
        android:id="@+id/fragment_1"
        android:name="com.example.student.androidfragments.Fragment1"
        android:layout_width="0px"
        android:layout_height="match_parent"
        android:layout_weight="1"/>


    <fragment
        android:id="@+id/fragment_2"
        android:name="com.example.student.androidfragments.Fragment2"
        android:layout_width="0px"
        android:layout_height="match_parent"
        android:layout_weight="1"
        />

</LinearLayout>
```

➔ Create new Fragment file
➔ How to create file create -> click on your file name (Example :
   com.example.student.androidfragments)->right click on file -> new ->
   Fragment -> Fragment (blank)
➔ File Name -> Fragment1 and fragment_1

Fragment1.java file

```java
package com.example.student.androidfragments;

import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class Fragment1 extends Fragment {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
    }

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_1, container, false);
```

```
        }
}
```

fragment_1.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout 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="#DCE1F5"
    tools:context=".Fragment1">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="@string/hello_blank_fragment" />

</FrameLayout>
```

➔ Create second Fragment file (like fragment 1 file create) and given to name
   Fragment2 and fragment_2

Fragment2.java file

```java
package com.example.student.androidfragments;

import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class Fragment2 extends Fragment {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
    }

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_2, container, false);
    }

}
```

fragment_2.xml file

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

```xml
    tools:context=".Fragment2">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="@string/hello_blank_fragment" />

</FrameLayout>
```

23) Context Menu
    MainActivity.java file

```java
package com.example.student.contextmenu;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    ListView listView;
    String contacts[]={"Android","Python","Java","Advance Java","DWDM"};


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

        listView=(ListView)findViewById(R.id.listView);
        ArrayAdapter<String> adapter=new
ArrayAdapter<String>(this,android.R.layout.simple_list_item_1,contacts);
        listView.setAdapter(adapter);
        // Register the ListView  for Context menu
        registerForContextMenu(listView);
    }
    @Override
    public void onCreateContextMenu(ContextMenu menu, View v,
ContextMenu.ContextMenuInfo menuInfo)
    {
        super.onCreateContextMenu(menu, v, menuInfo);
        MenuInflater inflater = getMenuInflater();
        inflater.inflate(R.menu.menu_main, menu);
        menu.setHeaderTitle("Select The Action");
    }
    @Override
    public boolean onContextItemSelected(MenuItem item){
        if(item.getItemId()==R.id.call){
            Toast.makeText(getApplicationContext(),"calling
code",Toast.LENGTH_LONG).show();
        }
        else if(item.getItemId()==R.id.sms){
```

```
            Toast.makeText(getApplicationContext(),"sending sms
code",Toast.LENGTH_LONG).show();
        }else{
            return false;
        }
        return true;
    }
}
```

activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.design.widget.CoordinatorLayout
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:layout_width="368dp"
        android:layout_height="495dp"
        android:id="@+id/listView"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.design.widget.CoordinatorLayout>
```

➔ Create menu directory in res
➔ How to create -> right click on res folder ->New -> Directory -> Enter directory
  name of menu
➔ Then create menu_main resource file into menu directory
➔ How to create ->right click on menu directory->new->Menu Resource File ->
  Enter file name -> menu_main then click on Ok or press Enter Key from
  keyboard

menu_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:id="@+id/call"
        android:title="Call" />
    <item android:id="@+id/sms"
        android:title="SMS" />
</menu>
```

24) Popup Menu
   MainActivity.java file

```java
package com.example.student.popupmenu;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.widget.PopupMenu;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button button;

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

        button = (Button) findViewById(R.id.button);
        button.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                //Creating the instance of PopupMenu
                PopupMenu popup = new PopupMenu(MainActivity.this, button);
                //Inflating the Popup using xml file
                popup.getMenuInflater().inflate(R.menu.popup_menu,
popup.getMenu());

                //registering popup with OnMenuItemClickListener
                popup.setOnMenuItemClickListener(new
PopupMenu.OnMenuItemClickListener() {
                    public boolean onMenuItemClick(MenuItem item) {
                        Toast.makeText(MainActivity.this,"You Clicked : " +
item.getTitle(), Toast.LENGTH_SHORT).show();
                        return true;
                    }
                });

                popup.show();//showing popup menu
            }
        });//closing the setOnClickListener method
    }
}
```

   activity_main.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.design.widget.CoordinatorLayout
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">

