

*****Slip 1b*****

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="166dp"
        android:layout_marginTop="22dp"
        android:layout_marginEnd="187dp"
        android:text="DataBase Demo"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="12dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Roll no"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <EditText
        android:id="@+id/editTextTextPersonName2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="24dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Name"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>
```

```
<EditText
```

```
    android:id="@+id/editTextTextPersonName3"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="19dp"  
    android:ems="10"  
    android:inputType="textPersonName"  
    android:hint="address"  
    android:textSize="20sp"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName2"  
" />
```

```
<EditText
```

```
    android:id="@+id/editTextTextPersonName4"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="24dp"  
    android:ems="10"  
    android:inputType="textPersonName"  
    android:hint="percentage"  
    android:textSize="20sp"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.0"  
    app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName3"  
" />
```

```
<Button
```

```
    android:id="@+id/button"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="22dp"  
    android:layout_marginTop="74dp"  
    android:text="Save"  
    android:onClick="SaveData"  
    app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4"  
" />
```

```
<Button
```

```
    android:id="@+id/button2"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"
```

```

        android:layout_marginStart="103dp"
        android:layout_marginTop="74dp"
        android:layout_marginEnd="98dp"
        android:text="load"
        android:onClick="loadData"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/button"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4"
" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="149dp"
    android:layout_marginTop="195dp"
    android:layout_marginEnd="204dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4"
" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms12;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText e1,e2,e3,e4;
    TextView t1;
    DBCon myDbCon;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1=findViewById(R.id.editTextTextPersonName);
        e2=findViewById(R.id.editTextTextPersonName2);
        e3=findViewById(R.id.editTextTextPersonName3);
        e4=findViewById(R.id.editTextTextPersonName4);

        t1=findViewById(R.id.textView2);
        myDbCon=new DBCon(this,"CompanyDetails",null,1);
    }
}

```

```

    }

    public void loadData(View view) {
        String res= myDbCon.getData();
        t1.setText(res);
    }

    public void SaveData(View view) {
myDbCon.insertData(Integer.parseInt(e1.getText().toString()),e2.g
etText().toString(),e3.getText().toString(),
Double.valueOf(e4.getText().toString()));
    }
}

```

```

package com.example.ms12;

import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.widget.Toast;

import androidx.annotation.Nullable;

public class DBCon extends SQLiteOpenHelper {
    Context ct;
    public DBCon(@Nullable Context context, @Nullable String
name, @Nullable SQLiteDatabase.CursorFactory factory, int
version) {
        super(context, name, factory, version);
        ct=context;
    }

    @Override
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
        sqLiteDatabase.execSQL("create table company(rollno
int,name text,address text,percentage real);");
    }

    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i,
int i1) {
    }

    public void insertData(int parseInt, String toString, String
toString1,Double parseInt1) {

```

```

        SQLiteDatabase myDb=getWritableDatabase();
        myDb.execSQL("insert into
company(rollno,name,address,percentage) values ('"+parseInt+"','"+t
oString+"','"+toString1+"','"+parseInt1+"');");
        Toast.makeText(ct, "Record Entered",
Toast.LENGTH_SHORT).show();
    }
    public String getData() {
        SQLiteDatabase myDb=getReadableDatabase();
        Cursor cr= myDb.rawQuery("Select * from company",null);
        StringBuilder sb= new StringBuilder();
        while (cr.moveToNext()){
            int id= cr.getInt(0);
            String name=cr.getString(1);
            String address = cr.getString(2);
            Double percentage=cr.getDouble(3);
            sb.append(id+"\t "+name+"\t "+address+"\t
"+percentage+"\n ");
        }
        return sb.toString();
    }
}

```

Slip***** 1a*****

```

<?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=".SplashActivity"
    android:background="@drawable/ic_launcher_background">

</RelativeLayout>

```

```

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

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportRtl="true"
        android:theme="@style/Theme.MS1"
        tools:targetApi="31">

```

```

        <activity
            android:name=".MainActivity"
            android:exported="false" />
        <activity
            android:name=".SplashActivity"
            android:theme="@style/Theme.Design.NoActionBar"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN"
            />

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

</manifest>

```

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms1;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;

public class SplashActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {

```

```

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_splash);

        new Handler().postDelayed(new Runnable() {
            @Override
            public void run() {
                // Create an Intent that will start the main
activity.
                Intent mainIntent = new
Intent(SplashActivity.this, MainActivity.class);
                startActivity(mainIntent);
                finish();
            }
        }, 3000);
    }
}

```

Slip 3a

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="103dp"
        android:layout_marginTop="88dp"
        android:layout_marginEnd="98dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Enter a number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="157dp"
        android:layout_marginTop="81dp"
        android:layout_marginEnd="160dp"
        android:text="Button"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

```

```

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="173dp"
    android:layout_marginTop="122dp"
    android:layout_marginEnd="180dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/button" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms31;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView t1;
    EditText e1;
    Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1 = findViewById(R.id.editTextTextPersonName);
        b1= findViewById(R.id.button);
        t1= findViewById(R.id.textView);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String input = e1.getText().toString();
                if (!input.isEmpty()) {
                    int num = Integer.parseInt(input);
                    if (isArmstrong(num)) {
                        t1.setText(num + " is an Armstrong
number.");
                    } else {

```



```

        t1.setText(num + " is not an Armstrong
number");
    }
    } else {
        t1.setText("Please enter a number.");
    }
}
});
}

private boolean isArmstrong(int num) {
    int sum = 0;
    int originalNumber = num;
    int length=(int) Math.log10(num)+1;
    while (num>0) {
        int remainder = num % 10;
        sum += Math.pow(remainder, length);
        num /= 10;
    }

    return sum == originalNumber;
}
}

```

Slip 3b

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="98dp"
        android:layout_marginTop="67dp"
        android:layout_marginEnd="103dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="enter phone number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"

