



**ALVAS INSTITUTE OF ENGINEERING AND
TECHNOLOGY, MOODBIDRI.**

**Department of Computer Science and
Engineering**

MOBILE APPLICATION DEVELOPMENT



**LABORTAORY
Manual**



(Subject Code: 18CSMP68)

[As per Choice Based Credit System (CBCS) scheme]

SEMESTER – VI



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VISION AND MISSION



INSITUTION VISION AND MISSION

VISION:

“Transformative education by pursuing excellence in engineering through enhancing skills to meet the evolving needs of the community”

MISSION:

- To bestow quality technical education to imbibe knowledge, creativity and ethos to students community.
- To inculcate the best engineering practices through transformative education.
- To develop a knowledgeable individual for a dynamic industrial scenario
- To inculcate research, entrepreneurial skills and human values in order to cater the needs of the society.

DEPARTMENT VISION AND MISSION

VISION:

“Engendering competent, excellent professionals by transforming the knowledge and computing skills to individuals through modern innovative tools and techniques”

MISSION:

- To produce skilled, creative software developers through rigorous training.
- To conduct specific technical courses to keep abreast to the latest technological developments and transformations in the domain.
- To establish Industry-Institute Interaction programs to enhance the skills of employability and entrepreneurship.
- To implement the ideas of research and innovations in interdisciplinary domains.

PROGRAMME OUTCOMES(PO's)

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

PROGRAM SPECIFIC OUTCOMES(PSO's)

A graduate of the Computer Science and Engineering Program will exhibit:

PSO1: Professional Skills: The ability to understand & implement the computer programs in the areas of Computer Architecture, System Software, Database Management Systems, Web Design, Multimedia and Computer Networking.

PSO2: Problem-Solving Skills: The ability to solve real-world problems by suitable mathematical model with strong technological concepts in rapidly growing arena of computer technology.

PSO3: Successful Career and Entrepreneurship: Knowledge in diverse areas of Software Engineering and Management & Entrepreneurship for IT Industry, conducive in cultivating skills for successful career development.

PROGRAMME EDUCATIONAL OBJECTIVES(PEO's)

PEO1: Exhibit fundamental strength in core courses of Computer Engineering to solve the problems of computing world.

PEO2: Adapt and contribute the emerging technological changes.

PEO3: Employed in computing profession or engaged in learning to pursue higher studies.

COURSE OUTCOMES(CO's)

18CSMP68.1: Create, test and debug Android application by setting up Android development environment.

18CSMP68.2: Implement adaptive, responsive user interfaces that work across a wide range of devices.

18CSMP68.3: Infer long running tasks and background work in Android applications.

18CSMP68.4: Demonstrate methods in storing, sharing and retrieving data in Android applications.

18CSMP68.5: Infer the role of permissions and security for Android applications.

CO-PO/PSO MATRIX

CO Numbers	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
18CSL37.1	2	1	2	1	2	-	-	-	1	-	2	2	2	2	-
18CSL37.2	2	2	2	1	2	-	-	-	-	-	2	2	2	2	-
18CSL37.3	2	2	2	2	2	-	-	-	-	-	2	2	2	2	-
18CSL37.4	2	2	2	2	2	-	-	-	-	-	2	2	2	2	-
18CSL37.5	2	1	2	1	2	-	-	-	-	-	2	2	2	2	-

1 indicates **Slight**, 2 indicates **Moderate**, 3 indicates **High**

PROGRAM 1:

Create an application to design a visiting Card. The Visiting card should have a company logo at the top right corner. The company name should be displayed in Capital letters, aligned to the center. Information like the name of the employee, job title, phone number, address, email, fax and website address is to be displayed. Insert a horizontal line between the job title and the phone number.

Activity.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"
android:background="@color/white"
tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="287dp"
        android:layout_height="76dp"
        android:layout_marginTop="32dp"
        android:gravity="center"
        android:lineSpacingExtra="8sp"
        android:text="ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY"
        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        android:textColor="@color/black"
        android:textSize="16sp"
        android:textStyle="bold | italic"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/imageView"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.014" />

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="77dp"
        android:layout_height="123dp"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginRight="8dp"
        android:layout_marginBottom="594dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/textView"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.117"
        app:srcCompat="@drawable/alet" />

    <View
        android:id="@+id/divider"
        android:layout_width="match_parent"
        android:layout_height="1dp"
```



```

    android:layout_marginTop="22dp"
    android:layout_marginBottom="853dp"
    android:background="?android:attr/listDivider"
    app:layout_constraintBottom_toTopOf="@+id/textView2"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/imageView" />

```

<View

```

    android:id="@+id/divider2"
    android:layout_width="match_parent"
    android:layout_height="1dp"
    android:layout_marginTop="37dp"
    android:background="?android:attr/listDivider"
    android:scrollbarSize="8dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.193" />

```

<TextView

```

    android:id="@+id/textView3"
    android:layout_width="162dp"
    android:layout_height="40dp"
    android:layout_marginStart="32dp"
    android:layout_marginLeft="32dp"
    android:layout_marginEnd="32dp"
    android:layout_marginRight="32dp"
    android:gravity="center"
    android:text=" Name: Shilpa"
    android:textColor="#F44336"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/divider2"
    app:layout_constraintVertical_bias="0.154" />

```

<TextView

```

    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="32dp"
    android:layout_marginLeft="32dp"
    android:layout_marginEnd="32dp"
    android:layout_marginRight="32dp"
    android:gravity="center"
    android:text=" Designation: Assistant Professor"
    android:textColor="#F44336"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView3"
    app:layout_constraintVertical_bias="0.036" />

```

```

<TextView
    android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="32dp"
    android:layout_marginLeft="32dp"
    android:layout_marginEnd="32dp"
    android:layout_marginRight="32dp"
    android:gravity="center"
    android:text=" Phone no: 9900558810"
    android:textColor="#F44336"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.59"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView4"
    app:layout_constraintVertical_bias="0.058" />

<TextView
    android:id="@+id/textView6"
    android:layout_width="343dp"
    android:layout_height="44dp"
    android:layout_marginStart="32dp"
    android:layout_marginLeft="32dp"
    android:layout_marginTop="15dp"
    android:layout_marginEnd="15dp"
    android:layout_marginRight="15dp"
    android:layout_marginBottom="278dp"
    android:gravity="center"
    android:text=" Address: Gurukurpa, Gandhinagar, Moodbidri, 574227"
    android:textColor="#F44336"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView5"
    app:layout_constraintVertical_bias="0.041" />