    <Button
```

```xml
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/button"
        android:text="Click"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.design.widget.CoordinatorLayout>
```

➔ Create menu directory in res
➔ How to create -> right click on res folder ->New -> Directory -> Enter directory name of menu
➔ Then create popup_menu resource file into menu directory
➔ How to create ->right click on menu directory->new->Menu Resource File -> Enter file name -> popup_menu then click on Ok or press Enter Key from keyboard

popup_menu.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/one"
        android:title="One" />
    <item
        android:id="@+id/two"
        android:title="Two"/>
    <item
        android:id="@+id/three"
        android:title="Three"/>
</menu>
```

25) Android Service
   MainActivity.java file

```java
package com.example.student.androidservice;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button buttonStart, buttonStop,buttonNext;

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

```java
            buttonStart = (Button)findViewById(R.id.buttonStart);
            buttonStop = (Button)findViewById(R.id.buttonStop);
            buttonNext =  (Button)findViewById(R.id.buttonNext);

            buttonStart.setOnClickListener((View.OnClickListener) this);
            buttonStop.setOnClickListener((View.OnClickListener) this);
            buttonNext.setOnClickListener((View.OnClickListener) this);


    }
    public void onClick(View src) {
        switch (src.getId()) {
            case R.id.buttonStart:

                startService(new Intent(this, MyService.class));
                break;
            case R.id.buttonStop:
                stopService(new Intent(this, MyService.class));
                break;
            case R.id.buttonNext:
                Intent intent=new Intent(this,NextPage.class);
                startActivity(intent);
                break;
        }
    }
}
```

activity_main.xml file

```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">

    <Button
        android:id="@+id/buttonStart"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="74dp"
        android:text="Start Service" />

    <Button
        android:id="@+id/buttonStop"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:text="Stop Service" />

    <Button
        android:id="@+id/buttonNext"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
```

```
        android:layout_marginBottom="63dp"
        android:text="Next Page" />

</RelativeLayout>
```

➔ Create new Empty Activity that name of NextPage and activity_next
   NextPage.java (No any changes of default code)

```java
package com.example.student.androidservice;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class NextPage extends AppCompatActivity {

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

activity_next.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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=".NextPage">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="200dp"
        android:text="Next Page"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

➔ Create new Service file
➔ How to create it -> Right Click on file name (Example :
   com.example.student.androidservice)->New->Service->Service
➔ Enter name of this file MyService
   MyService.java

```java
package com.example.student.androidservice;

import android.app.Service;
```

```
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.IBinder;
import android.support.annotation.Nullable;
import android.widget.Toast;


public class MyService extends Service {
    MediaPlayer myPlayer;
    @Nullable
    @Override
    public IBinder onBind(Intent intent) {
        return null;
    }
    @Override
    public void onCreate() {
        Toast.makeText(this, "Service Created", Toast.LENGTH_LONG).show();

        myPlayer = MediaPlayer.create(this, R.raw.tuheknahi);
        myPlayer.setLooping(false); // Set looping
    }
    @Override
    public void onStart(Intent intent, int startid) {
        Toast.makeText(this, "Service Started", Toast.LENGTH_LONG).show();
        myPlayer.start();
    }
    @Override
    public void onDestroy() {
        Toast.makeText(this, "Service Stopped", Toast.LENGTH_LONG).show();
        myPlayer.stop();
    }
}
```

→ Create directory into res directory its name of raw
→ After create directory add sort song (Like a Rington) mp3 format
→ Then check it AndroidManifest.xml file

```
→ <?xml version="1.0" encoding="utf-8"?>
  <manifest xmlns:android="http://schemas.android.com/apk/res/android"
      package="com.example.student.androidservice">

      <application
          android:allowBackup="true"
          android:icon="@mipmap/ic_launcher"
          android:label="@string/app_name"
          android:roundIcon="@mipmap/ic_launcher_round"
          android:supportsRtl="true"
          android:theme="@style/Theme.AndroidService">
          <activity android:name=".MainActivity"
              android:exported="true">
              <intent-filter>
                  <action android:name="android.intent.action.MAIN" />

                  <category
  android:name="android.intent.category.LAUNCHER" />
              </intent-filter>
          </activity>
          <activity android:name=".NextPage" />
```

```xml
            <service
                android:name=".MyService"
                android:enabled="true"
                android:exported="true"/>
        </application>

    </manifest>
```

