



**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;

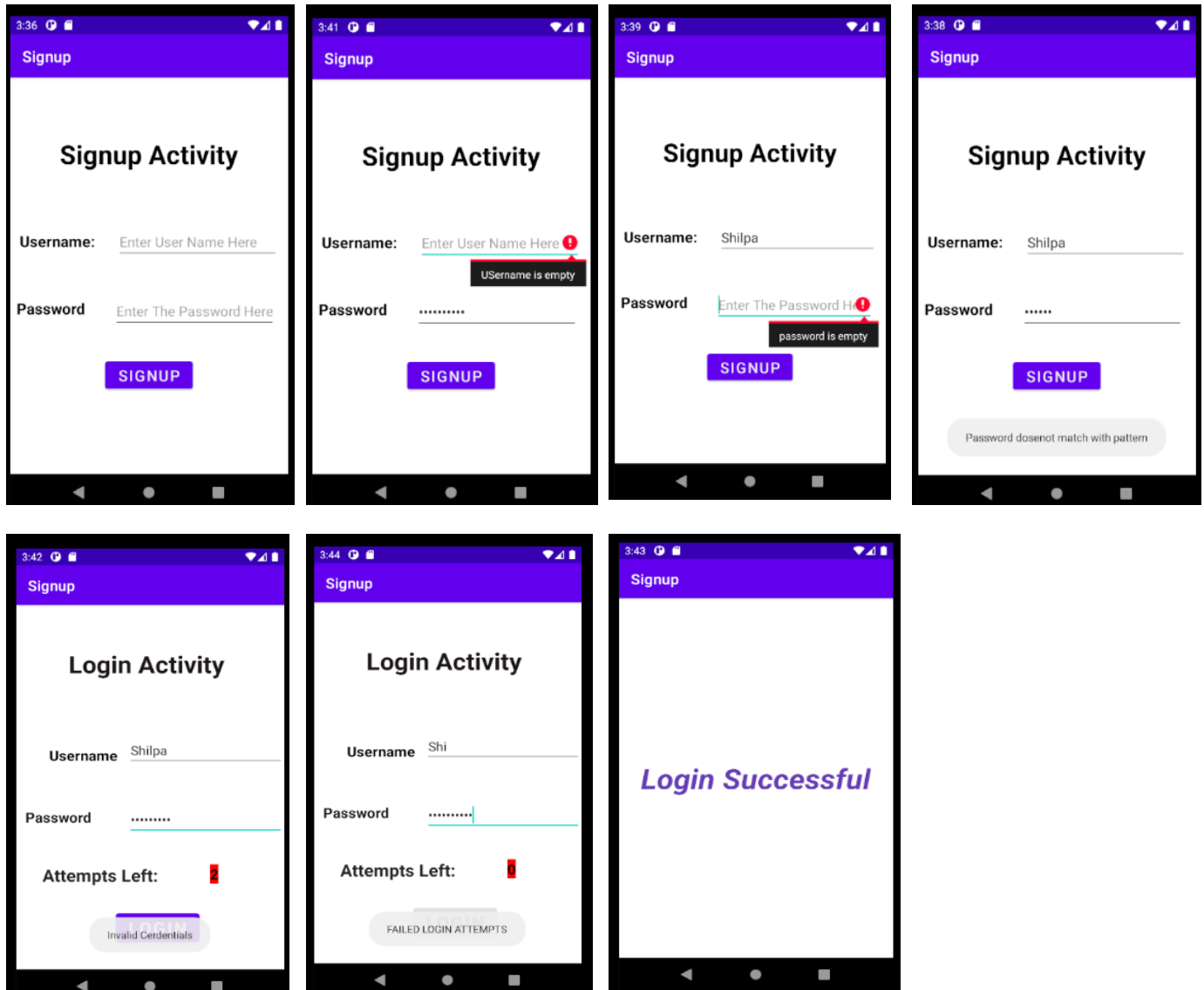
import androidx.appcompat.app.AppCompatActivity;

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(){

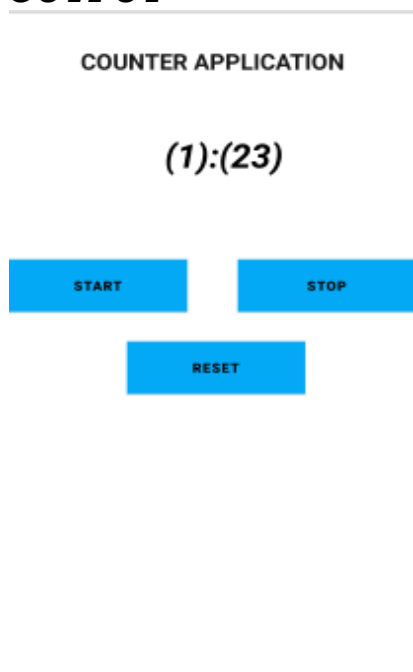
    @Override
    public void onClick(View v) {
        lastpause =SystemClock.elapsedRealtime();
        myChronometer.stop();
        buttonStop.setEnabled(false);
        buttonStart.setEnabled(true);
    }
});

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)

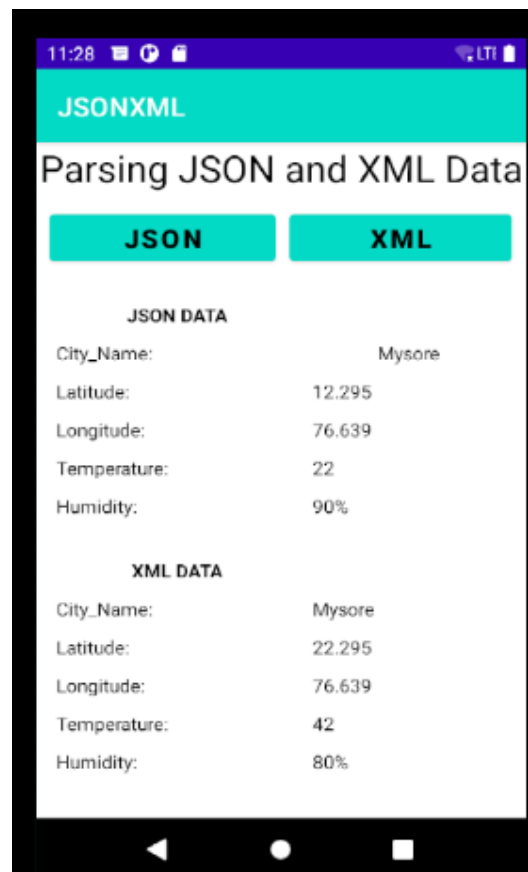
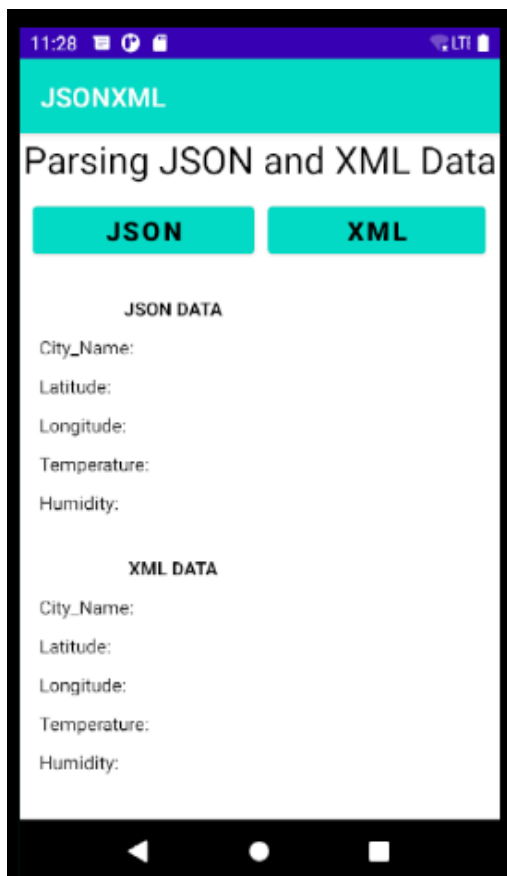
```

```

{
    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);