<TextView
    android:id="@+id/textView7"
    android:layout_width="289dp"
    android:layout_height="25dp"
    android:layout_marginTop="23dp"
    android:gravity="center"
    android:text=" Email id: shilpa@aiet.org.in"
    android:textColor="#F44336"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView6"
    app:layout_constraintVertical_bias="0.0" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```
package com.example.p1;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
  
public class MainActivity extends AppCompatActivity {  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
    }  
}
```

OUTPUT



PROGRAM 2:

Develop an Android application using controls like Button, TextView, EditText for designing a calculator having basic functionality like Addition, Subtraction, Multiplication, and division.

Activity.xml

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

    <EditText
        android:id="@+id/et"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="0"
        android:layout_weight="1"
        android:textSize="75dp"
        android:gravity="right|center"
        android:background="@color/gray"/>

    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content">

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

            <Button
                android:id="@+id/b7"
                android:layout_width="30pt"
                android:layout_height="30pt"
                android:layout_marginRight="1pt"
                android:layout_weight="1"
                android:background="#C7D0FB"
                android:text="7"
                android:textSize="30dp"
                android:textColor="@color/black"
                app:backgroundTint="#C7D0FB"></Button>
            <Button
                android:layout_weight="1"
                android:layout_width="30pt"
                android:layout_height="30pt"
                android:layout_marginRight="1pt"
                android:text="8"
                android:textSize="30dp"
                android:background="#C7D0FB"
                android:textColor="@color/black"
                app:backgroundTint="#C7D0FB"
                android:id="@+id/b8"></Button>
            <Button
```

```

        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="9"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b9"></Button>
<Button
    android:layout_weight="1"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:text="/"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:id="@+id/bdiv"></Button>

</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="4"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b4"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="5"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b5"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="6"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b6"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"

```

```

        android:layout_marginRight="1pt"
        android:text="*"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:id="@+id/bmul"></Button>

</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="1"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b1"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="2"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b2"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="3"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b3"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="-"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:id="@+id/bsub"></Button>

</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"

```

```

        android:layout_marginRight="1pt"
        android:text="."
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/bdot"></Button>
<Button
    android:layout_weight="1"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:text="0"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:textColor="@color/black"
    app:backgroundTint="#C7D0FB"
    android:id="@+id/b0"></Button>
<Button
    android:layout_weight="1"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:text="C"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:textColor="@color/black"
    app:backgroundTint="#C7D0FB"
    android:id="@+id/bclear"></Button>
<Button
    android:layout_weight="1"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:text="+"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:id="@+id/badd"></Button>

</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <Button
        android:layout_weight="1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:text="back"
        android:textSize="25dp"
        android:background="#C7D0FB"
        android:id="@+id/bb"></Button>
    <Button
        android:id="@+id/bequal"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="#C7D0FB"

```

```

        android:text=""
        android:textSize="30dp"></Button>
<Button
    android:layout_weight="1"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:text="%"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:id="@+id/brem"></Button>
</TableRow>
</TableLayout>
</LinearLayout>

```

MainActivity.java

```

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 {
    Button bt0, bt1,
        bt2, bt3, bt4, bt5, bt6, bt7, bt8, bt9, bt0dot, btadd, btsub, btmul, btdiv, btrem, btclear, bspace, btequ;
    EditText edittext;
    float mv, mvt;
    boolean add, sub, mul, div, rem;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        bt0 = (Button) findViewById(R.id.b0);
        bt1 = (Button) findViewById(R.id.b1);
        bt2 = (Button) findViewById(R.id.b2);
        bt3 = (Button) findViewById(R.id.b3);
        bt4 = (Button) findViewById(R.id.b4);
        bt5 = (Button) findViewById(R.id.b5);
        bt6 = (Button) findViewById(R.id.b6);
        bt7 = (Button) findViewById(R.id.b7);
        bt8 = (Button) findViewById(R.id.b8);
        bt9 = (Button) findViewById(R.id.b9);
        bt0dot = (Button) findViewById(R.id.bdot);
        btadd = (Button) findViewById(R.id.badd);
        btsub = (Button) findViewById(R.id.bsub);
        btmul = (Button) findViewById(R.id.bmul);
        btdiv = (Button) findViewById(R.id.bdiv);
        btclear = (Button) findViewById(R.id.bclear);
        btequ = (Button) findViewById(R.id.bequal);
        bt0dot = (Button) findViewById(R.id.bdot);
        btrem = (Button) findViewById(R.id.brem);
        bspace = (Button) findViewById(R.id.bb);
        edittext = (EditText) findViewById(R.id.et);
        bt0.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                edittext.setText(edittext.getText() + "0");
            }
        });
    }
}

```

```
    }  
});  
bt1.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "1");  
    }  
});  
bt2.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "2");  
    }  
});  
bt3.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "3");  
    }  
});  
bt4.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "4");  
    }  
});  
bt5.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "5");  
    }  
});  
bt6.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "6");  
    }  
});  
bt7.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "7");  
    }  
});  
bt8.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "8");  
    }  
});  
bt9.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + "9");  
    }  
});  
btDot.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        editText.setText(editText.getText() + ".");  
    }  
});
```



```

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

        if (edittext == null) {
            edittext.setText("");
        } else {
            mv = Float.parseFloat(edittext.getText() + "");
            add = true;
            edittext.setText(null);
        }
    }
});
btsub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mv = Float.parseFloat(edittext.getText() + "");
        sub = true;
        edittext.setText(null);
    }
});
btmul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mv = Float.parseFloat(edittext.getText() + "");
        mul = true;
        edittext.setText(null);
    }
});
btdiv.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mv = Float.parseFloat(edittext.getText() + "");
        div = true;
        edittext.setText(null);
    }
});
btrem.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mv = Float.parseFloat(edittext.getText() + "");
        rem = true;
        edittext.setText(null);
    }
});
btequ.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mvt = Float.parseFloat(edittext.getText() + "");

        if (add == true) {
            edittext.setText(mv + mvt + "");
            add = false;
        }

        if (sub == true) {
            edittext.setText(mv - mvt + "");
            sub = false;
        }
    }
});

```

```

        if (mul == true) {
            editText.setText(mv * mvt + "");
            mul = false;
        }

        if (div == true) {
            editText.setText(mv / mvt + "");
            div = false;
        }
        if (rem == true) {
            editText.setText(mv % mvt + "");
            div = false;
        }
    }
});
btclear.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        editText.setText("");
    }
});
bspacer.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String textInBox = editText.getText().toString();
        if (textInBox.length() > 0) {
            String newText = textInBox.substring(0, textInBox.length()-1);
            editText.setText(newText);
        }
    }
});
}
}
}

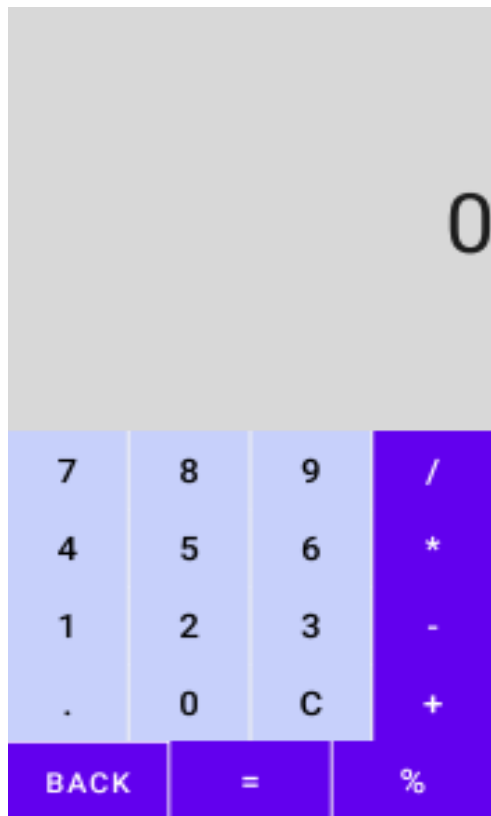
```

Colors.xml

```

<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#00FF</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>
    <color name="gray">#D8D8D8</color>
</resources>

```

OUTPUT

PROGRAM 3:

Create a SIGN-Up activity with Username and Password. Validation of password should happen based on the following rules:

- Password should contain uppercase and lowercase letters.
- Password should contain letters and numbers.
- Password should contain special characters.
- Minimum length of the password (the default value is 8).