26) Alarm Manager
   MainActivity.java

```java
package com.example.student.alarmmanager;

import android.app.AlarmManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.support.v7.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 {
    Button start;

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

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

        start.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                startAlert();
            }
        });
    }

    public void startAlert(){
        EditText text =(EditText) findViewById(R.id.time);
        int i = Integer.parseInt(text.getText().toString());
        Intent intent = new Intent(this, MyBroadcastReceiver.class);
        PendingIntent pendingIntent = PendingIntent.getBroadcast(
                this.getApplicationContext(), 234324243, intent, 0);
        AlarmManager alarmManager = (AlarmManager)
getSystemService(ALARM_SERVICE);
        alarmManager.set(AlarmManager.RTC_WAKEUP,
System.currentTimeMillis()
                + (i * 1000), pendingIntent);
        Toast.makeText(this, "Alarm set in " + i + "
seconds",Toast.LENGTH_LONG).show();
    }
}
```

activity_main.xml file

```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">

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Start"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="103dp" />

    <EditText
        android:id="@+id/time"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="22dp"
        android:ems="10" />

</RelativeLayout>
```

➔ Create new java file MyBroadcastReceiver
➔ Right click on your directory -> new -> java class -> Enter file name and click
   Ok
   MyBroadcastReceiver.java file

```java
package com.example.student.alarmmanager;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.media.MediaPlayer;
import android.widget.Toast;
public class MyBroadcastReceiver extends BroadcastReceiver {
    MediaPlayer mp;
    @Override
    public void onReceive(Context context, Intent intent) {
        mp=MediaPlayer.create(context, R.raw.tujepyar); //song name
        mp.start();
        Toast.makeText(context, "Alarm....", Toast.LENGTH_LONG).show();
    }
}
```

➔ Add Some line into AndroidManifest File
➔ </activity>
   <receiver android:name="MyBroadcastReceiver" > </receiver> //Add this line
   </application>

27) Android Preference
MainActivity.java file

```java
package com.example.student.androidpreference;

import android.content.Intent;
import android.content.SharedPreferences;
import android.preference.PreferenceManager;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;


public class MainActivity extends AppCompatActivity {
    TextView textView;

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

        Button storeinformation = (Button)
findViewById(R.id.storeinformation);
        Button showinformation = (Button)
findViewById(R.id.showinformation);
        textView = (TextView) findViewById(R.id.txtPrefs);

        View.OnClickListener listener = new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                switch (v.getId()) {
                    case R.id.storeinformation:
                        Intent intent = new
Intent(MainActivity.this,PrefsActivity.class);
                        startActivity(intent);
                        break;
                    case R.id.showinformation:
                        displaySharedPreferences();
                        break;
                    default:
                        break;
                }
            }
        };
        storeinformation.setOnClickListener(listener);
        showinformation.setOnClickListener(listener);
    }


    private void displaySharedPreferences() {
        SharedPreferences prefs =
PreferenceManager.getDefaultSharedPreferences(MainActivity.this);
        String username = prefs.getString("username", "Default NickName");
        String passw = prefs.getString("password", "Default Password");
        boolean checkBox = prefs.getBoolean("checkBox", false);
        String listPrefs = prefs.getString("listpref", "Default list
prefs");
```

```java
        StringBuilder builder = new StringBuilder();
        builder.append("Username: " + username + "\n");
        builder.append("Password: " + passw + "\n");
        builder.append("Keep me logged in: " + String.valueOf(checkBox) +
"\n");

        builder.append("List preference: " + listPrefs);
        textView.setText(builder.toString());


    }
}
```

activity_main.java file

```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:id="@+id/txtPrefs"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerVertical="true"
        android:text="Data:" />

    <Button
        android:id="@+id/storeinformation"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/showinformation"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="18dp"
        android:text="Store Information" />

    <Button
        android:id="@+id/showinformation"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="17dp"
        android:text="Show Information" />

</RelativeLayout>
```

➔ Create xml file into res/values/arrey.xml file
   Arrey.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string-array name="listOptions">
        <item>English</item>
        <item>Hindi</item>
        <item>Other</item>
    </string-array>
```

```xml
    <string-array name="listValues">
        <item>English Language</item>
        <item>Hindi Language</item>
        <item>Other Language</item>
    </string-array>
</resources>
```

➔ Create java file into your project directory
PrefsActivity.java file

```java
package com.example.student.androidpreference;
import android.os.Bundle;
import android.preference.PreferenceActivity;

public class PrefsActivity extends PreferenceActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        addPreferencesFromResource(R.xml.prefs);
    }
}
```

➔ Create new directory into res/xml
➔ Create xml file into xml/prefs.xml
prefs.xml file

```xml
<?xml version="1.0" encoding="utf-8"?>
<PreferenceScreen
xmlns:android="http://schemas.android.com/apk/res/android">