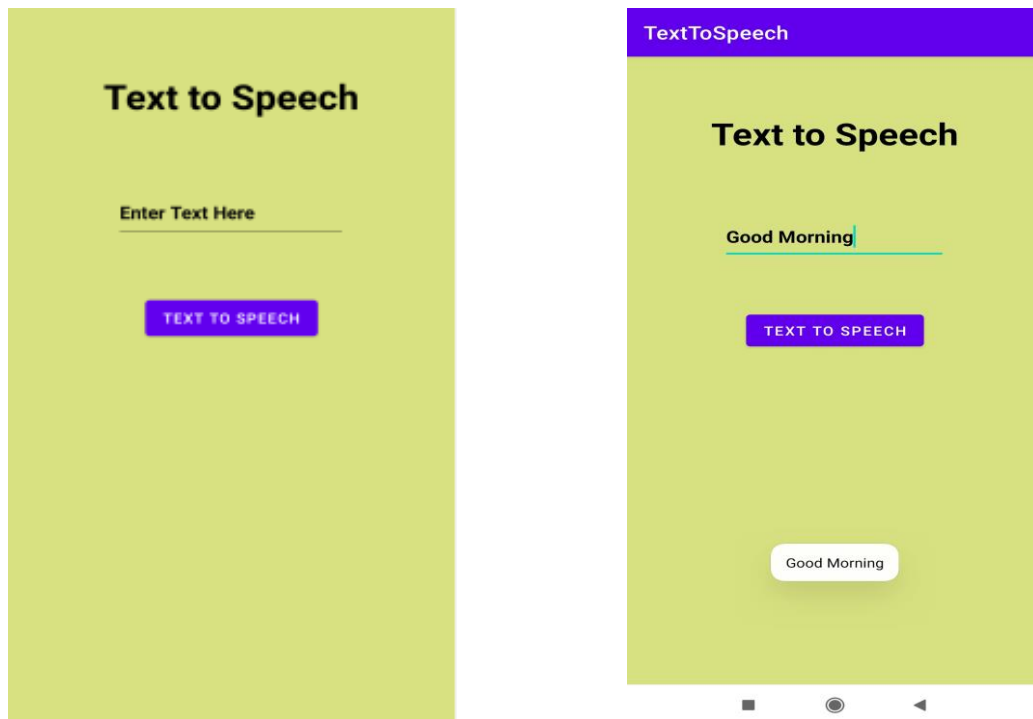
        t1=new TextToSpeech(getApplicationContext(), new TextToSpeech.OnInitListener() {
            @Override
            public void onInit(int status) {
                if(status != TextToSpeech.ERROR) {
                    t1.setLanguage(Locale.UK);
                }
            }
        });

        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.bt0);
        bt1 = (Button) findViewById(R.id.bt1);
        bt2 = (Button) findViewById(R.id.bt2);
        bt3 = (Button) findViewById(R.id.bt3);
    }
}

```

```

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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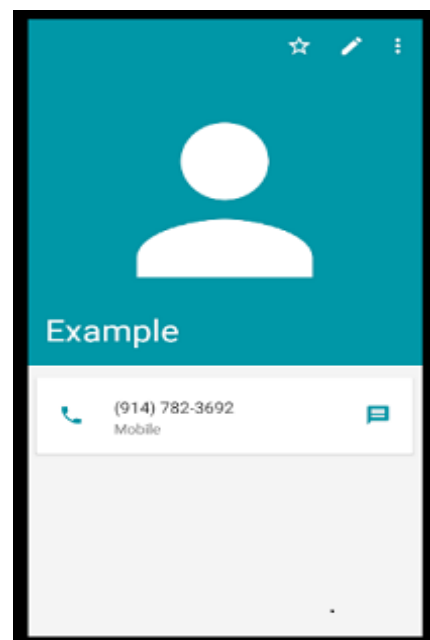
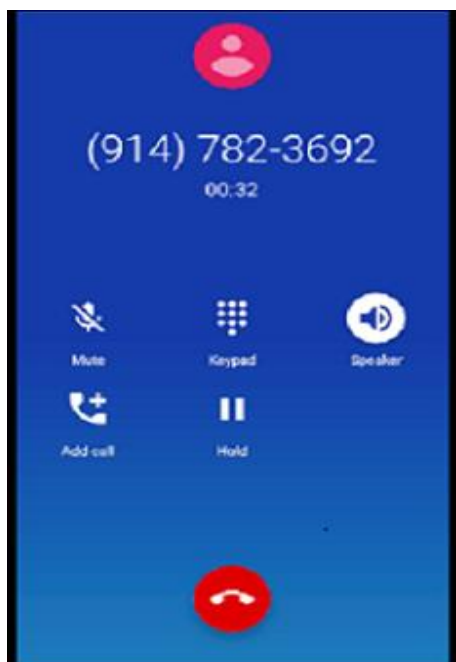
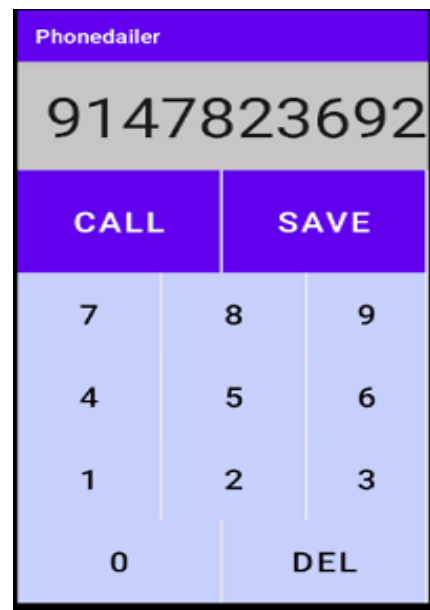
```

<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



PROGRAM 1:

Write a program to enter Medicine Name, Date and Time of the Day as input from the user and store it in the SQLite database. Input for Time of the Day should be either Morning or Afternoon or Evening or Night. Trigger an alarm based on the Date and Time of the Day and display the Medicine Name.

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"
    android:background="@drawable/med"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="52dp"
        android:layout_marginLeft="52dp"
        android:layout_marginTop="36dp"
        android:text="MEDICINE DATABASE"
        android:textColor="@color/black"
        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/btnInsert"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="144dp"
        android:layout_marginLeft="144dp"
        android:layout_marginTop="56dp"
        android:text="SAVE"
        android:textColor="@color/black"
        android:textSize="38sp"
        android:textStyle="bold"
        app:backgroundTint="#F44336"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/mTime" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginTop="124dp"
        android:text="NAME"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:textStyle="bold"
```

```

app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="24dp"
    android:layout_marginLeft="24dp"
    android:layout_marginTop="40dp"
    android:text="DATE"
    android:textColor="@color/black"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />

<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="24dp"
    android:layout_marginLeft="24dp"
    android:layout_marginTop="48dp"
    android:text="TIME"
    android:textColor="@color/black"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView3" />

<EditText
    android:id="@+id/mName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="24dp"
    android:layout_marginLeft="24dp"
    android:layout_marginTop="112dp"
    android:ems="10"
    android:hint="Enter Medicine Name Here"
    android:inputType="textPersonName"
    android:textColor="@color/black"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toEndOf="@+id/textView2"
    app:layout_constraintTop_toBottomOf="@+id/textView" />

<EditText
    android:id="@+id/mDate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="32dp"
    android:layout_marginLeft="32dp"
    android:layout_marginTop="24dp"
    android:ems="10"
    android:hint="Enter Date Here"
    android:inputType="date"
    android:textColor="@color/black"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toEndOf="@+id/textView3"

```

```

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

<EditText
    android:id="@+id/mTime"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="36dp"
    android:layout_marginLeft="36dp"
    android:layout_marginTop="24dp"
    android:ems="10"
    android:hint="Enter Time Here"
    android:inputType="time"
    android:textColor="@color/black"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toEndOf="@+id/textView4"
    app:layout_constraintTop_toBottomOf="@+id/mDate" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.medicinedatabase;

import androidx.appcompat.app.AppCompatActivity;
import android.app.AlarmManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.os.Bundle;
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import java.util.Calendar;

public class MainActivity extends AppCompatActivity
{

    SQLiteDatabase sqLiteDatabaseObj;
    EditText MedicineName, Date, Time;
    String MName, MDate, MTime, SQLiteDataBaseQueryHolder;
    Button Insert;
    Boolean EditTextEmptyHold;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Insert = (Button)findViewById(R.id.btnInsert);
        MedicineName = (EditText)findViewById(R.id.mName);
        Date = (EditText)findViewById(R.id.mDate);
        Time = (EditText)findViewById(R.id.mTime);
        Insert.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View view)
            {