```

```

        android:layout_height="wrap_content"
        android:layout_marginStart="149dp"
        android:layout_marginTop="73dp"
        android:layout_marginEnd="168dp"
        android:text="validate"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="169dp"
    android:layout_marginTop="136dp"
    android:layout_marginEnd="184dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/button" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms32;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText e1;
    Button b1;
    TextView t1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        e1 = findViewById(R.id.editTextTextPersonName);
        b1 = findViewById(R.id.button);
        t1 = findViewById(R.id.textView);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String phoneNumber = e1.getText().toString();
                if (isValidPhoneNumber(phoneNumber)) {

```

```

        t1.setText("Valid phone number.");
    } else {
        t1.setText("Invalid phone number.");
    }
    }
    });
}

private boolean isValidPhoneNumber(String phoneNumber) {
    return
phoneNumber.matches("(040|041|050|0400|044)\\d{6,8}");
}
}

```

*****Slip 5a*****

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/showDialogButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:layout_marginStart="96dp"
        android:layout_marginTop="231dp"
        android:layout_marginEnd="123dp"
        android:text="Show Alert Dialog"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms51;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

```

```

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

    Button showDialogButton =
findViewById(R.id.showDialogButton);
    showDialogButton.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // Create an AlertDialog.Builder instance
            AlertDialog.Builder builder = new
AlertDialog.Builder(MainActivity.this);

            // Set the dialog title and message
            builder.setTitle("Alert Dialog")
                .setMessage("Do you want to exit")
                .setCancelable(true);

            // Add buttons to the dialog
            builder.setPositiveButton("OK", new
DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog,
int which) {

                    finish();
                }
            });

            builder.setNegativeButton("cancel", new
DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog,
int which) {

                    dialog.dismiss();
                }
            });

            // Create and show the AlertDialog
            builder.setCancelable(false);
            builder.show();
        }
    });
}
}

```

*****Slip 7a*****

Xml code

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/startButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="161dp"
        android:layout_marginTop="96dp"
        android:layout_marginEnd="162dp"
        android:text="Start"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/progressBar" />

    <ProgressBar
        android:id="@+id/progressBar"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/startButton"
        android:layout_marginTop="73dp"
        android:indeterminate="false"
        android:max="100"
        android:progress="0"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Java code

```

package com.example.ms71;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.Button;
import android.widget.ProgressBar;

public class MainActivity extends AppCompatActivity {
    ProgressBar progressBar;
    Button startButton;
}

```

```

Handler handler = new Handler();
int progressStatus = 0;

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

    progressBar = findViewById(R.id.progressBar);
    startButton = findViewById(R.id.startButton);

    startButton.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v) {
        progressStatus = 0;
        progressBar.setProgress(0);

        // Start long-running operation in a background
thread
        new Thread(new Runnable() {
            public void run() {
                while (progressStatus < 100) {
                    progressStatus += 5;

                    // Update the progress bar and
display the current value
                    handler.post(new Runnable() {
                        public void run() {
progressBar.setProgress(progressStatus);
                        }
                    });

                    try {
                        // Sleep for 500 milliseconds to
simulate a long operation
                        Thread.sleep(500);
                    } catch (InterruptedException e) {
                        e.printStackTrace();
                    }
                }
            }
        }).start();
    }
});
}
}

```

*****Slip 7b*****

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="166dp"
        android:layout_marginTop="22dp"
        android:layout_marginEnd="187dp"
        android:text="DataBase Demo"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="12dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Name"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <EditText
        android:id="@+id/editTextTextPersonName2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="24dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Name"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>

    <EditText
        android:id="@+id/editTextTextPersonName3"
        android:layout_width="match_parent"

```

```

        android:layout_height="wrap_content"
        android:layout_marginTop="19dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Name"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName2"
" />

<EditText
    android:id="@+id/editTextTextPersonName4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="24dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Name"
    android:textSize="20sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName3"
" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="22dp"
    android:layout_marginTop="74dp"
    android:text="Save"
    android:onClick="SaveData"
    app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4"
" />

<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="103dp"
    android:layout_marginTop="74dp"
    android:layout_marginEnd="98dp"
    android:text="load"
    android:onClick="loadData"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/button"

```



```

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4
" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="149dp"
        android:layout_marginTop="195dp"
        android:layout_marginEnd="204dp"
        android:text=""
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4
" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.mylb2application;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText e1,e2,e3,e4;
    TextView t1;
    DBCon myDbCon;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1=findViewById(R.id.editTextTextPersonName);
        e2=findViewById(R.id.editTextTextPersonName2);
        e3=findViewById(R.id.editTextTextPersonName3);
        e4=findViewById(R.id.editTextTextPersonName4);

        t1=findViewById(R.id.textView2);
        myDbCon=new DBCon(this,"CompanyDetails",null,1);

    }

    public void loadData(View view) {
        String res= myDbCon.getData();
        t1.setText(res);

    }
}

```

```

        public void SaveData(View view) {

myDbCon.insertData(Integer.parseInt(e1.getText().toString()),e2.g
etText().toString(),e3.getText().toString(),
e4.getText().toString());
        }
    }
}

```

```

package com.example.my1b2application;

import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.text.PrecomputedText;
import android.widget.Toast;

import androidx.annotation.Nullable;

public class DBCon extends SQLiteOpenHelper {
    Context ct;
    public DBCon(@Nullable Context context, @Nullable String
name, @Nullable SQLiteDatabase.CursorFactory factory, int
version) {
        super(context, name, factory, version);
        ct=context;
    }

    @Override
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
        sqLiteDatabase.execSQL("create table company(id int,name
text,address text,phno text);");
    }

    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i,
int i1) {
    }

    public void insertData(int parseInt, String toString, String
toString1, String parseInt1) {
        SQLiteDatabase myDb=getWritableDatabase();
        myDb.execSQL("insert into
company(id,name,address,phno) values('"+parseInt+"','"+toString+"',
','"+toString1+"','"+parseInt1+"')");
        Toast.makeText(ct, "Record Entered",
Toast.LENGTH_SHORT).show();
    }
    public String getData() {

```

```

        SQLiteDatabase myDb=getReadableDatabase();
        Cursor cr= myDb.rawQuery("Select * from company",null);
        StringBuilder sb= new StringBuilder();
        while (cr.moveToNext()){
            int id= cr.getInt(0);
            String name=cr.getString(1);
            String address = cr.getString(2);
            String phno=cr.getString(3);
            sb.append(id+"\t "+name+"\t "+address+"\t "+phno+"\n");
        }
        return sb.toString();
    }
}