    <PreferenceCategory
        android:summary="Username and password information"
        android:title="Login information" >
        <EditTextPreference
            android:key="username"
            android:summary="Please enter your login username"
            android:title="Username" />
        <EditTextPreference
            android:key="password"
            android:summary="Enter your password"
            android:title="Password" />
    </PreferenceCategory>

    <PreferenceCategory
        android:summary="Username and password information"
        android:title="Settings" >
        <CheckBoxPreference
            android:key="checkBox"
            android:summary="On/Off"
            android:title="Keep me logged in" />

        <ListPreference
            android:entries="@array/listOptions"
            android:entryValues="@array/listValues"
            android:key="listpref"
            android:summary="List preference example"
```

```
            android:title="List preference" />
    </PreferenceCategory>
</PreferenceScreen>
```

28) Internal Storage
    MainActivity.java file

```java
package com.example.student.internalstorage;

import android.content.Context;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import java.io.BufferedReader;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity {
    EditText editTextFileName,editTextData;
    Button saveButton,readButton;

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

        editTextFileName=(EditText)findViewById(R.id.editText1);
        editTextData=(EditText)findViewById(R.id.editText2);
        saveButton=(Button)findViewById(R.id.button1);
        readButton=(Button)findViewById(R.id.button2);

        //Performing Action on Read Button
        saveButton.setOnClickListener(new View.OnClickListener(){

            @Override
            public void onClick(View arg0) {
                String filename=editTextFileName.getText().toString();
                String data=editTextData.getText().toString();

                FileOutputStream fos;
                try {
                    fos = openFileOutput(filename, Context.MODE_PRIVATE);
                    //default mode is PRIVATE, can be APPEND etc.
                    fos.write(data.getBytes());
                    fos.close();

                    Toast.makeText(getApplicationContext(),filename + "
saved",
                            Toast.LENGTH_LONG).show();

                } catch (FileNotFoundException e) {e.printStackTrace();}
```

```java
            catch (IOException e) {e.printStackTrace();}


        }

    });

    //Performing Action on Read Button
    readButton.setOnClickListener(new View.OnClickListener(){

        @Override
        public void onClick(View arg0) {
            String filename=editTextFileName.getText().toString();
            StringBuffer stringBuffer = new StringBuffer();
            try {
                //Attaching BufferedReader to the FileInputStream by
the help of InputStreamReader
                BufferedReader inputReader = new BufferedReader(new
InputStreamReader(
                        openFileInput(filename)));
                String inputString;
                //Reading data line by line and storing it into the
stringbuffer
                while ((inputString = inputReader.readLine()) != null)
{

                    stringBuffer.append(inputString + "\n");
                }

            } catch (IOException e) {
                e.printStackTrace();
            }
            //Displaying data on the toast

Toast.makeText(getApplicationContext(),stringBuffer.toString(),Toast.LENGTH
_LONG).show();


        }

    });
    }
}
```

activity_main.java file

```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">

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginRight="20dp"
        android:layout_marginTop="24dp"
        android:ems="10" >
```

```xml
        <requestFocus />
    </EditText>

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignRight="@+id/editText1"
        android:layout_below="@+id/editText1"
        android:layout_marginTop="24dp"
        android:ems="10" />

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBaseline="@+id/editText1"
        android:layout_alignBottom="@+id/editText1"
        android:layout_alignParentLeft="true"
        android:text="File Name:" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBaseline="@+id/editText2"
        android:layout_alignBottom="@+id/editText2"
        android:layout_alignParentLeft="true"
        android:text="Data:" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/editText2"
        android:layout_below="@+id/editText2"
        android:layout_marginLeft="70dp"
        android:layout_marginTop="16dp"
        android:text="save" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBaseline="@+id/button1"
        android:layout_alignBottom="@+id/button1"
        android:layout_toRightOf="@+id/button1"
        android:text="read" />

</RelativeLayout>
```

29) External Storage

MainActivity.java file

```java
package com.example.student.externalstorage;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import java.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;
import java.io.OutputStreamWriter;

public class MainActivity extends AppCompatActivity {
    EditText editTextFileName,editTextData;
    Button saveButton,readButton;

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

        editTextFileName=(EditText)findViewById(R.id.editText1);
        editTextData=(EditText)findViewById(R.id.editText2);
        saveButton=(Button)findViewById(R.id.button1);
        readButton=(Button)findViewById(R.id.button2);

        //Performing action on save button
        saveButton.setOnClickListener(new View.OnClickListener(){

            @Override
            public void onClick(View arg0) {
                String filename=editTextFileName.getText().toString();
                String data=editTextData.getText().toString();