On successful SIGN UP proceed to the next Login activity. Here the user should SIGN IN using the Username and Password created during the signup activity. If the Username and Password are matched then navigate to the next activity which displays a message saying “Successful Login” or else display a toast message saying “Login Failed”. The user is given only two attempts and after that displays a toast message saying “Failed Login Attempts” and disable the SIGN IN button. Use Bundle to transfer information from one activity to another.

activity_main.xml

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

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="76dp"
        android:text="Signup Activity"
        android:textColor="@color/black"
        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="76dp"
        android:layout_marginEnd="28dp"
        android:layout_marginRight="28dp"
        android:text="Username:"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toStartOf="@+id/user"
        app:layout_constraintHorizontal_bias="1.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView2" />
```

```

<EditText
    android:id="@+id/user"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="68dp"
    android:layout_marginEnd="12dp"
    android:layout_marginRight="12dp"
    android:ems="10"
    android:hint="Enter User Name Here"
    android:inputType="textPersonName"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="60dp"
    android:layout_marginEnd="36dp"
    android:layout_marginRight="36dp"
    android:text="Password"
    android:textColor="@color/black"
    android:textSize="20sp"
    android:textStyle="bold"
    app:layout_constraintEnd_toStartOf="@+id/pass"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView" />

<EditText
    android:id="@+id/pass"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="44dp"
    android:layout_marginEnd="16dp"
    android:layout_marginRight="16dp"
    android:ems="10"
    android:hint="Enter The Password Here"
    android:inputType="textPassword"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/user" />

<Button
    android:id="@+id/s1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="36dp"
    android:text="SignUp"
    android:textColor="#EFEDED"
    android:textSize="20sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/pass" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

activity_login.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=".LoginActivity">

    <TextView
        android:id="@+id/textView4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="60dp"
        android:text="Login Activity"
        android:textColor="#191818"
        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.467"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/textView5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="36dp"
        android:layout_marginLeft="36dp"
        android:layout_marginTop="92dp"
        android:text="Username"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toStartOf="@+id/usern"
        app:layout_constraintHorizontal_bias="0.396"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView4" />

    <TextView
        android:id="@+id/textView6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="60dp"
        android:layout_marginEnd="48dp"
        android:layout_marginRight="48dp"
        android:text="Password"
        android:textColor="#171717"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toStartOf="@+id/passw"
        app:layout_constraintHorizontal_bias="1.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView5" />

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

```



```

android:layout_height="wrap_content"
android:layout_marginTop="28dp"
android:text="Login"
android:textSize="24sp"
android:textStyle="bold"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.541"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView2" />

```

<EditText

```

android:id="@+id/usern"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="76dp"
android:ems="10"
android:hint="Enter User Name"
android:inputType="textPersonName"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView4" />

```

<EditText

```

android:id="@+id/passw"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="52dp"
android:ems="10"
android:hint="Enter Valid Password"
android:inputType="textPassword"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@+id/usern" />

```

<TextView

```

android:id="@+id/textView2"
android:layout_width="176dp"
android:layout_height="36dp"

android:layout_alignParentStart="true"
android:layout_alignParentLeft="true"
android:layout_marginTop="52dp"
android:text="Attempts Left:"
android:textColor="#222121"
android:textSize="24sp"
android:textStyle="bold"
app:layout_constraintEnd_toStartOf="@+id/textView3"
app:layout_constraintHorizontal_bias="0.419"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView6" />

```

<TextView

```

android:id="@+id/textView3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignTop="@+id/textView2"
android:layout_alignBottom="@+id/textView2"
android:layout_alignParentEnd="true"
android:layout_alignParentRight="true"
android:layout_marginTop="40dp"
android:layout_marginEnd="88dp"
android:layout_marginRight="88dp"

```

```

        android:text="New Text"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:textStyle="bold"
        android:visibility="invisible"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/passw" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

activity_success.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=".SuccessActivity">

    <TextView
        android:id="@+id/textView7"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login Successful"
        android:textAllCaps="false"
        android:textColor="#673AB7"
        android:textSize="40sp"
        android:textStyle="bold|italic"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.signup;
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;
import android.widget.Toast;
import java.util.regex.Pattern;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        EditText un,pswd;
        Button signup;
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        un=(EditText)findViewById(R.id.user);
        pswd=(EditText)findViewById(R.id.pass);
        signup=(Button)findViewById(R.id.s1);
        signup.setOnClickListener(new View.OnClickListener()

```

```

{
    public void onClick(View view)
    {
        String user=un.getText().toString();
        String password = pswd.getText().toString();
        if(user.length()==0)
        {
            un.setError("USername is empty");
            un.requestFocus();
        }
        else if(password.length()==0)
        {
            pswd.setError("password is empty");
            pswd.requestFocus();
        }
        else
        {
            if(!isValidpassword(password))
            {
                Toast.makeText(MainActivity.this, "Password dosenot match with
pattern",Toast.LENGTH_LONG).show();
            }
            else
            {
                Intent intent = new Intent(MainActivity.this, LoginActivity.class);
                intent.putExtra("username", user);
                intent.putExtra("password", password);
                startActivity(intent);
            }
        }
    }
}
});
}
Pattern lowercase=Pattern.compile("^.*[a-z].*$");
Pattern uppercase=Pattern.compile("^.*[A-Z].*$");
Pattern number=Pattern.compile("^.*[0-9].*$");
Pattern specialc=Pattern.compile("^.*[a-zA-Z0-9].*$");
public Boolean isValidpassword(String password)
{
    if(password.length()<8)
    {
        return false;
    }
    if(!lowercase.matcher(password).matches())
    {
        return false;
    }
    if(!uppercase.matcher(password).matches())
    {
        return false;
    }
    if(!number.matcher(password).matches())
    {
        return false;
    }
    if(!specialc.matcher(password).matches())
    {
        return false;
    }
    return true;
}

```

```

    }
}

```

LoginActivity.java

```

package com.example.signup;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class LoginActivity extends AppCompatActivity {