```

*****Slip 8a,21a,17a*****

```

package com.example.p1;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Toast.makeText(this, "create called",
Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onStart() {
        super.onStart();
        Toast.makeText(this, "onStart start",
Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onResume() {
        super.onResume();
        Toast.makeText(this, "onPause start",
Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onPause() {
        super.onPause();
        Toast.makeText(this, "onPause start",
Toast.LENGTH_SHORT).show();
    }
}

```

```

    }

    @Override
    protected void onStop() {
        super.onStop();
        Toast.makeText(this, "onStop called",
Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        Toast.makeText(this, "onDestroy called",
Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onRestart() {
        super.onRestart();
        Toast.makeText(this, "onRestart called",
Toast.LENGTH_SHORT).show();
    }
}

```

Slip 9a

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="141dp"
        android:layout_marginTop="108dp"
        android:layout_marginEnd="141dp"
        android:hint="Enter a number"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/buttonCheck"
        android:layout_width="wrap_content"

```

```

        android:layout_height="wrap_content"
        android:layout_below="@id/editTextNumber"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="161dp"
        android:layout_marginTop="85dp"
        android:layout_marginEnd="162dp"
        android:text="Check"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextNumber"
    />

    <TextView
        android:id="@+id/textViewResult"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonCheck"
        android:layout_marginTop="20dp"
        android:text=""
        android:textSize="18sp"
        android:layout_centerHorizontal="true"/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms91;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    EditText editTextNumber;
    Button buttonCheck;
    TextView textViewResult;

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

        editTextNumber = findViewById(R.id.editTextNumber);
        buttonCheck = findViewById(R.id.buttonCheck);
        textViewResult = findViewById(R.id.textViewResult);

        buttonCheck.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v) {

```

```

        checkPalindrome();
    }
});
}

private void checkPalindrome() {
    String input = editTextNumber.getText().toString();

    // Remove leading and trailing whitespaces
    input = input.trim();

    // Check if the input is empty
    if (input.isEmpty()) {
        textViewResult.setText("Please enter a number.");
        return;
    }

    // Convert the input to lowercase to handle cases
    input = input.toLowerCase();

    // Check if the input is a palindrome
    boolean isPalindrome = true;
    int i = 0;
    int j = input.length() - 1;

    while (i < j) {
        if (input.charAt(i) != input.charAt(j)) {
            isPalindrome = false;
            break;
        }
        i++;
        j--;
    }

    // Display the result
    if (isPalindrome) {
        textViewResult.setText("The number is a
palindrome.");
    } else {
        textViewResult.setText("The number is not a
palindrome.");
    }
}
}

```

Slip 9b calculator

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"

```

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

<TextView android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="126dp"
    android:layout_marginTop="58dp"
    android:layout_marginEnd="127dp"
    android:text="Calculator"
    android:textSize="35dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"/>
<EditText android:id="@+id/e1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView"/>
<Button android:id="@+id/btn1"
    android:layout_width="71dp"
    android:layout_height="57dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="20dp"
    android:text="1"
    android:onClick="setOne"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/e1"/>
<Button android:id="@+id/btn2"
    android:layout_width="71dp"
    android:layout_height="57dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="20dp"
    android:text="2"
    android:onClick="setTwo"
    app:layout_constraintStart_toEndOf="@+id/btn1"
    app:layout_constraintTop_toBottomOf="@+id/e1"/>
<Button android:id="@+id/btn3"
    android:layout_width="71dp"
    android:layout_height="57dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="20dp"
    android:text="3"
    android:onClick="setThree"
    app:layout_constraintStart_toEndOf="@+id/btn2"
    app:layout_constraintTop_toBottomOf="@+id/e1"/>
<Button android:id="@+id/btnplus"
    android:layout_width="71dp"
    android:layout_height="57dp"
```

```

        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="76dp"
        android:text="+"
        android:onClick="Addition"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/btn3"
        app:layout_constraintTop_toBottomOf="@+id/e1"/>
<Button android:id="@+id/btn4"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="4"
        android:onClick="setFour"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn1"/>
<Button android:id="@+id/btn5"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="5"
        android:onClick="setFive"
        app:layout_constraintStart_toEndOf="@+id/btn4"
        app:layout_constraintTop_toBottomOf="@+id/btn2"/>
<Button android:id="@+id/btn6"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="6"
        android:onClick="setSix"
        app:layout_constraintStart_toEndOf="@+id/btn5"
        app:layout_constraintTop_toBottomOf="@+id/btn3"/>
<Button android:id="@+id/btnminus"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="70dp"
        android:text="-"
        android:onClick="subtraction"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/btn6"
        app:layout_constraintTop_toBottomOf="@+id/btnplus"/>
<Button android:id="@+id/btn7"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="7"
        android:onClick="setSeven"

```



```

        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn4"/>
<Button android:id="@+id/btn8"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="8"
        android:onClick="setEight"
        app:layout_constraintStart_toEndOf="@+id/btn7"
        app:layout_constraintTop_toBottomOf="@+id/btn5"/>
<Button android:id="@+id/btn9"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="9"
        android:onClick="setNine"
        app:layout_constraintStart_toEndOf="@+id/btn8"
        app:layout_constraintTop_toBottomOf="@+id/btn6"/>
<Button android:id="@+id/btndivide"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="76dp"
        android:text="/"
        android:onClick="divide"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/btn9"
        app:layout_constraintTop_toBottomOf="@+id/btnminus"/>
<Button android:id="@+id/btn0"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="0"
        android:onClick="setZero"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn7"/>
<Button android:id="@+id/btnmul"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="*"
        android:onClick="mul"
        app:layout_constraintStart_toEndOf="@+id/btn0"
        app:layout_constraintTop_toBottomOf="@+id/btn8"/>
<Button android:id="@+id/btnc"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"

```