```

MyBroadcastReceiver.java

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```

    }
}
}

```

Androidmanifest.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"
    package="com.example.medicinedatabase">
    <uses-permission android:name="android.permission.RECEIVE_BOOT_COMPLETED" />
    <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.Medicinedatabase">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <receiver
            android:name=".MyBroadcastReceiver"
            android:directBootAware="true"
            android:enabled="true"
            android:exported="true"
            tools:ignore="WrongManifestParent">
            <intent-filter>
                <action android:name="android.intent.action.BOOT_COMPLETED" />
                <action android:name="android.intent.action.LOCKED_BOOT_COMPLETED" />
            </intent-filter>
        </receiver>
    </manifest>

```

OUTPUT



Database Inspector				
Galaxy Nexus API 30 > com.example.medicinedatabase				
Databases		MedicineDetails x		
<input type="checkbox"/> Live updates				
Medicine				
MedicineDetails		id	name	datem
1	1	Paracetamol	12/06/2021	10:30am

PROGRAM 2:

Develop a content provider application with an activity called “Meeting Schedule” which takes Date, Time and Meeting Agenda as input from the user and store this information into the SQLite database. Create another application with an activity called “Meeting Info” having DatePicker control, which on the selection of a date should display the Meeting Agenda information for that particular date, else it should display a toast message saying “No Meeting on this Date”.

ActivityMain.xml

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

    <com.google.android.material.appbar.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="#EAA4B0"
        android:theme="@style/Theme.MeetingInfo.AppBarOverlay">

        <TextView
            android:id="@+id/title"
            android:layout_width="411dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:background="@color/purple_500"
            android:gravity="center"
            android:minHeight="?actionBarSize"
            android:padding="@dimen/appbar_padding"
            android:text="Meeting Details"
            android:textAlignment="center"
            android:textAppearance="@style/TextAppearance.Widget.AppCompat.Toolbar.Title" />

        <com.google.android.material.tabs.TabLayout
            android:id="@+id/tabs"
            android:layout_width="match_parent"
            android:layout_height="37dp"
            android:background="#ED6492"
            app:tabIndicatorColor="#00E5FF" />
    </com.google.android.material.appbar.AppBarLayout>

    <androidx.viewpager.widget.ViewPager
        android:id="@+id/view_pager"
        android:layout_width="match_parent"
        android:layout_height="499dp"
        app:layout_behavior="@string/appbar_scrolling_view_behavior">

        <TextView
            android:id="@+id/textView"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="TextView" />
    </androidx.viewpager.widget.ViewPager>
</androidx.coordinatorlayout.widget.CoordinatorLayout>
```



```
</androidx.viewpager.widget.ViewPager>
</androidx.coordinatorlayout.widget.CoordinatorLayout>
```

Fragment_layout1.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_gravity="center"
    android:layout_height="match_parent">

    <EditText
        android:id="@+id/txtDate"
        android:layout_width="223dp"
        android:layout_height="47dp"
        android:layout_marginTop="16dp"
        android:ems="10"
        android:hint="DD/MM/YYYY"
        android:inputType="textPersonName"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="1.0"
        app:layout_constraintStart_toEndOf="@+id/mDate"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/txtTime"
        android:layout_width="212dp"
        android:layout_height="54dp"
        android:layout_marginTop="68dp"
        android:layout_marginEnd="8dp"
        android:ems="10"
        android:hint="hh:mm"
        android:inputType="textPersonName"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="@+id/txtDate" />

    <TextView
        android:id="@+id/mDate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="20dp"
        android:text="Date:"
        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/txt2"
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="32dp"
        android:text="Time:"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:textStyle="bold"
        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        app:layout_constraintEnd_toStartOf="@+id/txtTime"
        app:layout_constraintHorizontal_bias="0.117"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/mDate" />

<TextView
    android:id="@+id/txt3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="4dp"
    android:text="Meeting Agenda:"
    android:textColor="@color/black"
    android:textSize="24sp"
    android:textStyle="bold"
    android:textAppearance="@style/TextAppearance.AppCompat.Large"
    app:layout_constraintBottom_toTopOf="@+id/btn1"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt2"
    app:layout_constraintVertical_bias="0.131" />

<Button
    android:id="@+id/btn1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Add Meeting Schedule"
    android:textColor="@color/black"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.7"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txtAgenda"
    app:layout_constraintVertical_bias="0.54" />

<EditText
    android:id="@+id/txtAgenda"
    android:layout_width="212dp"
    android:layout_height="50dp"
    android:layout_marginTop="16dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toEndOf="@+id/txt3"
    app:layout_constraintTop_toBottomOf="@+id/txtTime" />

<CalendarView
    android:id="@+id/mCal"
    android:layout_width="278dp"
    android:layout_height="209dp"

```

```

        android:background="#AFB42B"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="1.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.419" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Fragment_layout2.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">

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="32dp"
        android:text="Select Date to get Meeting Details"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextDate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="text"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.535"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView2"
        app:layout_constraintVertical_bias="0.047" />

    <CalendarView
        android:id="@+id/calendarView"
        android:layout_width="263dp"
        android:layout_height="249dp"
        android:layout_marginTop="8dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.679"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextDate" />

    <Button
        android:id="@+id/btn2"

```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Search to get Meeting Details"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.666"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/calendarView"
        app:layout_constraintVertical_bias="0.057" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Fragment_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:id="@+id/constraintLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ui.main.PlaceholderFragment">

    <TextView
        android:id="@+id/section_label"
        android:text="Schedule Meeting"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="@dimen/activity_horizontal_margin"
        android:layout_marginTop="@dimen/activity_vertical_margin"
        android:layout_marginEnd="@dimen/activity_horizontal_margin"
        android:layout_marginBottom="@dimen/activity_vertical_margin"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintTop_toTopOf="@+id/constraintLayout"
        tools:layout_constraintLeft_creator="1"
        tools:layout_constraintTop_creator="1" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.meetinginfo;
import android.os.Bundle;
import com.google.android.material.floatingactionbutton.FloatingActionButton;
import com.google.android.material.snackbar.Snackbar;
import com.google.android.material.tabs.TabLayout;
import androidx.viewpager.widget.ViewPager;
import androidx.appcompat.app.AppCompatActivity;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import com.example.meetinginfo.ui.main.SectionsPagerAdapter;

public class MainActivity extends AppCompatActivity {

```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    SectionsPagerAdapter sectionsPagerAdapter = new SectionsPagerAdapter(this,
getSupportFragmentManager());
    ViewPager viewPager = findViewById(R.id.view_pager);
    viewPager.setAdapter(sectionsPagerAdapter);
    TabLayout tabs = findViewById(R.id.tabs);
    tabs.setupWithViewPager(viewPager);
}
}

```

Fragment1.java

```

package com.example.meetinginfo;

import android.content.Context;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.view.inputmethod.InputMethodManager;
import android.widget.Button;
import android.widget.CalendarView;
import android.widget.EditText;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import static androidx.core.content.ContextCompat.getSystemService;

public class Fragment1 extends Fragment {
    EditText date,time,agenda;
    DataBaseConn dbc;
    CalendarView calendarView;
    Button btn;
    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container,
@Nullable Bundle savedInstanceState) {
        View view=inflater.inflate(R.layout.fragment_layout1,container,false);
        date=view.findViewById(R.id.txtDate);
        time=view.findViewById(R.id.txtTime);
        agenda=view.findViewById(R.id.txtAgenda);
        btn=view.findViewById(R.id.btn1);
        calendarView=view.findViewById(R.id.mCal);
        dbc=new DataBaseConn(getActivity());
        calendarView.setVisibility(View.INVISIBLE);
        date.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                closeKeyBoard();
                calendarView.setVisibility(View.VISIBLE);
                calendarView.setOnDateChangeListener(new CalendarView.OnDateChangeListener() {
                    @Override
                    public void onSelectedDayChange(@NonNull CalendarView view, int year, int month, int
dayOfMonth) {
                        String d=dayOfMonth+"/"+(month+1)+"/"+year;