    EditText usr, pswd1;
    Button login;
    TextView txt;
    int counter = 3;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_login);
        usr = (EditText) findViewById(R.id.usern);
        pswd1 = (EditText) findViewById(R.id.passw);
        login = (Button) findViewById(R.id.login);
        txt = (TextView) findViewById(R.id.textView3);
        String reusername = getIntent().getStringExtra("username");
        String repassword = getIntent().getStringExtra("password");
        login.setOnClickListener(new View.OnClickListener() {
            public void onClick(View view) {
                String username1 = usr.getText().toString();
                String password1 = pswd1.getText().toString();
                if (reusername.equals(username1) && repassword.equals(password1))
                {
                    Intent intent = new Intent(LoginActivity.this,
                    SuccessActivity.class);
                    startActivity(intent);
                    txt.setVisibility(View.VISIBLE);
                    txt.setBackgroundColor(Color.RED);
                    counter--;
                    txt.setText(Integer.toString(counter));
                }
                else
                {
                    Toast.makeText(LoginActivity.this, "Invalid Cerdentials",
                    Toast.LENGTH_LONG).show();
                    txt.setVisibility(View.VISIBLE);
                    txt.setBackgroundColor(Color.RED);
                    counter--;
                    txt.setText(Integer.toString(counter));
                }
            }
        });
        if (counter == 0) {
            Toast.makeText(LoginActivity.this, "FAILED LOGIN ATTEMPTS",

```

```
        Toast.LENGTH_LONG).show();
        login.setEnabled(false);
    }

    }
});
}
```

SuccessActivity.java

```
package com.example.signup;

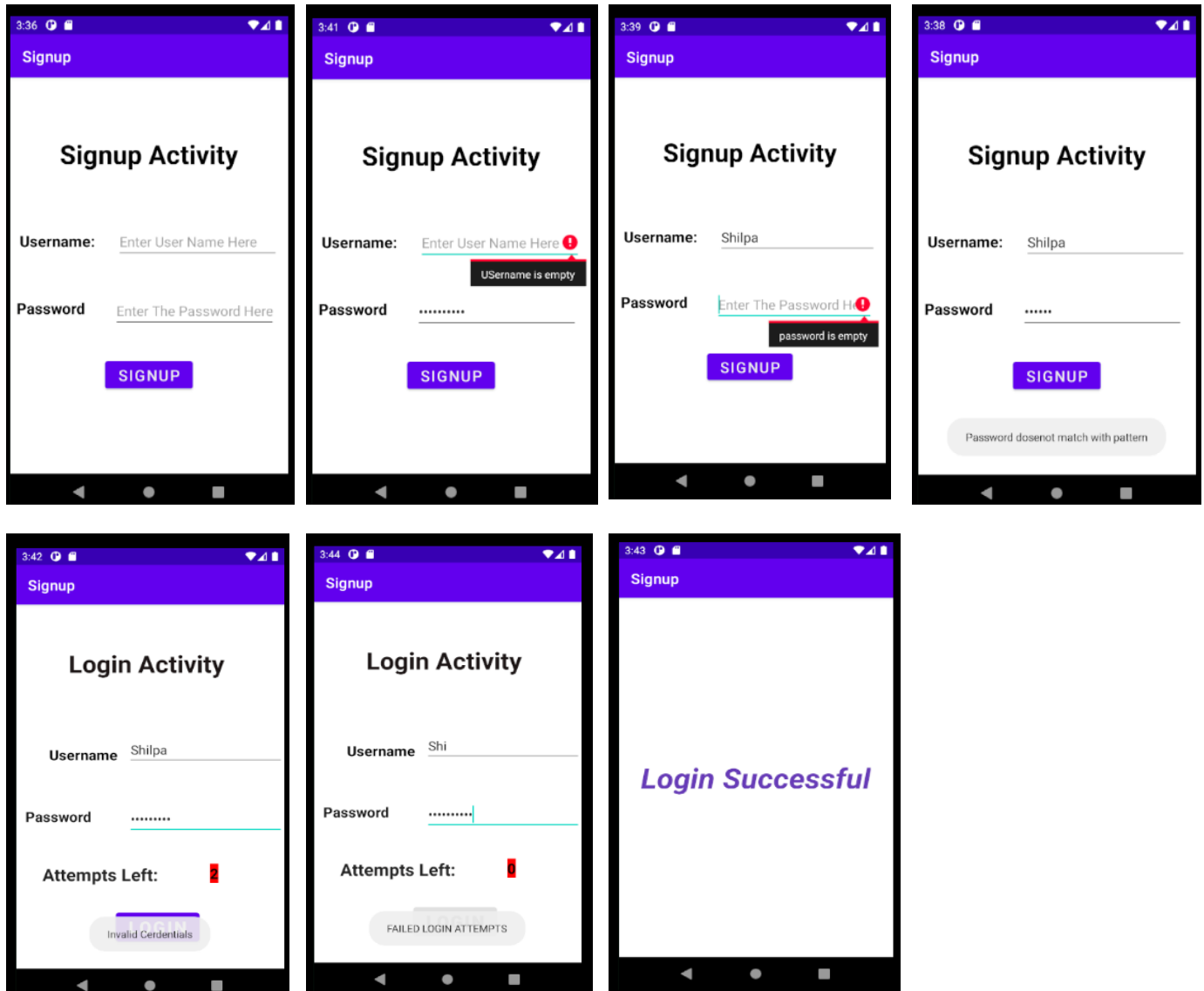
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class SuccessActivity extends AppCompatActivity {

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

OUTPUT



PROGRAM 4:

Develop an application to set an image as wallpaper. On click of a button, the wallpaper image should start to change randomly every 30 seconds.

Activity.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"
android:background="#F3D9B4"
tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="Wallpaper Changing Application"
        android:textColor="#673AB7"
        android:textSize="36sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.081" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="172dp"
        android:text="Click Here To Change Wallpaper"
        android:textColor="#FAF6F6"
        android:textStyle="bold"
        app:backgroundTint="#6F46B8"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