```

        android:layout_marginTop="20dp"
        android:text="C"
        android:onClick="Clear"
        app:layout_constraintStart_toEndOf="@+id/btnmul"
        app:layout_constraintTop_toBottomOf="@+id/btn9"/>
<Button android:id="@+id/btneq"
        android:layout_width="71dp"
        android:layout_height="57dp"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="69dp"
        android:text="="
        android:onClick="equal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/btnc"
        app:layout_constraintTop_toBottomOf="@+id/btndivide"/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    EditText e1;
    float num1,num2,res;
    Button
    btn1,btn2,btn3,btn4,btn5,btn6,btn7,btn8,btn9,btn0,btnplus,btnminus,
    btndivide,btneq,btnmul,btnc;
    boolean fplus=false,fminus=false,fdivide=false,fmul=false;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1=findViewById(R.id.e1);
        btn1=findViewById(R.id.btn1);
        btn2=findViewById(R.id.btn2);
        btn3=findViewById(R.id.btn3);
        btn4=findViewById(R.id.btn4);
        btn5=findViewById(R.id.btn5);
        btn6=findViewById(R.id.btn6);
        btn7=findViewById(R.id.btn7);
        btn8=findViewById(R.id.btn8);
        btn9=findViewById(R.id.btn9);
        btn0=findViewById(R.id.btn0);
        btnplus=findViewById(R.id.btnplus);
        btnminus=findViewById(R.id.btnminus);
        btndivide=findViewById(R.id.btndivide);
    }
}

```

```
        btneq=findViewById(R.id.btneq);
        btnmul=findViewById(R.id.btnmul);
        btnc=findViewById(R.id.btnc);
    }

    public void setOne(View view)
    {
        e1.setText(e1.getText().toString()+"1");
    }

    public void setTwo(View view)
    {
        e1.setText(e1.getText().toString()+"2");
    }

    public void setThree(View view)
    {
        e1.setText(e1.getText().toString()+"3");
    }

    public void Addition(View view)
    {
        num1=Float.parseFloat(e1.getText().toString());
        e1.setText(" ");
        fplus=true;
    }

    public void setFour(View view)
    {
        e1.setText(e1.getText().toString()+"4");
    }

    public void setFive(View view)
    {
        e1.setText(e1.getText().toString()+"5");
    }

    public void setSix(View view)
    {
        e1.setText(e1.getText().toString()+"6");
    }

    public void setSeven(View view)
    {
        e1.setText(e1.getText().toString()+"7");
    }

    public void subtraction(View view)
    {
        num1=Float.parseFloat(e1.getText().toString());
        e1.setText(" ");
    }
}
```

```

        fminus=true;
    }

    public void setEight(View view)
    {
        e1.setText(e1.getText().toString()+"8");
    }

    public void setNine(View view)
    {
        e1.setText(e1.getText().toString()+"9");
    }

    public void divide(View view)
    {
        num1=Float.parseFloat(e1.getText().toString());
        e1.setText("");
        fdivide=true;
    }

    public void setZero(View view)
    {
        e1.setText(e1.getText().toString()+"0");
    }

    public void Clear(View view)
    {
        e1.setText(" ");
    }

    public void equal(View view)
    {
        if(fplus==true)
        {
            num2=Float.parseFloat(e1.getText().toString());
            e1.setText("");
            res=num1+num2;
            e1.setText(e1.getText().toString()+res);
            fplus=false;
        }
        else if(fminus==true) {
            num2 = Float.parseFloat(e1.getText().toString());
            e1.setText("");
            res = num1 - num2;
            e1.setText(e1.getText().toString() + res);
            fminus = false;
        }

        else if(fdivide==true) {
            num2 = Float.parseFloat(e1.getText().toString());
            e1.setText("");
            res = num1 / num2;

```

```

        e1.setText(e1.getText().toString() + res);
        fdivide = false;
    }

    else if(fmul==true) {
        num2 = Float.parseFloat(e1.getText().toString());
        e1.setText("");
        res = num1 * num2;
        e1.setText(e1.getText().toString() + res);
        fmul = false;
    }
}

public void mul(View view)
{
    num1=Float.parseFloat(e1.getText().toString());
    e1.setText("");
    fmul=true;
}
}

```

Slip 10b

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="123dp"
        android:layout_marginTop="45dp"
        android:layout_marginEnd="99dp"
        android:text="Spinner Demo"
        android:textSize="30sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="61dp"
        android:ems="10"
        android:inputType="textPersonName"

```

```

        android:hint="Enter String"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="60dp"
    android:layout_marginTop="70dp"
    android:text="Add"
    android:onClick="Add"
    app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>

<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="66dp"
    android:layout_marginTop="70dp"
    android:layout_marginEnd="96dp"
    android:text="Remove"
    android:onClick="Remove"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/button"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>

<Spinner
    android:id="@+id/spinner"
    android:layout_width="264dp"
    android:layout_height="0dp"
    android:layout_marginStart="95dp"
    android:layout_marginTop="110dp"
    android:layout_marginEnd="95dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/button" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.myspinner7aapplication;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.helper.widget.Carousel;

import android.os.Bundle;
import android.view.View;

```

```

import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;

import java.lang.reflect.Array;
import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {
    EditText e1;
    Button b1,b2;
    Spinner s;
    final List<String> list=new ArrayList<String>();
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1=findViewById(R.id.editTextTextPersonName);
        b1=findViewById(R.id.button);
        b2=findViewById(R.id.button2);
        s=findViewById(R.id.spinner);

        s.setOnItemSelectedListener(new
AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?>
adapterView, View view, int i, long l) {

e1.setText(adapterView.getItemAtPosition(i).toString());
            }

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

            }

        });

    }

    public void Add(View view) {
        list.add(e1.getText().toString());
        ArrayAdapter<String> adap1=new ArrayAdapter<String>(this,
android.R.layout.simple_list_item_1,list);

adap1.setDropDownViewResource(android.R.layout.simple_spinner_dro
pdown_item);
        s.setAdapter(adap1);
    }
}

```

```

        public void Remove(View view) {
            list.remove(e1.getText().toString());
            ArrayAdapter<String> adap1=new ArrayAdapter<String>(this,
            android.R.layout.simple_list_item_1,list);

            adap1.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
            s.setAdapter(adap1);
        }
    }
}