```

```

        date.setText(d);
        calendarView.setVisibility(View.INVISIBLE);
    }
    });
}
});
btn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String mdate,mTime,mAgenda;
        mdate=date.getText().toString();
        mTime=time.getText().toString();
        mAgenda=agenda.getText().toString();

        Boolean insert=dbc.insertvalue(mdate,mTime,mAgenda);
        if(insert==true){
            Toast.makeText(getActivity(),"Data Inserted",Toast.LENGTH_SHORT).show();
        }
        else
            Toast.makeText(getActivity(),"Data NOT Inserted",Toast.LENGTH_SHORT).show();
    }
});
return view;
}
private void closeKeyBoard(){
    View view = getActivity().getCurrentFocus();
    if (view != null) {
        InputMethodManager imm = (InputMethodManager)
            getActivity().getSystemService(Context.INPUT_METHOD_SERVICE);
        imm.hideSoftInputFromWindow(view.getWindowToken(), 0);
    }
}
}
}

```

Fragment2.java

```

package com.example.meetinginfo;

import android.database.Cursor;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.CalendarView;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import com.example.meetinginfo.R;
import java.util.Calendar;
public class Fragment2 extends Fragment {
    EditText date;
    CalendarView cal;
    Button btn1;
}

```

```

DataBaseConn dbc;
TextView t;
@Nullable
@Override
public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container,
@Nullable Bundle savedInstanceState) {
    View view=inflater.inflate(R.layout.fragment2_layout,container,false);
    date=view.findViewById(R.id.editTextDate);
    cal=view.findViewById(R.id.calendarView);
    btn1=view.findViewById(R.id.btn2);
    dbc=new DataBaseConn(getActivity());
    cal.setOnDateChangeListener(new CalendarView.OnDateChangeListener() {
        @Override
        public void onSelectedDayChange(@NonNull CalendarView view, int year, int month, int
dayOfMonth) {
            String d=dayOfMonth+"/"+(month+1)+"/"+year;
            date.setText(d);
        }
    });

    btn1.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String d1=date.getText().toString();
            StringBuffer res=new StringBuffer();
            Cursor c=dbc.fetch(d1);
            int count=c.getCount();
            c.moveToFirst();
            if(count>0) {
                do {
                    res.append(c.getString(c.getColumnIndex("agenda"))+"\t"+"at"+"t"+c.getString(c.getColumnIndex("time")));
                    res.append("\n");
                }while (c.moveToNext());
                Toast.makeText(getActivity(), res, Toast.LENGTH_LONG).show();
            }
            else
            {
                Toast.makeText(getActivity(), "No Meeting on This Day....", Toast.LENGTH_LONG).show();
            }
        }
    });
    return view;
}

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

```


DataBaseConn.java

```

package com.example.meetinginfo;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import androidx.annotation.Nullable;
import androidx.fragment.app.FragmentActivity;
public class DataBaseConn extends SQLiteOpenHelper {
    public DataBaseConn(Context context) {
        super(context,"MeetingDB.db",null,1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create Table meetingTbl(date TEXT,time TEXT, agenda TEXT)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("drop Table if exists meetingTbl");
    }

    public boolean insertvalue(String d, String t, String agd){
        SQLiteDatabase DB=this.getWritableDatabase();
        ContentValues cv = new ContentValues();
        cv.put("date",d);
        cv.put("time",t);
        cv.put("agenda",agd);
        long res=DB.insert("meetingTbl",null,cv); //query to insert
        if(res==-1){
            return false;
        }
        else
            return true;
    }

    public Cursor fetch(String d){

        SQLiteDatabase DB=this.getReadableDatabase();
        Cursor c = DB.rawQuery("Select time,agenda from meetingTbl where date='"+d+"' ",null);
        return c;
    }
}

```


OUTPUT

Database Inspector

Galaxy Nexus API 30 > com.example.meetinginfo ▾

Databases

meetingTbl ×

MeetingDB.db

> meetingTbl

	date	time	agenda
1	26/07/2021	10:30	Dept. Meeting
2	26/07/2021	10:30	Dept. Meeting

PROGRAM 3:

Create an application to receive an incoming SMS that is notified to the user. On clicking this SMS notification, the message content and the number should be displayed on the screen. Use appropriate emulator control to send the SMS message to your application.

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/textView"
        android:layout_width="183dp"
        android:layout_height="37dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="64dp"
        android:text="SMS Receiver"
        android:textColor="#000000"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/address"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="76dp"
        android:text="Message From"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.339"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/message" />

    <TextView
        android:id="@+id/message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/address"
        android:layout_alignStart="@+id/address"
        android:layout_alignLeft="@+id/address"
        android:layout_marginTop="104dp"
        android:text="Message"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.339"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.xml

```
package com.example.sms;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;

import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
    public static TextView SMS_textview;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        SMS_textview = (TextView) findViewById(R.id.textview);
    }
}
```

SimpleSmsReciever.java

```
package com.example.sms;

import android.content.*;
import android.os.Bundle;
import android.telephony.*;
import android.util.Log;
import android.widget.Toast;

public class SimpleSmsReciever extends BroadcastReceiver {

    private static final String TAG = "Message recieved";

    @Override
    public void onReceive(Context context, Intent intent) {
        Bundle pudsBundle = intent.getExtras();
        Object[] pdus = (Object[]) pudsBundle.get("pdus");
        SmsMessage messages = SmsMessage.createFromPdu((byte[]) pdus[0]);
        Intent smsIntent = new Intent(context, MainActivity.class);
        smsIntent.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
        smsIntent.putExtra("MessageNumber", messages.getOriginatingAddress());
        smsIntent.putExtra("Message", messages.getMessageBody());
        context.startActivity(smsIntent);
        Toast.makeText(context, "SMS Received From :"+messages.getOriginatingAddress()+"\n"+
        messages.getMessageBody(), Toast.LENGTH_LONG).show();
    }
}
```