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

MainActivity.java

```
package com.example.wallpaper;
import androidx.appcompat.app.AppCompatActivity;
import android.app.WallpaperManager;
import android.graphics.Bitmap;
import android.graphics.BitmapFactory;
import android.graphics.drawable.AnimationDrawable;
import android.graphics.drawable.BitmapDrawable;
import android.graphics.drawable.Drawable;
import android.os.Bundle;
```

```

import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import java.io.IOException;
import java.util.Timer;
import java.util.TimerTask;
public class MainActivity extends AppCompatActivity {
    Button changewallpaper;
    Timer mytimer;
    Drawable drawable;
    WallpaperManager wpm;
    int prev=1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        mytimer = new Timer();
        wpm = WallpaperManager.getInstance(this);
        changewallpaper = findViewById(R.id.button2);
        changewallpaper.setOnClickListener(new View.OnClickListener() {
            @Override public void onClick(View view) {
                setWallpaper();
            }
        });
    }
    private void setWallpaper() {
        mytimer.schedule(new TimerTask() {
            @Override
            public void run() {
                if(prev==1) {
                    drawable = getResources().getDrawable(R.drawable.one);
                    prev = 2;
                }
                else if(prev==2) {
                    drawable = getResources().getDrawable(R.drawable.two);
                    prev=3;
                }
                else if(prev==3) {
                    drawable = getResources().getDrawable(R.drawable.three);
                    prev=4;
                }
                else if(prev==4) {
                    drawable = getResources().getDrawable(R.drawable.four);
                    prev=5;
                }
                else if(prev==5) {
                    drawable = getResources().getDrawable(R.drawable.five);
                    prev=1;
                }
                Bitmap wallpaper = ((BitmapDrawable)drawable).getBitmap();
                try {
                    wpm.setBitmap(wallpaper);
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        },0,30000); } }

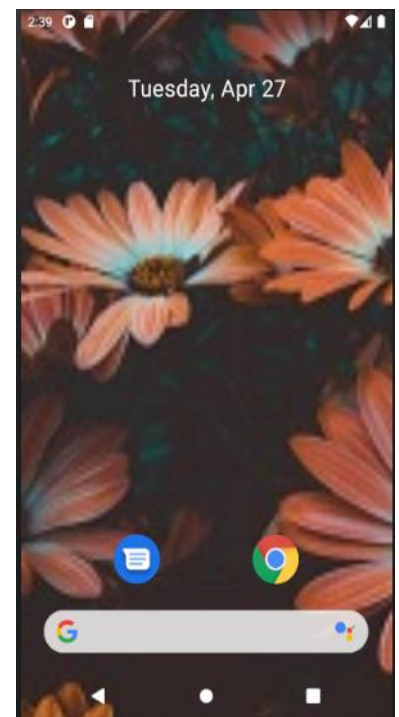
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.wallpaper" >
    <uses-permission android:name="android.permission.SET_WALLPAPER"/>
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Wallpaper" >
        <activity android:name=".MainActivity" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

OUTPUT



PROGRAM 5:

Write a program to create an activity with two buttons START and STOP. On pressing of the START button, the activity must start the counter by displaying the numbers from One and the counter must keep on counting until the STOP button is pressed. Display the counter value in a TextView control.

Activity.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:orientation="vertical"
android:layout_width="match_parent"
android:layout_height="fill_parent">

    <TextView
        android:id="@+id/textView"
        android:layout_width="287dp"
        android:layout_height="40dp"
        android:gravity="center"
        android:text="COUNTER APPLICATION"
        android:textColor="#151515"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.046" />

    <Chronometer
        android:id="@+id/chronometer"
        android:layout_width="264dp"
        android:layout_height="59dp"
        android:layout_gravity="center_horizontal"
        android:layout_marginTop="52dp"
        android:gravity="center"
        android:textColor="@color/black"
        android:textSize="36sp"
        android:textStyle="bold | italic"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.578"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <Button
        android:id="@+id/buttonstart"
        android:layout_width="180dp"
        android:layout_height="57dp"
        android:layout_marginTop="84dp"
        android:background="#03A9F4"
        android:text="Start"
        android:textColor="@color/black"
        android:textStyle="bold"
        app:backgroundTint="#03A9F4"
        app:iconTint="#EDF6FA"
```

```

        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/chronometer" />

<Button
    android:id="@+id/buttonstop"
    android:layout_width="180dp"
    android:layout_height="57dp"
    android:layout_marginTop="84dp"
    android:background="#03A9F4"
    android:text="Stop"
    android:textColor="@color/black"
    android:textStyle="bold"
    app:backgroundTint="#03A9F4"
    app:iconTint="#03A9F4"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toEndOf="@+id/buttonstart"
    app:layout_constraintTop_toBottomOf="@+id/chronometer" />

<Button
    android:id="@+id/buttonreset"
    android:layout_width="180dp"
    android:layout_height="57dp"
    android:layout_marginTop="32dp"
    android:background="#03A9F4"
    android:text="Reset"
    android:textColor="@color/black"
    android:textStyle="bold"
    app:backgroundTint="#03A9F4"
    app:iconTint="#03A9F4"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.515"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/buttonstop" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.counter;
import android.app.Activity;
import android.os.Bundle;
import android.os.SystemClock;
import android.view.View;
import android.widget.Button;
import android.widget.Chronometer;

public class MainActivity extends Activity {
    private long lastpause;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final Chronometer myChronometer = (Chronometer)findViewById(R.id.chronometer);
        Button buttonStart = (Button)findViewById(R.id.buttonstart);
        Button buttonStop = (Button)findViewById(R.id.buttonstop);
        Button buttonReset = (Button)findViewById(R.id.buttonreset);
    }
}

```

```

buttonStart.setOnClickListener(new Button.OnClickListener(){

    @Override
    public void onClick(View v) {
        if(lastpause != 0)
        {
            myChronometer.setBase(myChronometer.getBase() +   SystemClock.elapsedRealtime()
- lastpause);
        }
        else
        {
            myChronometer.setBase(SystemClock.elapsedRealtime());
        }
        myChronometer.start();
        buttonStart.setEnabled(false);
        buttonStop.setEnabled(true);
    }
});

buttonStop.setOnClickListener(new Button.OnClickListener(){

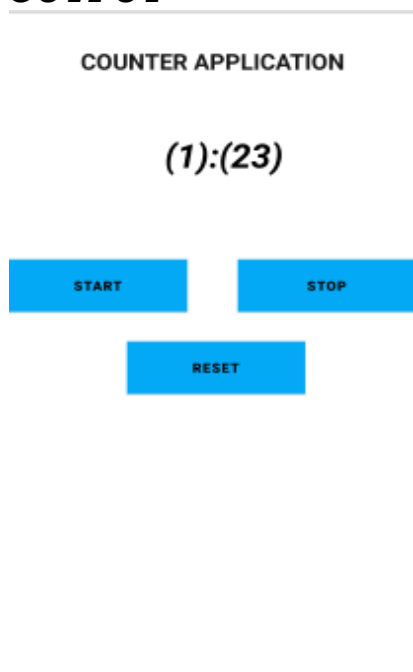
    @Override
    public void onClick(View v) {
        lastpause =SystemClock.elapsedRealtime();
        myChronometer.stop();
        buttonStop.setEnabled(false);
        buttonStart.setEnabled(true);
    }
});

buttonReset.setOnClickListener(new Button.OnClickListener(){

    @Override
    public void onClick(View v) {
        myChronometer.setBase(SystemClock.elapsedRealtime());
    }
});
}

```

OUTPUT



PROGRAM 6:

Create two files of XML and JSON type with values for City_Name, Latitude, Longitude, Temperature, and Humidity. Develop an application to create an activity with two buttons to parse the XML and JSON files which when clicked should display the data in their respective layouts side by side.