                FileOutputStream fos;
                try {
                    File myFile = new File("/sdcard/"+filename);
                    myFile.createNewFile();
                    FileOutputStream fOut = new FileOutputStream(myFile);
                    OutputStreamWriter myOutWriter = new
OutputStreamWriter(fOut);
                    myOutWriter.append(data);
                    myOutWriter.close();
                    fOut.close();
                    Toast.makeText(getApplicationContext(),filename +
"saved",Toast.LENGTH_LONG).show();
                } catch (FileNotFoundException e) {e.printStackTrace();}
                catch (IOException e) {e.printStackTrace();}
            }
        });
```

```java
        //Performing action on Read Button
        readButton.setOnClickListener(new View.OnClickListener(){
            @Override
            public void onClick(View arg0) {
                String filename=editTextFileName.getText().toString();
                StringBuffer stringBuffer = new StringBuffer();
                String aDataRow = "";
                String aBuffer = "";
                try {
                    File myFile = new File("/sdcard/"+filename);
                    FileInputStream fIn = new FileInputStream(myFile);
                    BufferedReader myReader = new BufferedReader(
                            new InputStreamReader(fIn));
                    while ((aDataRow = myReader.readLine()) != null) {
                        aBuffer += aDataRow + "\n";
                    }
                    myReader.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }

Toast.makeText(getApplicationContext(),aBuffer,Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

activity_main.xml file

```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">

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginRight="20dp"
        android:layout_marginTop="24dp"
        android:ems="10" >

        <requestFocus />
    </EditText>

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignRight="@+id/editText1"
        android:layout_below="@+id/editText1"
        android:layout_marginTop="24dp"
        android:ems="10" />

    <TextView
```

```xml
    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText1"
    android:layout_alignBottom="@+id/editText1"
    android:layout_alignParentLeft="true"
    android:text="File Name:" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText2"
    android:layout_alignBottom="@+id/editText2"
    android:layout_alignParentLeft="true"
    android:text="Data:" />

<Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText2"
    android:layout_below="@+id/editText2"
    android:layout_marginLeft="70dp"
    android:layout_marginTop="16dp"
    android:text="save" />

<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/button1"
    android:layout_alignBottom="@+id/button1"
    android:layout_toRightOf="@+id/button1"
    android:text="read" />

</RelativeLayout>
```

➔ Add Some line of code in AndroidManifest.xml file

```xml
<uses-permission
android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
```

➔ Full code of AndroidManifest.xml file

```xml
➔ <?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.student.externalstorage">

    <uses-permission
android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.ExternalStorage">
        <activity
            android:name=".MainActivity"
            android:exported="true">
```

```xml
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category
    android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

    </manifest>
```

30) Sql Tutorial
    MainActivity.java

```java
package com.example.student.sqltutorial;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import java.util.List;

public class MainActivity extends AppCompatActivity {

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

        DatabaseHandler db = new DatabaseHandler(this);

        // Inserting Contacts
        Log.d("Insert: ", "Inserting ..");
        db.addContact(new Contact("Ravi", "9100000000"));
        db.addContact(new Contact("Suraj", "9199999999"));
        db.addContact(new Contact("Tushar", "9511224455"));
        db.addContact(new Contact("Karthik", "9524258584"));

        // Reading all contacts
        Log.d("Reading: ", "Reading all contacts..");
        List<Contact> contacts = db.getAllContacts();

        for (Contact cn : contacts) {
            String log = "Id: " + cn.getID() + " ,Name: " + cn.getName() +
" ,Phone: " +
                    cn.getPhoneNumber();
            // Writing Contacts to log
            Log.d("Name: ", log);
        }
    }
}
```

➜ Create new java class file its name of Contact.java
    Contact.java file

```java
package com.example.student.sqltutorial;

public class Contact {
```

```java
    int _id;
    String _name;
    String _phone_number;
    public Contact(){    }
    public Contact(int id, String name, String _phone_number){
        this._id = id;
        this._name = name;
        this._phone_number = _phone_number;
    }

    public Contact(String name, String _phone_number){
        this._name = name;
        this._phone_number = _phone_number;
    }
    public int getID(){
        return this._id;
    }

    public void setID(int id){
        this._id = id;
    }

    public String getName(){
        return this._name;
    }

    public void setName(String name){
        this._name = name;
    }

    public String getPhoneNumber(){
        return this._phone_number;
    }

    public void setPhoneNumber(String phone_number){
        this._phone_number = phone_number;
    }
}
```