androidmanifest.xml

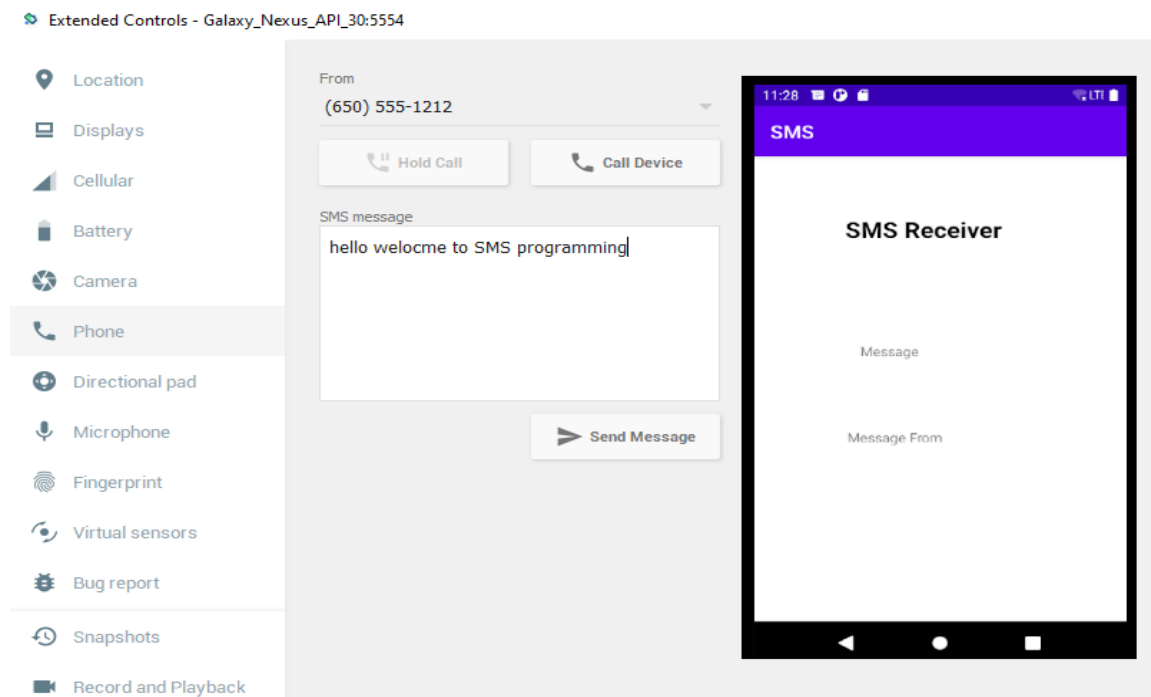
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.sms">
    <uses-permission android:name="android.permission.READ_SMS"/>
    <uses-permission android:name="android.permission.RECEIVE_SMS"/>
    <application
        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.SMS">
    <activity android:name=".MainActivity">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
    <receiver android:name=".SimpleSmsReciever">
        <intent-filter>
            <action android:name="android.provider.Telephony.SMS_RECEIVED">
            </action>
        </intent-filter>
    </receiver>
</application>
</manifest>

```

OUTPUT



PROGRAM 4:

Write a program to create an activity having a Text box, and also Save, Open and Create buttons. The user has to write some text in the Text box. On pressing the Create button the text should be saved as a text file in Mksdcard. On subsequent changes to the text, the Save button should be pressed to store the latest content to the same file. On pressing the Open button, it should display the contents from the previously stored files in the Text box. If the user tries to save the contents in the Textbox to a file without creating it, then a toast message has to be displayed saying "First Create a File".

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/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="28dp"
        android:text="FILE APPLICATION"
        android:textColor="@color/black"
        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/btnCreate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="56dp"
        android:layout_marginTop="36dp"
        android:text="CREATE"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <Button
        android:id="@+id/btnOpen"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="96dp"
        android:layout_marginTop="36dp"
        android:text="OPEN"
        android:textSize="20sp"
```

```

        android:textStyle="bold"
        app:layout_constraintStart_toEndOf="@+id/btnCreate"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

<Button
    android:id="@+id/btnSave"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="176dp"
    android:layout_marginTop="44dp"
    android:text="SAVE"
    android:textSize="20sp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txtResult" />

<EditText
    android:id="@+id/txtResult"
    android:layout_width="347dp"
    android:layout_height="134dp"
    android:layout_marginTop="44dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/btnCreate" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```
package com.example.program4b;
```

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

```

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

```

```
import java.io.File;
```

```
import java.io.FileInputStream;
```

```
import java.io.FileOutputStream;
```

```
import java.io.IOException;
```

```

public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    Button b1, b2, b3;
    EditText t1;
    boolean fileCreated=false;
    String createFileName=null;

    String previousFileName=null;

```

```
    @Override
```

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

```

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = (Button)findViewById(R.id.btnCreate);
        b1.setOnClickListener(this);
        b2 = (Button)findViewById(R.id.btnOpen);
        b2.setOnClickListener(this);
        b3 = (Button)findViewById(R.id.btnSave);
        b3.setOnClickListener(this);
        t1 = (EditText)findViewById(R.id.txtResult);
    }

    public void writeToFile(String filename,String content)
    {
        try {
            FileOutputStream fos= new
FileOutputStream(Environment.getExternalStorageDirectory().getAbsolutePath()+"/"+filename);
            fos.write(content.getBytes());
            fos.close();
        }
        catch(Exception e){
            Toast.makeText(getBaseContext(),"Write error"+e.getMessage(),
Toast.LENGTH_LONG).show();
        }
    }

    public String readFromFile(String filename)
    {
        try {
            FileInputStream fis= new
FileInputStream(Environment.getExternalStorageDirectory().getAbsolutePath()+"/"+filename);
            byte[] data= new byte[fis.available()];
            fis.read(data);
            t1.setText(data.toString());
            fis.close();
            return new String(data);
        }
        catch(Exception e)
        {
            Toast.makeText(getBaseContext(),"Read error"+e.getMessage(),
Toast.LENGTH_LONG).show();
        }
        return null;
    }

    public void onClick(View v)
    {
        if(v.equals(b1))
        {
            createFileName="pqr.txt";
            File f = new
File(Environment.getExternalStorageDirectory().getAbsolutePath()+"/"+createFileName);
            if (!f.exists()) {
                try {

                    f.createNewFile();
                    t1.setText(f.getAbsolutePath().toString());
                } catch (IOException e) {
                    Toast.makeText(getBaseContext(),"Create error", Toast.LENGTH_LONG).show();
                }
            }
            fileCreated=true;t1.setText(f.getAbsolutePath().toString());
        }
    }

```

```

else if(v.equals(b2))
{
    if(previousFileName!=null){
        String data= readFromFile(previousFileName);
        t1.setText(data);
    }
    else
        t1.setText(previousFileName);
}
else if(v.equals(b3))
{
    if(fileCreated){
        writeToFile(createFileName,t1.getText().toString());
        t1.setText("");
        previousFileName=createFileName;
        createFileName=null;
        Toast.makeText(getBaseContext(),"Data saved", Toast.LENGTH_LONG).show();
    }
    else
    {
        Toast.makeText(getBaseContext(),"first create a file", Toast.LENGTH_LONG).show();
    }
}
}
}
}