Activity.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:background="@color/white"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView7"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="Parsing JSON and XML Data"
        android:textColor="@color/black"
        android:textSize="28sp" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:orientation="horizontal">

        <Button
            android:id="@+id/jsonBtn"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="Json"
            android:textColor="@color/black"
            android:textSize="20sp"
            android:textStyle="bold"
            app:backgroundTint="@color/teal_200" />
        <Button
            android:id="@+id/xmlBtn"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginStart="10dp"
            android:layout_marginLeft="10dp"
            android:layout_weight="1"
            android:text="Xml"
            android:textColor="@color/black"
            android:textSize="20sp"
            android:textStyle="bold"
            app:backgroundTint="@color/teal_200" />
    </LinearLayout>
</TableLayout>
    android:layout_width="match_parent"
```

```

android:layout_height="wrap_content"
android:layout_margin="10dp"
android:stretchColumns="*>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:gravity="center"
        android:text="JSON DATA"
        android:textColor="@color/black"
        android:textStyle="bold" />
</TableRow>

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:text="City_Name:"
        android:textColor="@color/black" />

    <TextView
        android:id="@+id/cityName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:gravity="center"
        android:text=""
        android:textColor="@color/black" />
</TableRow>

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:text="Latitude:"
        android:textColor="@color/black" />

    <TextView
        android:id="@+id/latitude"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:text=""
        android:textColor="@color/black" />
</TableRow>

<TableRow

```

```

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:text="Longitude:"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/longitude"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />

    </TableRow>

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:text="Temperature:"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/temperature"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />

    </TableRow>

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:text="Humidity:"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/humidity"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />

    </TableRow>

</TableLayout>

```

```

<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:stretchColumns="*">

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:gravity="center"
            android:text="XML DATA"
            android:textColor="@color/black"
            android:textStyle="bold" />
    </TableRow>
    <TableRow
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <TextView
            android:text="City_Name:"
            android:layout_margin="5dp"
            android:layout_width="wrap_content"
            android:textColor="@color/black"
            android:layout_height="wrap_content" />

        <TextView
            android:id="@+id/cityName1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />
    </TableRow>

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:text="Latitude:"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/latitude1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />
    </TableRow>

    <TableRow
        android:layout_width="match_parent"

```

```

        android:layout_height="match_parent">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:text="Longitude:"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/longitude1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />

    </TableRow>

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:text="Temperature:"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/temperature1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />

    </TableRow>

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

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:text="Humidity:"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/humidity1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textColor="@color/black" />

    </TableRow>

</TableLayout>
</LinearLayout>

```

Sample.json

```
{
  "City Name": "Mysore",
  "Latitude" : "12.295",
  "Longitude" : "76.639",
  "Temperature" : "22",
  "Humidity" : "90%"
}
```

Sample.xml

```
<data>
  <City_Name>Mysore</City_Name>
  <Latitude>22.295</Latitude>
  <Longitude>76.639</Longitude>
  <Temperature>42</Temperature>
  <Humidity>80%</Humidity>
</data>
```

MainActivity.java

```
package com.example.jsonxml;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import org.json.JSONException;
import org.json.JSONObject;
import org.w3c.dom.Document;
import org.w3c.dom.Element;
import org.w3c.dom.Node;
import org.w3c.dom.NodeList;
import java.io.IOException;
import java.io.InputStream;
import javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory;

public class MainActivity extends AppCompatActivity {
    private Button jsonBtnId, xmlBtnId;
    private TextView cityNameId,latitudeValueId,longitudeValueId;
    private TextView temperatureValueId,humidityValueId;
    private TextView cityNameId1,latitudeValueId1,longitudeValueId1;
    private TextView temperatureValueId1,humidityValueId1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        jsonBtnId = findViewById(R.id.jsonBtn);
        xmlBtnId = findViewById(R.id.xmlBtn);
        cityNameId = findViewById(R.id.cityName);
        latitudeValueId = findViewById(R.id.latitude);
        longitudeValueId = findViewById(R.id.longitude);
        temperatureValueId = findViewById(R.id.temperature);
        humidityValueId = findViewById(R.id.humidity);
        cityNameId1 = findViewById(R.id.cityName1);
        latitudeValueId1 = findViewById(R.id.latitude1);
        longitudeValueId1 = findViewById(R.id.longitude1);
        temperatureValueId1 = findViewById(R.id.temperature1);
        humidityValueId1 = findViewById(R.id.humidity1);
        jsonBtnId.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v)
            {
                try
                {
```

```

        JSONObject obj = new JSONObject(loadJSONFromAsset());
        String cityName = obj.get("City Name").toString();
        String latitude = obj.get("Latitude").toString();
        String longitude = obj.get("Longitude").toString();
        String temperature = obj.get("Temperature").toString();
        String humidity = obj.get("Humidity").toString();
        cityNameId.setText(cityName);
        latitudeValueId.setText(latitude);
        longitudeValueId.setText(longitude);
        temperatureValueId.setText(temperature);
        humidityValueId.setText(humidity);
    }
    catch (JSONException e)
    {
        e.printStackTrace();
    }
}
});
xmlBtnId.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    {
        try
        {
            InputStream is = getAssets().open("Sample.xml");

            DocumentBuilderFactory dbFactory = DocumentBuilderFactory.newInstance();
            DocumentBuilder dBuilder = dbFactory.newDocumentBuilder();
            Document doc = dBuilder.parse(is);

            Element element = doc.getDocumentElement();
            element.normalize();

            NodeList nList = doc.getElementsByTagName("data");

            for (int i = 0; i < nList.getLength(); i++)
            {
                Node node = nList.item(i);
                if (node.getNodeType() == Node.ELEMENT_NODE)
                {
                    Element element2 = (Element) node;
                    cityNameId1.setText(getValue("City_Name", element2));
                    latitudeValueId1.setText( getValue("Latitude", element2));
                    longitudeValueId1.setText( getValue("Longitude", element2));
                    temperatureValueId1.setText( getValue("Temperature", element2));
                    humidityValueId1.setText( getValue("Humidity", element2));
                }
            }
        }
        catch (Exception e)
        {
            e.printStackTrace();
        }
    }
});
}

private static String getValue(String tag, Element element)

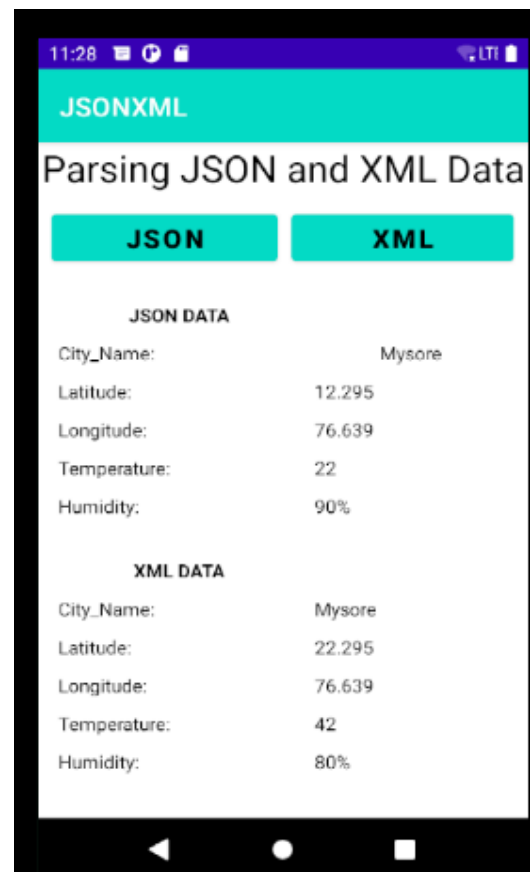
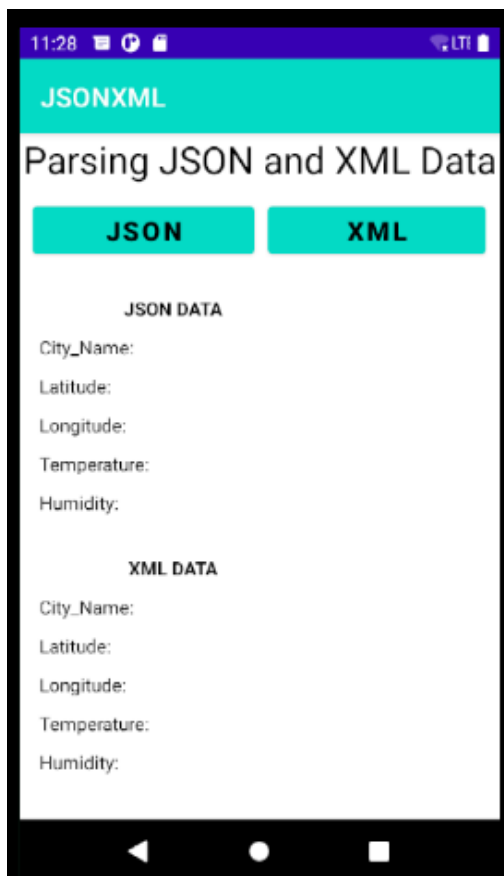
```