➔ Create new java class file its name of DatabaseHandler
    DatabaseHandler.java file

```java
package com.example.student.sqltutorial;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import java.util.ArrayList;
import java.util.List;


public class DatabaseHandler extends SQLiteOpenHelper {
    private static final int DATABASE_VERSION = 1;
    private static final String DATABASE_NAME = "contactsManager";
    private static final String TABLE_CONTACTS = "contacts";
    private static final String KEY_ID = "id";
    private static final String KEY_NAME = "name";
    private static final String KEY_PH_NO = "phone_number";
```

```java
    public DatabaseHandler(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
        //3rd argument to be passed is CursorFactory instance
    }

    // Creating Tables
    @Override
    public void onCreate(SQLiteDatabase db) {
        String CREATE_CONTACTS_TABLE = "CREATE TABLE " + TABLE_CONTACTS +
"("
                + KEY_ID + " INTEGER PRIMARY KEY," + KEY_NAME + " TEXT,"
                + KEY_PH_NO + " TEXT" + ")";
        db.execSQL(CREATE_CONTACTS_TABLE);
    }

    // Upgrading database
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
        // Drop older table if existed
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_CONTACTS);

        // Create tables again
        onCreate(db);
    }

    // code to add the new contact
    void addContact(Contact contact) {
        SQLiteDatabase db = this.getWritableDatabase();

        ContentValues values = new ContentValues();
        values.put(KEY_NAME, contact.getName()); // Contact Name
        values.put(KEY_PH_NO, contact.getPhoneNumber()); // Contact Phone

        // Inserting Row
        db.insert(TABLE_CONTACTS, null, values);
        //2nd argument is String containing nullColumnHack
        db.close(); // Closing database connection
    }

    // code to get the single contact
    Contact getContact(int id) {
        SQLiteDatabase db = this.getReadableDatabase();

        Cursor cursor = db.query(TABLE_CONTACTS, new String[] { KEY_ID,
                    KEY_NAME, KEY_PH_NO }, KEY_ID + "=?",
                new String[] { String.valueOf(id) }, null, null, null,
null);
        if (cursor != null)
            cursor.moveToFirst();

        Contact contact = new
Contact(Integer.parseInt(cursor.getString(0)),
                cursor.getString(1), cursor.getString(2));
        // return contact
        return contact;
    }

    // code to get all contacts in a list view
    public List<Contact> getAllContacts() {
```

```java
        List<Contact> contactList = new ArrayList<Contact>();
        // Select All Query
        String selectQuery = "SELECT  * FROM " + TABLE_CONTACTS;

        SQLiteDatabase db = this.getWritableDatabase();
        Cursor cursor = db.rawQuery(selectQuery, null);

        // looping through all rows and adding to list
        if (cursor.moveToFirst()) {
            do {
                Contact contact = new Contact();
                contact.setID(Integer.parseInt(cursor.getString(0)));
                contact.setName(cursor.getString(1));
                contact.setPhoneNumber(cursor.getString(2));
                // Adding contact to list
                contactList.add(contact);
            } while (cursor.moveToNext());
        }

        // return contact list
        return contactList;
    }

    // code to update the single contact
    public int updateContact(Contact contact) {
        SQLiteDatabase db = this.getWritableDatabase();

        ContentValues values = new ContentValues();
        values.put(KEY_NAME, contact.getName());
        values.put(KEY_PH_NO, contact.getPhoneNumber());

        // updating row
        return db.update(TABLE_CONTACTS, values, KEY_ID + " = ?",
                new String[] { String.valueOf(contact.getID()) });
    }

    // Deleting single contact
    public void deleteContact(Contact contact) {
        SQLiteDatabase db = this.getWritableDatabase();
        db.delete(TABLE_CONTACTS, KEY_ID + " = ?",
                new String[] { String.valueOf(contact.getID()) });
        db.close();
    }

    // Getting contacts Count
    public int getContactsCount() {
        String countQuery = "SELECT  * FROM " + TABLE_CONTACTS;
        SQLiteDatabase db = this.getReadableDatabase();
        Cursor cursor = db.rawQuery(countQuery, null);
        cursor.close();

        // return count
        return cursor.getCount();
    }
}
```