```

11a

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextNumber1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="109dp"
        android:layout_marginTop="54dp"
        android:layout_marginEnd="152dp"
        android:hint="Enter first number"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextNumber2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextNumber1"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="98dp"
        android:layout_marginTop="28dp"
        android:layout_marginEnd="135dp"
        android:hint="Enter second number"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

```



```

app:layout_constraintTop_toBottomOf="@+id/editTextNumber1" />

    <Button
        android:id="@+id/buttonPower"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextNumber2"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="229dp"
        android:layout_marginTop="86dp"
        android:layout_marginEnd="94dp"
        android:text="Power"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextNumber2" />

    <Button
        android:id="@+id/buttonAverage"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonPower"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="85dp"
        android:layout_marginTop="86dp"
        android:text="Average"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextNumber2" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.m111;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    EditText editTextNumber1, editTextNumber2;

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

        editTextNumber1 = findViewById(R.id.editTextNumber1);
        editTextNumber2 = findViewById(R.id.editTextNumber2);
    }
}

```

```

        Button buttonPower = findViewById(R.id.buttonPower);
        buttonPower.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v) {
                double num1 =
Double.parseDouble(editTextNumber1.getText().toString());
                double num2 =
Double.parseDouble(editTextNumber2.getText().toString());
                double result = Math.pow(num1, num2);
                openResultActivity(Double.toString(result));
            }
        });

        Button buttonAverage = findViewById(R.id.buttonAverage);
        buttonAverage.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double num1 =
Double.parseDouble(editTextNumber1.getText().toString());
                double num2 =
Double.parseDouble(editTextNumber2.getText().toString());
                double result = (num1 + num2) / 2;
                openResultActivity(Double.toString(result));
            }
        });
    }

    private void openResultActivity(String result) {
        Intent intent = new Intent(this, ResultActivity.class);
        intent.putExtra("result", result);
        startActivity(intent);
    }
}

```

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ResultActivity">

    <TextView
        android:id="@+id/textViewResult"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="205dp"
        android:layout_marginTop="134dp"
        android:layout_marginEnd="206dp"

```

```

        android:textSize="24sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.m111;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.TextView;

public class ResultActivity extends AppCompatActivity {

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

        TextView textViewResult =
findViewById(R.id.textViewResult);
        String result = getIntent().getStringExtra("result");
        textViewResult.setText("Result: " + result);
    }
}

```

Slip 11b

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="75dp"
        android:layout_marginTop="80dp"
        android:text="Enter String"
        android:textSize="20sp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText

```

```
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="27dp"
        android:layout_marginTop="65dp"
        android:layout_marginEnd="26dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Enter number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/textView"
        app:layout_constraintTop_toTopOf="parent" />
```

<RadioGroup

```
        android:id="@+id/radioGroup"
        android:layout_width="381dp"
        android:layout_height="356dp"
        android:layout_marginStart="50dp"
        android:layout_marginTop="144dp"
        android:layout_marginEnd="50dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.485"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">
```

<RadioButton

```
        android:id="@+id/radioButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Uppercase"
        android:textSize="20sp"/>
```

<RadioButton

```
        android:id="@+id/radioButton2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Lowercase"
        android:textSize="20sp"/>
```

<RadioButton

```
        android:id="@+id/radioButton3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Right 5 characters"
        android:textSize="20sp"/>
```

<RadioButton

```
        android:id="@+id/radioButton4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Left 5 characters"
        android:textSize="20sp"/>
```

</RadioGroup>

```

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="148dp"
    android:layout_marginTop="12dp"
    android:layout_marginEnd="169dp"
    android:text="Click"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/radioGroup" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="40dp"
    android:layout_marginTop="102dp"
    android:text="Output"
    android:textSize="20sp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/radioGroup" />

<EditText
    android:id="@+id/editTextTextPersonName2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="75dp"
    android:layout_marginTop="23dp"
    android:layout_marginEnd="44dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Name"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/textView2"
    app:layout_constraintTop_toBottomOf="@+id/button" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.my3bapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;

public class MainActivity extends AppCompatActivity {
    RadioGroup r1;
}

```

```

EditText e1,e2;
Button b1;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    r1 = findViewById(R.id.radioGroup);

    e1 = findViewById(R.id.editTextTextPersonName);
    e2 = findViewById(R.id.editTextTextPersonName2);
    b1 = findViewById(R.id.button);

    b1.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String inputText = e1.getText().toString();
            int selectedRadioButtonId =
r1.getCheckedRadioButtonId();
            RadioButton selectedRadioButton =
findViewById(selectedRadioButtonId);

            String outputText = "";
            if (selectedRadioButton != null) {
                switch
(selectedRadioButton.getText().toString()) {
                    case "Uppercase":
                        outputText = inputText.toUpperCase();
                        break;
                    case "Lowercase":
                        outputText = inputText.toLowerCase();
                        break;
                    case "Right 5 characters":
                        outputText = inputText.length() >= 5
? inputText.substring(inputText.length()-5):inputText;
                        break;
                    case "Left 5 characters":
                        outputText = inputText.length() >= 5
? inputText.substring(0,5): inputText;
                        break;
                    default:
                        outputText = inputText;
                        break;
                }
            }
            e2.setText(outputText);
        }
    });
}
}

```

*****Slip 15 a*****

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextNumber1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="44dp"
        android:hint="Enter first number"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextNumber2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="23dp"
        android:hint="Enter second number"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextNumber1" />

    <Button
        android:id="@+id/addButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="25dp"
        android:text="ADD"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextNumber2" />

    <Button
        android:id="@+id/subButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="11dp"
        android:text="SUB"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
```

```

        app:layout_constraintTop_toBottomOf="@+id/addButton" />

<Button
    android:id="@+id/divButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="30dp"
    android:text="DIV"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/multButton" />

<Button
    android:id="@+id/multButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text="MULT"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/subButton" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms151;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    private EditText editTextNumber1, editTextNumber2;
    private Button addButton, subButton, divButton, multButton;

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

        editTextNumber1 = findViewById(R.id.editTextNumber1);
        editTextNumber2 = findViewById(R.id.editTextNumber2);
        addButton = findViewById(R.id.addButton);
        subButton = findViewById(R.id.subButton);
        divButton = findViewById(R.id.divButton);
        multButton = findViewById(R.id.multButton);

        addButton.setOnClickListener(new View.OnClickListener() {