```

AndroidManifest.xml

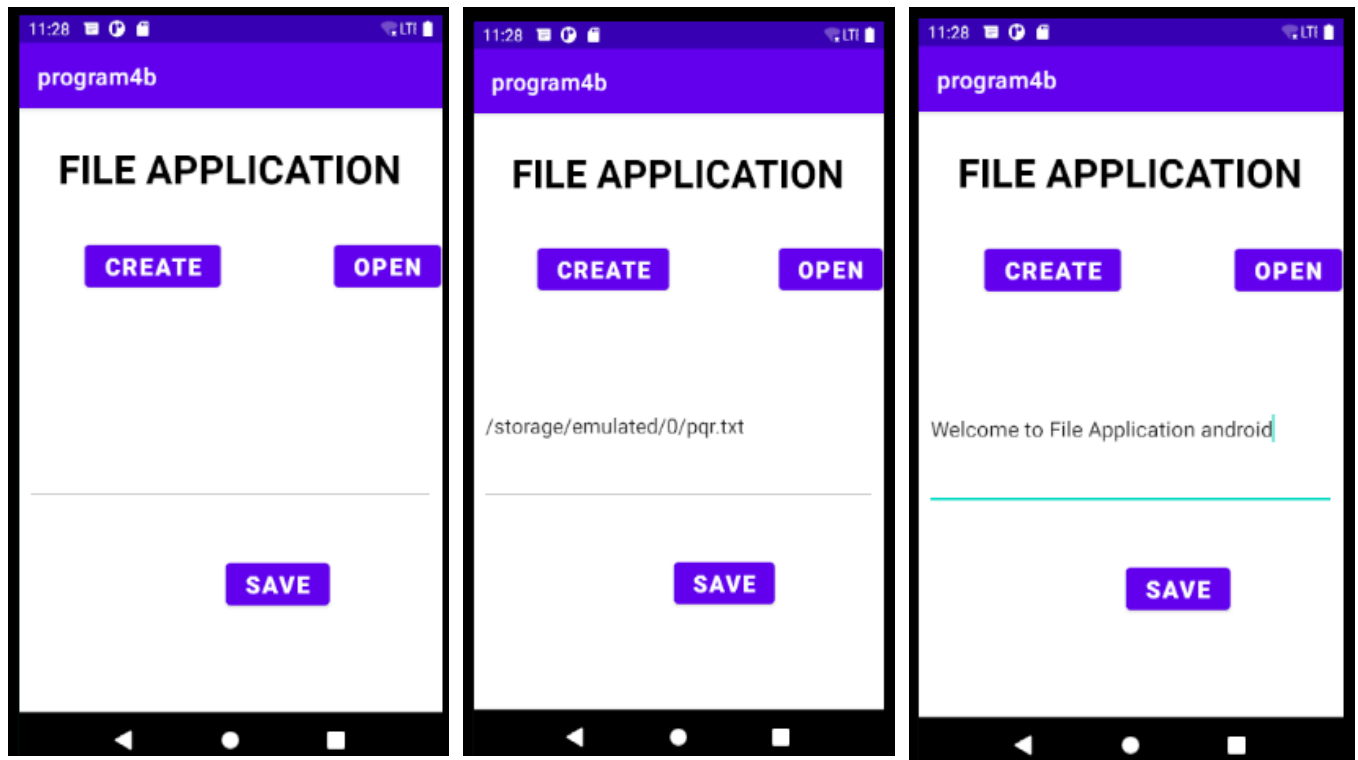
```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.program4b">
    <uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"/>
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.Program4b">
        <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:

Create an application to demonstrate a basic media player that allows the user to Forward, Backward, Play and Pause an audio. Also, make use of the indicator in the seek bar to move the audio forward or backward as required.

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">

    <SeekBar
        android:id="@+id/seekBar1"
        android:layout_width="296dp"
        android:layout_height="16dp"
        android:layout_marginTop="24dp"
        android:progressBackgroundTint="@color/design_default_color_on_secondary"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.495"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView" />

    <ImageButton
        android:id="@+id/btnFwd"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:layout_marginTop="48dp"
        android:layout_marginEnd="32dp"
        android:layout_marginRight="32dp"
        android:background="@drawable/pause"
        android:backgroundTint="#FFFFFF"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/seekBar1"
        tools:src="@drawable/ic_fwd"
        tools:srcCompat="@tools:sample/avatars" />

    <ImageButton
        android:id="@+id/btnBwd"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:layout_marginStart="24dp"
        android:layout_marginLeft="24dp"
        android:layout_marginTop="48dp"
        android:backgroundTint="#FFFFFF"
        android:src="@drawable/ic_bwd"
        app:layout_constraintEnd_toStartOf="@+id/btnPlay"
        app:layout_constraintHorizontal_bias="0.213"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/seekBar1"
        tools:src="@drawable/ic_bwd"
        tools:srcCompat="@tools:sample/avatars" />

    <ImageButton
```

```

        android:id="@+id/btnPlay"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:layout_marginTop="48dp"
        android:layout_marginEnd="68dp"
        android:layout_marginRight="68dp"
        android:backgroundTint="#FFFFFF"
        android:src="@drawable/play"
        app:layout_constraintEnd_toStartOf="@+id/btnFwd"
        app:layout_constraintTop_toBottomOf="@+id/seekBar1"
        tools:src="@drawable/play"
        tools:srcCompat="@tools:sample/avatars" />

<ImageView
    android:id="@+id/imageView"
    android:layout_width="401dp"
    android:layout_height="319dp"
    android:layout_marginTop="4dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.461"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    tools:srcCompat="@tools:sample/avatars" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.mediaplayer;
import androidx.appcompat.app.AppCompatActivity;
import android.media.MediaMetadata;
import android.media.MediaMetadataRetriever;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.os.Handler;
import android.provider.ContactsContract;
import android.view.MotionEvent;
import android.view.View;
import android.widget.ImageButton;
import android.widget.ImageView;
import android.widget.SeekBar;
import android.widget.TextView;
import android.widget.Toast;
import java.io.IOException;

public class MainActivity extends AppCompatActivity {
    ImageButton btnPlay, btnFwd, btnBwd;

    ImageView img;
    SeekBar seekBar;
    Handler mHandler = new Handler();
    Runnable mRunnable;
    MediaPlayer mediaPlayer;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        img = (ImageView) findViewById(R.id.imageView);
        btnPlay = (ImageButton) findViewById(R.id.btnPlay);
    }
}

```

```

btnFwd = (ImageButton) findViewById(R.id.btnFwd);
btnBwd = (ImageButton) findViewById(R.id.btnBwd);
btnPlay.setImageResource(R.drawable.play);
btnBwd.setImageResource(R.drawable.rewind);
btnFwd.setImageResource(R.drawable.forward);
img.setImageResource(R.drawable.media);

mediaPlayer = MediaPlayer.create(this, R.raw.song2);
seekBar = findViewById(R.id.seekBar1);

btnPlay.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    {
        if (!mediaPlayer.isPlaying())
        {
            mediaPlayer.start();
            getAudioStats();
            btnPlay.setImageResource(R.drawable.pause);
            updateSeekBar();
        }
        else
        {
            mediaPlayer.pause();
            btnPlay.setImageResource(R.drawable.play);
        }
    }
});

seekBar.setOnTouchListener((v, event) -> {
    SeekBar s = (SeekBar) v;
    int position = (mediaPlayer.getDuration() / 100) * s.getProgress();
    mediaPlayer.seekTo(position);
    return false;
});

btnFwd.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    {
        if (mediaPlayer.getDuration() > mediaPlayer.getCurrentPosition() + 10000)
        {
            mediaPlayer.seekTo(mediaPlayer.getCurrentPosition() + 10000);
            updateSeekBar();
        }
    }
});

btnBwd.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    {
        if (mediaPlayer.getCurrentPosition() > 10000)
        {
            mediaPlayer.seekTo(mediaPlayer.getCurrentPosition() - 10000);
            updateSeekBar();
            getAudioStats();
        }
    }
});

```

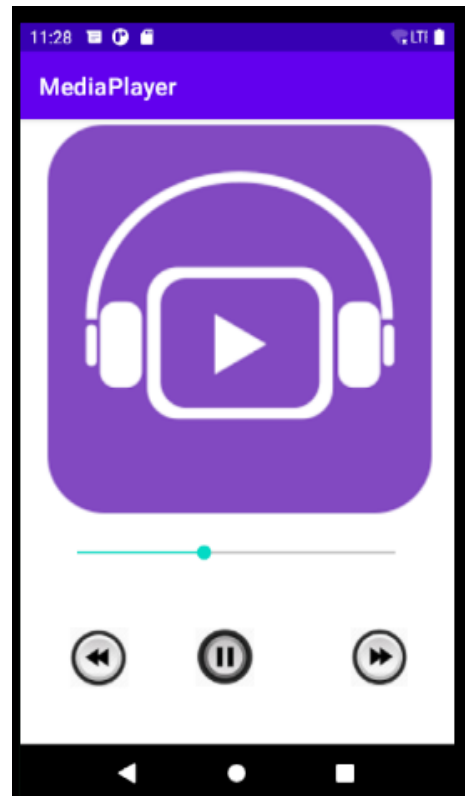
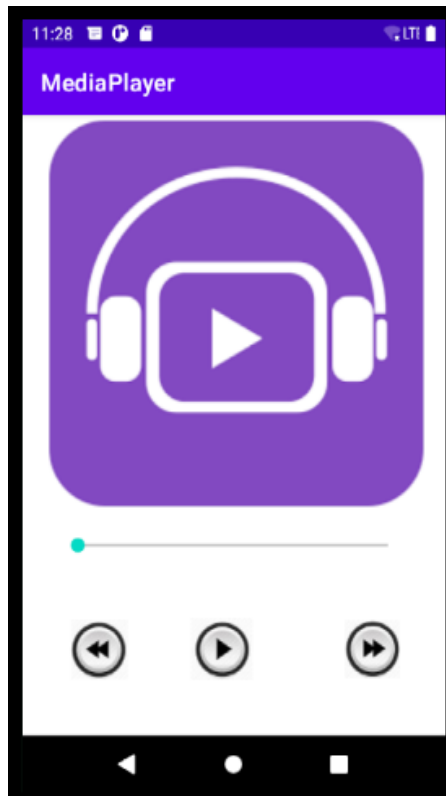
```

        }
    }
    });
}
private void updateSeekBar()
{
    if(mediaPlayer.isPlaying())
    {
seekBar.setProgress((int)((float)mediaPlayer.getCurrentPosition()/mediaPlayer.getDuration()*100));
        mHandler.postDelayed(updater,1000);
    }
}
protected void getAudioStats()
{
    int duration = mediaPlayer.getDuration()/1000; // In milliseconds
    int due = (mediaPlayer.getDuration() - mediaPlayer.getCurrentPosition())/1000;
}

private Runnable updater = new Runnable() {
    @Override
    public void run() {
        updateSeekBar();
    }
};
private void stopPlaying ()
{
    if (mediaPlayer != null)
    {
        mediaPlayer.stop();
        mediaPlayer.release();
        mediaPlayer = null;
        Toast.makeText(this, "Stop playing.", Toast.LENGTH_SHORT).show();
        if (mHandler != null)
        {
            mHandler.removeCallbacks(mRunnable);
        }
    }
}
}
}

```

OUTPUT



PROGRAM 6:

Develop an application to demonstrate the use of Asynchronous tasks in android. The asynchronous task should implement the functionality of a simple moving banner. On pressing the Start Task button, the banner message should scroll from right to left. On pressing the Stop Task button, the banner message should stop. Let the banner message be "Demonstration of Asynchronous Task".