➔ No any changes of activity_main.xml file

31) SqLiteSpinner
MainActivity.java file

```java
package com.example.student.sqlitespinner;

import android.content.Context;
import android.os.Build;
import android.support.annotation.RequiresApi;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

import android.view.View;
import android.view.inputmethod.InputMethodManager;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.Toast;
import java.util.List;

public class MainActivity extends AppCompatActivity {
    Spinner spinner;
    Button btnAdd;
    EditText inputLabel;

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

        spinner = (Spinner) findViewById(R.id.spinner);
        btnAdd = (Button) findViewById(R.id.btn_add);
        inputLabel =(EditText) findViewById(R.id.input_label);


spinner.setOnItemSelectedListener((AdapterView.OnItemSelectedListener)
this);

        // Loading spinner data from database
        loadSpinnerData();

        btnAdd.setOnClickListener(new View.OnClickListener() {

            @RequiresApi(api = Build.VERSION_CODES.M)
            @Override
            public void onClick(View arg0) {
                String label = inputLabel.getText().toString();

                if (label.trim().length() > 0) {
                    DatabaseHandler db = new
DatabaseHandler(getApplicationContext());
                    db.insertLabel(label);

                    // making input filed text to blank
                    inputLabel.setText("");

                    // Hiding the keyboard
                    InputMethodManager imm = (InputMethodManager)
                        getSystemService(Context.INPUT_METHOD_SERVICE);
```

```java
imm.hideSoftInputFromWindow(inputLabel.getWindowToken(), 0);
                    // loading spinner with newly added data
                    loadSpinnerData();
                } else {
                    Toast.makeText(getApplicationContext(), "Please enter
label name",
                            Toast.LENGTH_SHORT).show();
                }

            }
        });
    }


    /**
     * Function to load the spinner data from SQLite database
     * */
    private void loadSpinnerData() {
        DatabaseHandler db = new DatabaseHandler(getApplicationContext());
        List<String> labels = db.getAllLabels();

        // Creating adapter for spinner
        ArrayAdapter<String> dataAdapter = new
ArrayAdapter<String>(this,android.R.layout.simple_spinner_item, labels);

        // Drop down layout style - list view with radio button

dataAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdow
n_item);

        // attaching data adapter to spinner
        spinner.setAdapter(dataAdapter);
    }


    public void onItemSelected(AdapterView<?> parent, View view, int
position,
                               long id) {
        // On selecting a spinner item
        String label = parent.getItemAtPosition(position).toString();

        // Showing selected spinner item
        Toast.makeText(parent.getContext(), "You selected: " + label,
                Toast.LENGTH_LONG).show();

    }


    public void onNothingSelected(AdapterView<?> arg0) {
        // TODO Auto-generated method stub

    }
}
```

activity_main.xml file

```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"
```

```xml
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:context=".MainActivity">

    <EditText
        android:id="@+id/input_label"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="46dp"
        android:hint="Add item"
        android:ems="10" />

    <Button
        android:id="@+id/btn_add"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/input_label"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="67dp"
        android:text="Add item" />

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_below="@+id/btn_add"
        android:layout_marginTop="70dp" />

</RelativeLayout>
```

→ Create new java file its name of DatabaseHandler
   DatabaseHandler.java file

```java
package com.example.student.sqlitespinner;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import java.util.ArrayList;
import java.util.List;

public class DatabaseHandler extends SQLiteOpenHelper {
    private static final int DATABASE_VERSION = 1;
    private static final String DATABASE_NAME = "spinnerExample";
    private static final String TABLE_NAME = "labels";
    private static final String COLUMN_ID = "id";
    private static final String COLUMN_NAME = "name";

    public DatabaseHandler(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    // Creating Tables
    @Override
```

```java
    public void onCreate(SQLiteDatabase db) {
        // Category table create query
        String CREATE_ITEM_TABLE = "CREATE TABLE " + TABLE_NAME + "("
                + COLUMN_ID + " INTEGER PRIMARY KEY," + COLUMN_NAME + "
TEXT)";
        db.execSQL(CREATE_ITEM_TABLE);
    }

    // Upgrading database
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
        // Drop older table if existed
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);

        // Create tables again
        onCreate(db);
    }

    /**
     * Inserting new lable into lables table
     * */
    public void insertLabel(String label){
        SQLiteDatabase db = this.getWritableDatabase();

        ContentValues values = new ContentValues();
        values.put(COLUMN_NAME, label);//column name, column value

        // Inserting Row
        db.insert(TABLE_NAME, null, values);//tableName, nullColumnHack,
CotentValues
        db.close(); // Closing database connection
    }

    /**
     * Getting all labels
     * returns list of labels
     * */
    public List<String> getAllLabels(){
        List<String> list = new ArrayList<String>();

        // Select All Query
        String selectQuery = "SELECT  * FROM " + TABLE_NAME;

        SQLiteDatabase db = this.getReadableDatabase();
        Cursor cursor = db.rawQuery(selectQuery,
null);//selectQuery,selectedArguments

        // looping through all rows and adding to list
        if (cursor.moveToFirst()) {
            do {
                list.add(cursor.getString(1));//adding 2nd column data
            } while (cursor.moveToNext());
        }
        // closing connection
        cursor.close();
        db.close();
        // returning lables
        return list;
    }
}
```