```



```

        @Override
        public void onClick(View v) {
            performOperation(Operation.ADD);
        }
    });

    subButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            performOperation(Operation.SUB);
        }
    });

    divButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            performOperation(Operation.DIV);
        }
    });

    multButton.setOnClickListener(new View.OnClickListener()
    {
        @Override
        public void onClick(View v) {
            performOperation(Operation.MULT);
        }
    });
}

private void performOperation(Operation operation) {
    String input1 = editTextNumber1.getText().toString();
    String input2 = editTextNumber2.getText().toString();

    if (input1.isEmpty() || input2.isEmpty()) {
        Toast.makeText(MainActivity.this, "Please enter both
numbers", Toast.LENGTH_SHORT).show();
        return;
    }

    double number1 = Double.parseDouble(input1);
    double number2 = Double.parseDouble(input2);
    double result;

    switch (operation) {
        case ADD:
            result = number1 + number2;
            break;
        case SUB:
            result = number1 - number2;
            break;
        case DIV:
            if (number2 == 0) {
                Toast.makeText(MainActivity.this, "Cannot

```

```

divide by zero", Toast.LENGTH_SHORT).show();
        return;
    }
    result = number1 / number2;
    break;
    case MULT:
        result = number1 * number2;
        break;
    default:
        result = 0;
    }

    Toast.makeText(MainActivity.this, "Result: " + result,
Toast.LENGTH_LONG).show();
    }

    private enum Operation {
        ADD, SUB, DIV, MULT
    }
}

```

*****Slip 19 a*****

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="389dp"
        android:layout_height="211dp"
        android:layout_marginStart="6dp"
        android:layout_marginTop="147dp"
        android:layout_marginEnd="16dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:srcCompat="@tools:sample/avatars" />

    <Button
        android:id="@+id/changeImageButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="116dp"
        android:layout_marginTop="119dp"
        android:layout_marginEnd="145dp"

```

```

        android:text="Change Image"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms191;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {
    private ImageView imageView;
    private Button changeImageButton;
    private int currentIndex = 0;
    private int[] imageResources = {R.drawable.img,
R.drawable.img_1};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        imageView = findViewById(R.id.imageView);
        changeImageButton = findViewById(R.id.changeImageButton);

        // Set initial image

        imageView.setImageResource(imageResources[currentIndex]);

        // Set onClickListener for the button
        changeImageButton.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // Increment the index or loop back to 0 if at
the end
                currentIndex = (currentIndex + 1) %
imageResources.length;
                // Change the image resource of the ImageView
                imageView.setImageResource(imageResources[currentIndex]);
            }
        });
    }
}

```

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/number_input"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="229dp"
        android:hint="Enter a number"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:id="@+id/find_factorial"
        android:title="Find Factorial" />
    <item android:id="@+id/find_sum_of_digits"
        android:title="Find Sum of Digits" />
</menu>

```

```

package com.example.ms192;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.EditText;
import android.widget.Toast;

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

        numberInput = findViewById(R.id.number_input);
    }

    @Override

```

```

    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.main_menu, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        int id = item.getItemId();

        if (id == R.id.find_factorial) {
            int number =
Integer.parseInt(numberInput.getText().toString());
            int factorial = calculateFactorial(number);
            Toast.makeText(this, "Factorial: " + factorial,
Toast.LENGTH_LONG).show();
            return true;
        } else if (id == R.id.find_sum_of_digits) {
            int number =
Integer.parseInt(numberInput.getText().toString());
            int sum = calculateSumOfDigits(number);
            Toast.makeText(this, "Sum of Digits: " + sum,
Toast.LENGTH_LONG).show();
            return true;
        }

        return super.onOptionsItemSelected(item);
    }

    private int calculateFactorial(int number) {
        int result = 1;
        for (int factor = 2; factor <= number; factor++) {
            result *= factor;
        }
        return result;
    }

    private int calculateSumOfDigits(int number) {
        int sum = 0;
        while (number > 0) {
            sum += number % 10;
            number /= 10;
        }
        return sum;
    }
}

```

*****Slip21b*****

Activitymain.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:singleLine="true"
        android:textSize="30dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_marginStart="10dp"
        android:layout_marginTop="116dp"
        android:layout_marginEnd="9dp"
        android:text="Write Data"
        android:textSize="30dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText" />

    <Button
        android:id="@+id/button2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_marginStart="10dp"
        android:layout_marginTop="139dp"
        android:layout_marginEnd="9dp"
        android:text="Read data"
        android:textSize="30dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button" />

    <Button
        android:id="@+id/button3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_marginStart="10dp"

```

```

        android:layout_marginTop="182dp"
        android:layout_marginEnd="9dp"
        android:text="Clear"
        android:textSize="30dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button2" />

<TextView

        android:id="@+id/tvLoad"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="85dp"
        android:text=""
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button3" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Android manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">
    <uses-permission
android:name="android.permission.INTERNET"></uses-permission>
    <uses-permission
android:name="android.permission.WRITE_EXTERNAL_STORAGE"></uses-
permission>
    <uses-permission
android:name="android.permission.READ_EXTERNAL_STORAGE"></uses-
permission>
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.MS212"
        tools:targetApi="31">
        <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>
```

MainActivity.java

```
package com.example.ms212;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;

import android.content.pm.PackageManager;
import android.os.Bundle;
import android.os.Environment;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
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.FileReader;
import java.io.FileWriter;
import java.io.IOException;
import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity {

    EditText e1;
    Button write, read, clear;

    TextView tvLoad;

    String filename="";
    String filepath="";
    String fileContent="";