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"
android:background="#FDEBD0"
tools:context=".MainActivity">

    <TextView
        android:id="@+id/txtView"
        android:layout_width="398dp"
        android:layout_height="71dp"
        android:layout_marginTop="84dp"
        android:background="#FB6536"
        android:fontFamily="serif"
        android:scrollHorizontally="true"
        android:singleLine="true"
        android:text="ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY"
        android:textAlignment="textStart"
        android:textColor="@color/black"
        android:textSize="30sp"
        android:textStyle="bold | italic"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btnStart" />

    <Button
        android:id="@+id/btnStart"
        android:layout_width="120dp"
        android:layout_height="64dp"
        android:layout_marginStart="60dp"
        android:layout_marginTop="68dp"
        android:text="START"
        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        app:layout_constraintEnd_toStartOf="@+id/btnStop"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/txtView3" />

    <Button
        android:id="@+id/btnStop"
        android:layout_width="120dp"
        android:layout_height="67dp"
        android:layout_marginTop="68dp"
        android:layout_marginEnd="56dp"
        android:text="STOP"
```

```

        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView3" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:gravity="center"
    android:text="ASYNCHRONOUS TASK DEMONSTRATION"
    android:textColor="@color/black"
    android:textSize="34sp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="24dp"
    android:fontFamily="sans-serif-black"
    android:text="MOVING BANNER "
    android:textColor="#FF5722"
    android:textSize="34sp"
    android:textStyle="bold | italic"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.496"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.asynctask;
import androidx.appcompat.app.AppCompatActivity;
import android.os.AsyncTask;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    private Button btn1,btn2;
    TextView txt;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txt=findViewById(R.id.txtView);
        AsyncClass asyncClass=new AsyncClass();
        btn1=findViewById(R.id.btnStart);
        btn2=findViewById(R.id.btnStop);
        btn1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                asyncClass.doInBackground();
            }
        });
    }
}

```

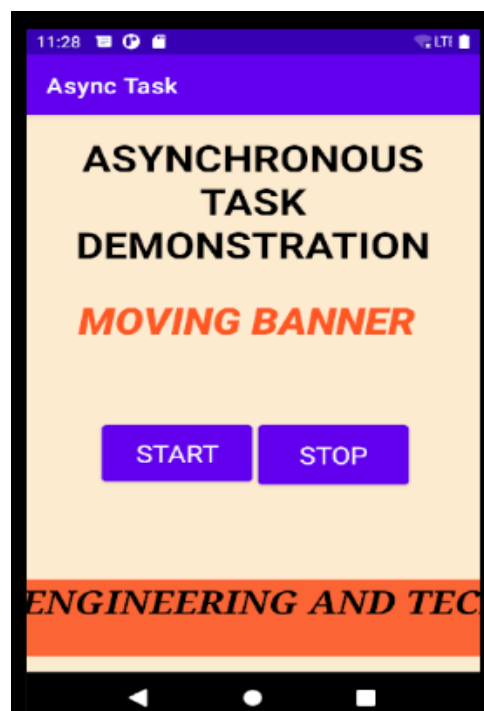


```

        asyncClass.onProgressUpdate();
    }
});
btn2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        txt.setSelected(false);
        asyncClass.onPostExecute("AsyncTask Completed");
    }
});
}
private class AsyncClass extends AsyncTask<String,String,String>{
    @Override
    protected void onPreExecute() {
        super.onPreExecute();
    }
    @Override
    protected void onProgressUpdate(String... values) {
        super.onProgressUpdate(values);
        Toast.makeText(getApplicationContext(),"Banner is Moving",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected String doInBackground(String... strings) {
        txt.setEllipsize(TextUtils.TruncateAt.MARQUEE);
        txt.setSelected(true);
        return null;
    }
    @Override
    protected void onPostExecute(String s) {
        super.onPostExecute(s);
        Toast.makeText(getApplicationContext(),s,Toast.LENGTH_SHORT).show();
    }
}
}
}

```

OUTPUT



PROGRAM 7:

Develop an application that makes use of the clipboard framework for copying and pasting of the text. The activity consists of two EditText controls and two Buttons to trigger the copy and paste functionality.

```
<?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="#FAE9F6"
tools:context=".MainActivity">

    <TextView
        android:id="@+id/text1"
        android:layout_width="103dp"
        android:layout_height="47dp"
        android:layout_marginStart="24dp"
        android:layout_marginLeft="24dp"
        android:layout_marginTop="92dp"
        android:fontFamily="sans-serif"
        android:text="Enter Text to Copy"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toStartOf="@+id/ed1"
        app:layout_constraintHorizontal_bias="0.306"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <Button
        android:id="@+id/btnCopy"
        android:layout_width="150dp"
        android:layout_height="98dp"
        android:layout_marginTop="56dp"
        android:background="#3F51B5"
        android:text="Copy Data to Clipboard"
        android:textColor="@color/black"
        android:textSize="20dp"
        android:textStyle="bold"
        app:backgroundTint="#3F51B5"
        app:layout_constraintEnd_toStartOf="@+id/btnShow"
        app:layout_constraintHorizontal_bias="0.43"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/Text2" />

    <TextView
        android:id="@+id/Text2"
        android:layout_width="118dp"
        android:layout_height="59dp"
        android:layout_marginTop="68dp"
        android:text="Show Copied Data"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toStartOf="@+id/ed2"
        app:layout_constraintHorizontal_bias="0.559"
```

```

        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/text1" />

<EditText
    android:id="@+id/ed1"
    android:layout_width="221dp"
    android:layout_height="44dp"
    android:layout_marginTop="92dp"
    android:ems="10"
    android:textColor="@color/black"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView" />

<EditText
    android:id="@+id/ed2"
    android:layout_width="221dp"
    android:layout_height="47dp"
    android:layout_marginTop="84dp"
    android:layout_marginEnd="4dp"
    android:layout_marginRight="4dp"
    android:ems="10"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/ed1" />

<Button
    android:id="@+id/btnShow"
    android:layout_width="159dp"
    android:layout_height="93dp"
    android:layout_marginTop="56dp"
    android:layout_marginEnd="24dp"
    android:layout_marginRight="24dp"
    android:background="#2196F3"
    android:backgroundTint="#A373FA"
    android:text="Show Clipboard Data"
    android:textColor="@color/black"
    android:textSize="20dp"
    android:textStyle="bold"
    app:backgroundTint="#3F51B5"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/ed2" />

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="80dp"
    android:text="CLIPBOARD ACTVITIY"
    android:textColor="@color/black"
    android:textSize="34sp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.492"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