32) TextToSpeech
MainActivity.java file

```java
package com.example.student.texttospeech;


import android.os.Bundle;
import android.app.Activity;
import java.util.ArrayList;
import java.util.List;
import java.util.Locale;
import android.speech.tts.TextToSpeech;
import android.util.Log;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemSelectedListener;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.Toast;


public class MainActivity extends Activity implements
TextToSpeech.OnInitListener,OnItemSelectedListener{

    /** Called when the activity is first created. */

    private TextToSpeech tts;
    private Button buttonSpeak;
    private EditText editText;
    private Spinner speedSpinner,pitchSpinner;

    private static String speed="Normal";

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

        tts = new TextToSpeech(this, this);
        buttonSpeak = (Button) findViewById(R.id.button1);
        editText = (EditText) findViewById(R.id.editText1);
        speedSpinner = (Spinner) findViewById(R.id.spinner1);

//load data in spinner
        loadSpinnerData();
        speedSpinner.setOnItemSelectedListener(this);

//button click event
        buttonSpeak.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View arg0) {
                setSpeed();
                speakOut();
            }

        });
    }
```

```java
    @Override
    public void onInit(int status) {
        if (status == TextToSpeech.SUCCESS) {

            int result = tts.setLanguage(Locale.US);

            if (result == TextToSpeech.LANG_MISSING_DATA
                    || result == TextToSpeech.LANG_NOT_SUPPORTED) {
                Log.e("TTS", "This Language is not supported");
            } else {
                buttonSpeak.setEnabled(true);
                speakOut();
            }

        } else { Log.e("TTS", "Initilization Failed!");}

    }

    @Override
    public void onDestroy() {
// Don't forget to shutdown tts!
        if (tts != null) {
            tts.stop();
            tts.shutdown();
        }
        super.onDestroy();
    }

    private void setSpeed(){
        if(speed.equals("Very Slow")){
            tts.setSpeechRate(0.1f);
        }
        if(speed.equals("Slow")){
            tts.setSpeechRate(0.5f);
        }
        if(speed.equals("Normal")){
            tts.setSpeechRate(1.0f);//default 1.0
        }
        if(speed.equals("Fast")){
            tts.setSpeechRate(1.5f);
        }
        if(speed.equals("Very Fast")){
            tts.setSpeechRate(2.0f);
        }
        //for setting pitch you may call
        //tts.setPitch(1.0f);//default 1.0
    }

    private void speakOut() {
        String text = editText.getText().toString();
        tts.speak(text, TextToSpeech.QUEUE_FLUSH, null);
    }

    private void loadSpinnerData() {
        //Data for speed Spinner
        List<String> lables = new ArrayList<String>();
        lables.add("Very Slow");
        lables.add("Slow");
        lables.add("Normal");
        lables.add("Fast");
        lables.add("Very Fast");
```

```java
        // Creating adapter for spinner
        ArrayAdapter<String> dataAdapter = new
ArrayAdapter<String>(this,android.R.layout.simple_spinner_item, lables);

        // Drop down layout style - list view with radio button

dataAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdow
n_item);

        // attaching data adapter to spinner
        speedSpinner.setAdapter(dataAdapter);

    }

    @Override
    public void onItemSelected(AdapterView<?> parent, View view, int
position,
                              long id) {
        // On selecting a spinner item
        speed = parent.getItemAtPosition(position).toString();

        Toast.makeText(parent.getContext(), "You selected: " + speed,
                Toast.LENGTH_LONG).show();
    }

    @Override
    public void onNothingSelected(AdapterView<?> arg0) {

    }
}
```

activity_main.xml file

```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">

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBaseline="@+id/textView1"
        android:layout_alignBottom="@+id/textView1"
        android:layout_alignParentRight="true"
        android:layout_marginRight="58dp"
        android:ems="10" >

        <requestFocus />
    </EditText>

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editText1"
```

```xml
            android:layout_centerHorizontal="true"
            android:layout_marginTop="28dp"
            android:text="Speak" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/button1"
        android:layout_marginTop="62dp"
        android:layout_toLeftOf="@+id/editText1"
        android:text="Speed:" />

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/textView2"
        android:layout_alignParentTop="true"
        android:layout_marginTop="42dp"
        android:text="Text:" />

    <Spinner
        android:id="@+id/spinner1"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:layout_below="@+id/button1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="43dp" />

</RelativeLayout>
```