```

{
    NodeList nodeList = element.getElementsByTagName(tag).item(0).getChildNodes();
    Node node = nodeList.item(0);
    return node.getNodeValue();
}
public String loadJSONFromAsset()
{
    String json = null;
    try
    {
        InputStream is = getAssets().open("Sample.json");
        int size = is.available();
        byte[] buffer = new byte[size];
        is.read(buffer);
        is.close();
        json = new String(buffer, "UTF-8");
    }
    catch (IOException ex)
    {
        ex.printStackTrace();
        return null;
    }
    return json;
}
}

```

OUTPUT



PROGRAM 7:

Develop a simple application with one EditText so that the user can write some text in it. Create a button called “Convert Text to Speech” that converts the user input text into voice.

Activity.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"
    android:background="#D8E181"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:text="Text to Speech"
        android:textColor="@color/black"
        android:textSize="35dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.096" />

    <EditText
        android:id="@+id/editText"
        android:layout_width="212dp"
        android:layout_height="54dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_marginTop="68dp"
        android:hint="Enter Text Here"
        android:textColor="@color/black"
        android:textColorHint="@color/black"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        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_below="@+id/editText"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="56dp"
```

```

        android:text="Text to Speech"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.texttospeech;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.speech.tts.TextToSpeech;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import java.util.Locale;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    TextToSpeech t1;
    EditText ed1;
    Button b1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ed1=(EditText)findViewById(R.id.editText);
        b1=(Button)findViewById(R.id.button);

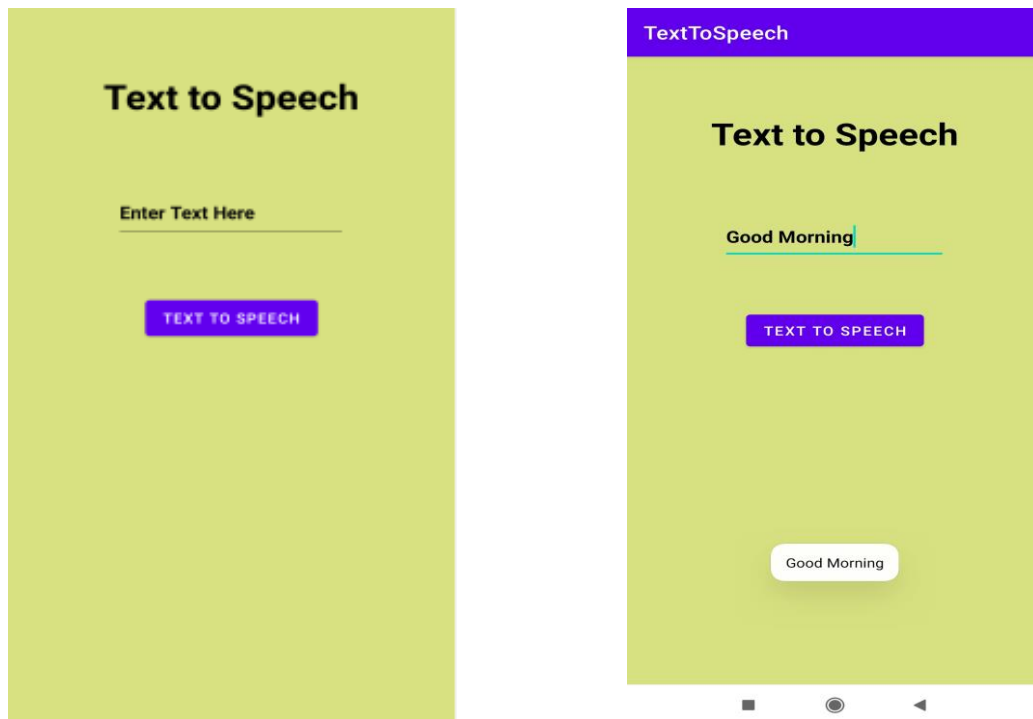
        t1=new TextToSpeech(getApplicationContext(), new TextToSpeech.OnInitListener() {
            @Override
            public void onInit(int status) {
                if(status != TextToSpeech.ERROR) {
                    t1.setLanguage(Locale.UK);
                }
            }
        });

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String toSpeak = ed1.getText().toString();
                Toast.makeText(getApplicationContext(), toSpeak,Toast.LENGTH_SHORT).show();
                t1.speak(toSpeak, TextToSpeech.QUEUE_FLUSH, null);
            }
        });

        public void onPause(){
            if(t1 !=null){
                t1.stop();
                t1.shutdown();
            }
            super.onPause();
        }
    }
}

```

OUTPUT



PROGRAM 8:

Create an activity like a phone dialer with CALL and SAVE buttons. On pressing the CALL button, it must call the phone number and on pressing the SAVE button it must save the number to the phone contacts.

Activity.xml

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

    <EditText
        android:id="@+id/et"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="0"
        android:layout_weight="1"
        android:textSize="75dp"
        android:gravity="right|center"
        android:background="@color/gray"/>

    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
        <TableRow
            android:layout_width="match_parent"
            android:layout_height="match_parent">

            <Button
                android:layout_weight="1"
                android:layout_width="50pt"
                android:layout_height="50pt"
                android:layout_marginRight="1pt"
                android:text="call"
                android:textSize="30dp"
                android:background="#C7D0FB"
                android:id="@+id/bc"></Button>

            <Button
                android:id="@+id/bs"
                android:layout_width="50pt"
                android:layout_height="50pt"
                android:layout_marginRight="1pt"
                android:layout_weight="1"
                android:background="#C7D0FB"
                android:text="Save"
                android:textSize="30dp"></Button>

        </TableRow>

        <TableRow
            android:layout_width="match_parent"
            android:layout_height="match_parent">
```