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

        e1 = findViewById(R.id.editText);
        write = findViewById(R.id.button);
```



```

read = findViewById(R.id.button2);
clear = findViewById(R.id.button3);
tvLoad=findViewById(R.id.tvLoad);

filename = "myFile.txt";
filepath = "myFileDir";

if (!isExternalStorageAvailableForRW()) {
    write.setEnabled(false);
}
write.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        tvLoad.setText("");
        fileContent = e1.getText().toString().trim();
        if (!fileContent.equals("")) {
            File f = new
File(getExternalFilesDir(filepath), filename);
            FileOutputStream fos = null;
            try {
                fos = new FileOutputStream(f);
                fos.write(fileContent.getBytes());
            } catch (FileNotFoundException e) {
                e.printStackTrace();
            } catch (IOException e) {
                e.printStackTrace();
            }
            //e1.setText("");
            Toast.makeText(MainActivity.this, "Write to
SD", Toast.LENGTH_SHORT).show();
        }else {
            Toast.makeText(MainActivity.this, "Write no
to SD", Toast.LENGTH_SHORT).show();
        }
    }
});
read.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        FileReader fr = null;
        File f = new
File(getExternalFilesDir(filepath), filename);
        StringBuilder sb = new StringBuilder();
        try {
            fr = new FileReader(f);
            BufferedReader br = new
BufferedReader(fr);

            String line = br.readLine();
            while (line != null) {
                sb.append(line).append('\n');
                line = br.readLine();
            }
        } catch (FileNotFoundException e) {

```

```

        e.printStackTrace();
    } catch (IOException e) {
        e.printStackTrace();
    } finally {
        String fc = "File Contents\n" +
            tvLoad.getText(fc);
    }
});

clear.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        e1.setText("");
    }
});
}
private boolean isExternalStorageAvailableForRW() {
    String
externalStorage=Environment.getExternalStorageState();
    if (externalStorage.equals(Environment.MEDIA_MOUNTED)) {
        return true;
    }
    return false;
}
}

```

*****Slip 23 a*****

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="83dp"
        android:layout_marginTop="100dp"
        android:layout_marginEnd="118dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="enterphno"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

```

```

        <Button
            android:id="@+id/button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginStart="143dp"
            android:layout_marginTop="100dp"
            android:layout_marginEnd="174dp"
            android:text="Open Dial Pad"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms231;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    Button b1;
    EditText e1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        b1=findViewById(R.id.button);
        e1=findViewById(R.id.editTextTextPersonName);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Uri
uri=Uri.parse("tel:"+e1.getText().toString());
                Intent i1=new Intent(Intent.ACTION_DIAL,uri);
                startActivity(i1);
            }
        });
    }
}

```

*****Slip 23b,5b*****

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText android:id="@+id/e1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="70dp"
        android:ems="10"
        android:hint="Enter Name"
        android:inputType="textPersonName"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/t1"/>

    <EditText android:id="@+id/e2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:ems="10"
        android:hint="Enter message"
        android:inputType="textPersonName"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/e1"/>

    <RadioGroup android:id="@+id/radioGroup"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="55dp"
        android:layout_marginTop="50dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/e2">
        <RadioButton android:id="@+id/r1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Red"/>

        <RadioButton android:id="@+id/r2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Blue"/>

        <RadioButton android:id="@+id/r3"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Yellow"/>
    </RadioGroup>

```

```
<CheckBox android:id="@+id/ch1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="94dp"
    android:layout_marginTop="55dp"
    android:layout_marginEnd="95dp"
    android:text="Bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/radioGroup"
    app:layout_constraintTop_toBottomOf="@+id/e2"/>
<CheckBox android:id="@+id/ch2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="94dp"
    android:layout_marginEnd="95dp"
    android:text="Italic"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/radioGroup"
    app:layout_constraintTop_toBottomOf="@+id/ch1"/>
<CheckBox android:id="@+id/ch3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="94dp"
    android:layout_marginEnd="92dp"
    android:text="underline"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toEndOf="@+id/radioGroup"
    app:layout_constraintTop_toBottomOf="@+id/ch2"/>

<Button android:id="@+id/b1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="45dp"
    android:layout_marginTop="47dp"
    android:text="Set"
    android:onClick="setText"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/radioGroup"/>

<Button android:id="@+id/b2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="90dp"
    android:layout_marginTop="36dp"
    android:layout_marginEnd="88dp"
    android:text="reset"
    android:onClick="reset"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/b1"
    app:layout_constraintTop_toBottomOf="@+id/ch3"/>

<Button android:id="@+id/b3"
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="46dp"
        android:layout_marginTop="35dp"
        android:layout_marginEnd="271dp"
        android:text="Exit"
        android:onClick="exit"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/b2"/>

<TextView android:id="@+id/t1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="179dp"
        android:layout_marginTop="54dp"
        android:layout_marginEnd="174dp"
        android:textSize="30sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.ms232;

import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;
import android.graphics.Typeface;
import android.os.Bundle;
import android.text.SpannableString;
import android.text.style.UnderlineSpan;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.CompoundButton;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    TextView t1;
    EditText e1,e2;
    RadioButton r1,r2,r3;
    CheckBox ch1,ch2,ch3;
    Button b1,b2,b3;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}

```

```

        t1=findViewById(R.id.t1);
        e1=findViewById(R.id.e1);
        e2=findViewById(R.id.e2);
        r1=findViewById(R.id.r1);
        r2=findViewById(R.id.r2);
        r3=findViewById(R.id.r3);
        ch1=findViewById(R.id.ch1);
        ch2=findViewById(R.id.ch2);
        ch3=findViewById(R.id.ch3);
        b1=findViewById(R.id.b1);
        b2=findViewById(R.id.b2);
        b3=findViewById(R.id.b3);
        r1.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton
buttonView, boolean isChecked)
            {
                if(r1.isChecked())
                {
                    t1.setTextColor(Color.parseColor("RED"));
                }
            }
        });

        r2.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton
buttonView, boolean isChecked)
            {
                if(r2.isChecked())
                {
                    t1.setTextColor(Color.parseColor("BLUE"));
                }
            }
        });

        r3.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton
buttonView, boolean isChecked)
            {
                if(r3.isChecked())
                {
                    t1.setTextColor(Color.parseColor("YELLOW"));
                }
            }
        });