```

<Button
    android:id="@+id/b7"
    android:layout_width="40pt"
    android:layout_height="40pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="#C7D0FB"
    android:text="7"
    android:textSize="30dp"
    android:textColor="@color/black"
    app:backgroundTint="#C7D0FB"></Button>
<Button
    android:layout_weight="1"
    android:layout_width="40pt"
    android:layout_height="40pt"
    android:layout_marginRight="1pt"
    android:text="8"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:textColor="@color/black"
    app:backgroundTint="#C7D0FB"
    android:id="@+id/b8"></Button>
<Button
    android:layout_weight="1"
    android:layout_width="40pt"
    android:layout_height="40pt"
    android:layout_marginRight="1pt"
    android:text="9"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:textColor="@color/black"
    app:backgroundTint="#C7D0FB"
    android:id="@+id/b9"></Button>
</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:layout_weight="1"
        android:layout_width="40pt"
        android:layout_height="40pt"
        android:layout_marginRight="1pt"
        android:text="4"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b4"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="40pt"
        android:layout_height="40pt"
        android:layout_marginRight="1pt"
        android:text="5"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b5"></Button>

```

```

<Button
    android:layout_weight="1"
    android:layout_width="40pt"
    android:layout_height="40pt"
    android:layout_marginRight="1pt"
    android:text="6"
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:textColor="@color/black"
    app:backgroundTint="#C7D0FB"
    android:id="@+id/b6"></Button>

</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:layout_weight="1"
        android:layout_width="40pt"
        android:layout_height="40pt"
        android:layout_marginRight="1pt"
        android:text="1"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b1"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="40pt"
        android:layout_height="40pt"
        android:layout_marginRight="1pt"
        android:text="2"
        android:textSize="30dp"
        android:background="#C7D0FB"
        android:textColor="@color/black"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b2"></Button>
    <Button
        android:layout_weight="1"
        android:layout_width="40pt"
        android:layout_height="40pt"
        android:layout_marginRight="1pt"
        android:text="3"
        app:backgroundTint="#C7D0FB"
        android:id="@+id/b3"></Button>

</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"/>
    android:textSize="30dp"
    android:background="#C7D0FB"
    android:textColor="@color/black"

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

    <Button
        android:id="@+id/b0"

```

```

        android:layout_width="40pt"
        android:layout_height="40pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="#C7D0FB"
        android:text="0"
        android:textColor="@color/black"
        android:textSize="30dp"
        app:backgroundTint="#C7D0FB"></Button>

<Button
    android:id="@+id/bdel"
    android:layout_width="40pt"
    android:layout_height="40pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="#C7D0FB"
    android:text="Del"
    android:textColor="@color/black"
    android:textSize="30dp"
    app:backgroundTint="#C7D0FB"></Button>
</TableRow>

</TableLayout>
</LinearLayout>

```

MainActivity.java

```

package com.example.phonedailer;

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

import android.Manifest;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.net.Uri;
import android.os.Build;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button bt0, bt1, bt2, bt3, bt4, bt5, bt6, bt7, bt8, bt9, btSave, btCall, btDel;
        EditText edittext;
        float mv, mvt;
        boolean add, sub, mul, div, rem;
        bt0 = (Button) findViewById(R.id.b0);
        bt1 = (Button) findViewById(R.id.b1);
        bt2 = (Button) findViewById(R.id.b2);
        bt3 = (Button) findViewById(R.id.b3);
    }
}

```

```

bt4 = (Button) findViewById(R.id.b4);
bt5 = (Button) findViewById(R.id.b5);
bt6 = (Button) findViewById(R.id.b6);
bt7 = (Button) findViewById(R.id.b7);
bt8 = (Button) findViewById(R.id.b8);
bt9 = (Button) findViewById(R.id.b9);
btsave = (Button) findViewById(R.id.bs);
btcall = (Button) findViewById(R.id.bc);
btde1 = (Button) findViewById(R.id.bdel);
edittext = (EditText) findViewById(R.id.et);
bt0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "0");
    }
});

bt1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "1");
    }
});
bt2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "2");
    }
});
bt3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "3");
    }
});
bt4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "4");
    }
});
bt5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "5");
    }
});
bt6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "6");
    }
});
bt7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edittext.setText(edittext.getText() + "7");
    }
});
bt8.setOnClickListener(new View.OnClickListener() {
    @Override

```


AndroidManifest.xml

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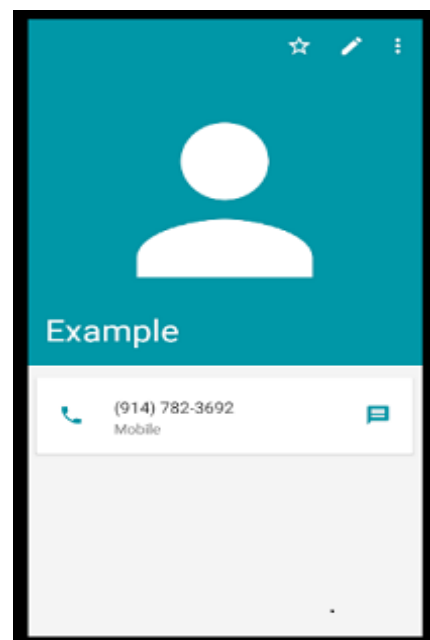
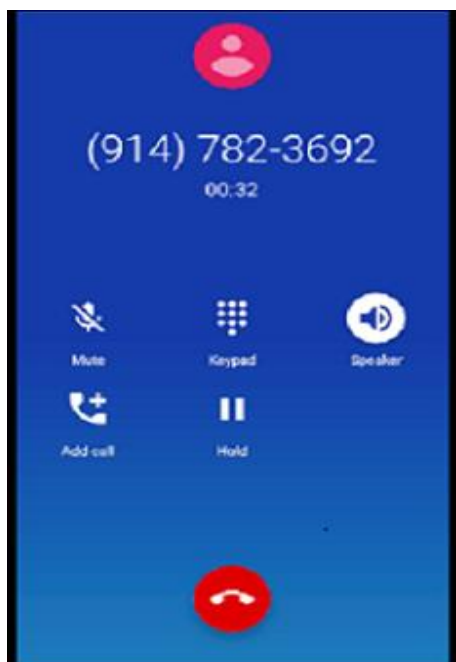
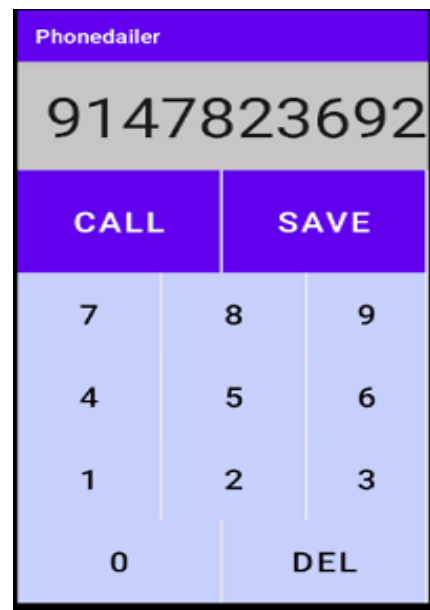
```

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

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

```

OUTPUT





**THERE ARE NO SECRETS TO SUCCESS.
IT IS A RESULT OF PREPARATION, HARD WORK,
AND LEARNING FROM FAILURE**