        ch1.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {

```

```

        @Override
        public void onCheckedChanged (CompoundButton
buttonView, boolean isChecked)
        {
            if (ch1.isChecked())
            {
                t1.setTypeface (Typeface.DEFAULT_BOLD) ;
            }
            else
            {
                t1.setTypeface (Typeface.DEFAULT) ;
            }
        }
    });

    ch2.setOnCheckedChangeListener (new
CompoundButton.OnCheckedChangeListener() {
        @Override
        public void onCheckedChanged (CompoundButton
buttonView, boolean isChecked)
        {
            if (ch2.isChecked())
            {
                t1.setTypeface (Typeface.defaultFromStyle (Typeface.ITALIC)) ;
            }
            else
            {
                t1.setTypeface (Typeface.DEFAULT) ;
            }
        }
    });

    ch3.setOnCheckedChangeListener (new
CompoundButton.OnCheckedChangeListener() {
        @Override
        public void onCheckedChanged (CompoundButton
buttonView, boolean isChecked)
        {
            if (ch3.isChecked())
            {
                SpannableString str=new
SpannableString (t1.getText().toString()) ;
                str.setSpan (new
UnderlineSpan(), 0, str.length(), 0) ;
                t1.setText (str) ;
            }
            else
            {
                t1.setTypeface (Typeface.DEFAULT) ;
            }
        }
    });

```



```

    }

    public void reset(View view)
    {
        t1.setText("Test");
        e1.setText("");
        e2.setText("");
        r1.setChecked(false);
        r2.setChecked(false);
        r3.setChecked(false);
        ch1.setChecked(false);
        ch2.setChecked(false);
        ch3.setChecked(false);
    }

    public void exit(View view)
    {
        finish();
    }

    public void setTheText(View view) {
        t1.setText(e1.getText().toString()+" : "
+e2.getText().toString());
        Toast.makeText(this, e1.getText().toString()+" : "
+e2.getText().toString(), Toast.LENGTH_SHORT).show();

    }
}

```

*****Slip 25 a*****

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

```

```

        android:layout_marginStart="96dp"
        android:layout_marginTop="49dp"
        android:layout_marginEnd="105dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="phoneNumber"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

<EditText
    android:id="@+id/editTextTextPersonName2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="96dp"
    android:layout_marginTop="37dp"
    android:layout_marginEnd="105dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="messageBody"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="158dp"
    android:layout_marginTop="61dp"
    android:layout_marginEnd="159dp"
    android:text="sendButton"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName2"
" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.m25s1;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.telephony.SmsManager;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

```

```

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText phoneNumber;
    EditText messageBody;
    Button sendButton;

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

        phoneNumber = findViewById(R.id.editTextTextPersonName);
        messageBody = findViewById(R.id.editTextTextPersonName2);
        sendButton = findViewById(R.id.button);

        sendButton.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v) {
                sendSMS();
            }
        });
    }

    protected void sendSMS() {
        String phoneNo = phoneNumber.getText().toString();
        String message = messageBody.getText().toString();

        try {
            SmsManager smsManager = SmsManager.getDefault();
            smsManager.sendTextMessage(phoneNo, null, message,
null, null);
            Toast.makeText(getApplicationContext(), "SMS Sent!",
                Toast.LENGTH_LONG).show();
        } catch (Exception e) {
            Toast.makeText(getApplicationContext(),
                "SMS failed, please try again later!",
                Toast.LENGTH_LONG).show();
            e.printStackTrace();
        }
    }
}

```

Smsreceiver.java

```

package com.example.m25s1;

```

```

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.provider.Telephony;
import android.telephony.SmsMessage;
import android.util.Log;

public class SmsReceiver extends BroadcastReceiver {
    @Override
    public void onReceive(Context context, Intent intent) {
        Bundle bundle =intent.getExtras();
        Object[] smsObj=(Object[]) bundle.get("pdus");

        for (Object obj: smsObj){
            SmsMessage message=SmsMessage.createFromPdu((byte[])
obj);

            String mobNo=message.getDisplayOriginatingAddress();
            String msg=message.getDisplayMessageBody();
            Log.d("MsgDetails","MobNo:"+mobNo+",Msg:"+msg);

        }

    }
}

```

Androidmanifest

```

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

    <uses-permission
android:name="android.permission.RECEIVE_SMS" />
    <uses-permission android:name="android.permission.SEND_SMS"
/>
    <uses-permission android:name="android.permission.READ_SMS"
/>

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.M25S1"
        tools:targetApi="31">
        <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>
    <receiver android:name=".SmsReceiver"
        android:permission="android.permission.BROADCAST_SMS"
        android:exported="true">
        <intent-filter>
            <action
android:name="android.provider.Telephony.SMS_RECEIVED" />
        </intent-filter>
    </receiver>

</application>

</manifest>

```

Slip 25b

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TableLayout
xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:padding="16dp">

        <TableRow>

            <TextView
                android:layout_height="wrap_content"
                android:layout_width="wrap_content"
                android:text="userName"
            />

            <EditText
                android:id="@+id/userName"
                android:layout_width="match_parent"

```

```

        android:layout_height="wrap_content"
        android:layout_weight="1"
    />
</TableRow>
<TableRow>
    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="password"
    />

    <EditText
        android:id="@+id/password"
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:inputType="textPassword"

    />
</TableRow>

<TableRow >

    <Button
        android:id="@+id/loginBtn"
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="login"
    />
</TableRow>
</TableLayout>
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.example.m25s2;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText editTextUsername, editTextPassword;
    Button buttonLogin;

    @Override
    protected void onCreate(Bundle savedInstanceState) {

```

```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
    editTextUsername = findViewById(R.id.userName);
    editTextPassword = findViewById(R.id.password);
    buttonLogin = findViewById(R.id.loginBtn);

    buttonLogin.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
            login();
        }
    });
}

private void login() {
    String username =
editTextUsername.getText().toString().trim();
    String password =
editTextPassword.getText().toString().trim();

    if (username.equals("admin") &&
password.equals("password")) {
        // If login is successful
        Toast.makeText(this, "Login Successful",
Toast.LENGTH_SHORT).show();
    } else {
        // If login fails
        Toast.makeText(this, "Invalid Login",
Toast.LENGTH_SHORT).show();
    }
}
}
```