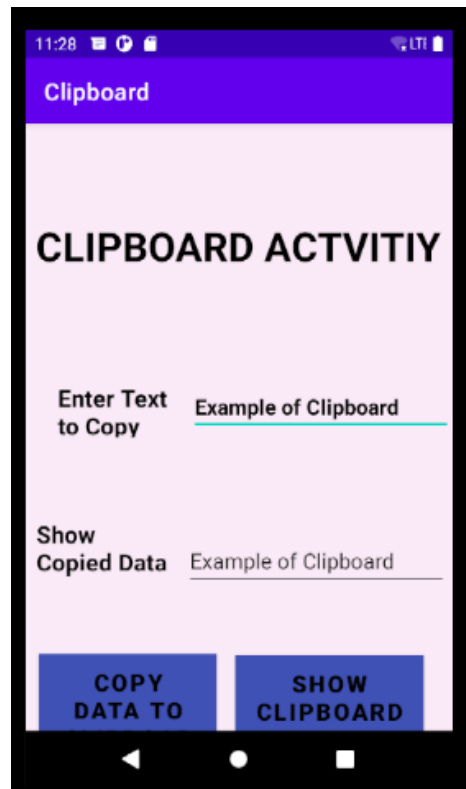
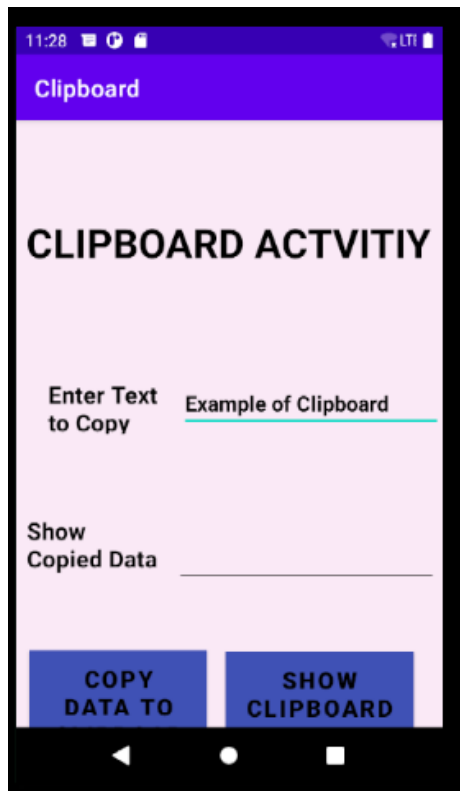
```

Package com.example.clipboard
import androidx.appcompat.app.AppCompatActivity;
import android.content.ClipData;
import android.content.ClipboardManager;
import android.content.Context;
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 ctxt;
    private EditText ptxt;
    private Button btncpy;
    private Button btnpst;
    private ClipboardManager clipboardManager;
    private ClipData clipData;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ctxt = (EditText)findViewById(R.id.ed1);
        ptxt = (EditText)findViewById(R.id.ed2);
        btncpy = (Button)findViewById(R.id.btnCopy);
        btnpst = (Button)findViewById(R.id.btnShow);
        clipboardManager = (ClipboardManager) getSystemService(Context.CLIPBOARD_SERVICE);
        btncpy.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v)
            {
                String txtcopy = ctxt.getText().toString();
                clipData = ClipData.newPlainText("text",txtcopy);
                clipboardManager.setPrimaryClip(clipData);
                Toast.makeText(getApplicationContext(),"Data Copied to Clipboard",
                Toast.LENGTH_SHORT).show();
            }
        });
        btnpst.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                ClipData pData = clipboardManager.getPrimaryClip();
                ClipData.Item item = pData.getItemAt(0);
                String txtpaste = item.getText().toString();
                ptxt.setText(txtpaste);
                Toast.makeText(getApplicationContext(),"Data Pasted from
Clipboard",Toast.LENGTH_SHORT).show();
            }
        });
    }
}

```

OUTPUT



PROGRAM 8:

Create an AIDL service that calculates Car Loan EMI. The formula to calculate EMI is

$$E = P * (r(1+r)^n) / ((1+r)^n - 1)$$

where

E = The EMI payable on the car loan amount

P = The Car loan Principal Amount

r = The interest rate value computed on a monthly basis

n = The loan tenure in the form of months

The down payment amount has to be deducted from the principal amount paid towards buying the Car. Develop an application that makes use of this AIDL service to calculate the EMI. This application should have four EditText to read the PrincipalAmount, Down Payment, Interest Rate, Loan Term (in months) and a button named as "Calculate Monthly EMI". On click of this button, the result should be shown in a TextView. Also, calculate the EMI by varying the Loan Term and Interest Rate values.

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/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="36dp"
        android:layout_marginTop="16dp"
        android:gravity="center"
        android:text="CAR EMI CALCULATOR"
        android:textColor="@color/black"
        android:textSize="30dp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="52dp"
        android:text="PRINCIPLE AMOUNT"
        android:textColor="@color/black"
        android:textSize="18dp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />
```

```

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="44dp"
    android:text="DOWN PAYMENT"
    android:textColor="@color/black"
    android:textSize="18dp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />

```

```

<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="40dp"
    android:text="INTREST RATE"
    android:textColor="@color/black"
    android:textSize="18dp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView3" />

```

```

<TextView
    android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="40dp"
    android:text="LOAN TERM"
    android:textColor="@color/black"
    android:textSize="18dp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView4" />

```

```

<TextView
    android:id="@+id/emi"
    android:layout_width="79dp"
    android:layout_height="27dp"
    android:layout_marginTop="28dp"
    android:text="EMI"
    android:textColor="@color/black"
    android:textSize="18dp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/b1" />

```

```

<Button
    android:id="@+id/b1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:background="@color/teal_700"
    android:backgroundTint="@color/teal_700"

    android:text="CALCULATE MONTLY EMI"

```

```

        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.495"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/lt" />

<EditText
    android:id="@+id/pa"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="20dp"
    android:layout_marginTop="40dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:textColor="@color/black"
    app:layout_constraintStart_toEndOf="@+id/textView2"
    app:layout_constraintTop_toBottomOf="@+id/textView" />

<EditText
    android:id="@+id/dp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="48dp"
    android:layout_marginTop="20dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:textColor="@color/black"
    app:layout_constraintBottom_toBottomOf="@+id/textView3"
    app:layout_constraintStart_toEndOf="@+id/textView3"
    app:layout_constraintTop_toTopOf="@+id/textView3"
    app:layout_constraintVertical_bias="0.682" />

<EditText
    android:id="@+id/ir"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="64dp"
    android:layout_marginTop="20dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:textColor="@color/black"
    app:layout_constraintBottom_toBottomOf="@+id/textView4"
    app:layout_constraintStart_toEndOf="@+id/textView4"
    app:layout_constraintTop_toTopOf="@+id/textView4"
    app:layout_constraintVertical_bias="0.731" />

<EditText
    android:id="@+id/lt"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="88dp"
    android:layout_marginTop="40dp"
    android:textColor="@color/black"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="@+id/textView5"
    app:layout_constraintStart_toEndOf="@+id/textView5"
    app:layout_constraintTop_toTopOf="@+id/textView5"
    app:layout_constraintVertical_bias="0.819" />
</androidx.constraintlayout.widget.ConstraintLayout>

```


MainActivity.java

```

package com.example.experimentpb8;

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 implements View.OnClickListener{
    Button b1;
    EditText t1,t2,t3,t4;
    TextView tt1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=(Button)findViewById(R.id.b1);
        b1.setOnClickListener(this);
        t1=(EditText)findViewById(R.id.pa);
        t2=(EditText)findViewById(R.id.dp);
        t3=(EditText)findViewById(R.id.ir);
        t4=(EditText)findViewById(R.id.lt);
        tt1=(TextView)findViewById(R.id.emi);
    }
    public void onClick(View v){
        double p,r,n,d,emi;
        p=Double.parseDouble(t1.getText().toString());
        d=Double.parseDouble(t2.getText().toString());
        p=p-d;
        r=Double.parseDouble(t3.getText().toString());
        r=r/(12*100);
        n=Double.parseDouble(t4.getText().toString());

        emi=p*(r*Math.pow((1+r),n))/(Math.pow((1+r),n)-1);
        emi=emi/12;
        // double emi = principleAmount * (interestRate * Math.pow((1 + interestRate), loanTerm)) /
        (Math.pow((1 + interestRate), loanTerm) - 1);
        tt1.setText(String.valueOf(emi));
    }
}

```

OUTPUT

11:28 100% LTE

CAR EMI CALCULATOR

CAR EMI CALCULATOR

PRINCIPLE AMOUNT

DOWN PAYMENT

INTREST RATE

LOAN TERM

CALCULATE MONTLY EMI

EMI

11:28 100% LTE

CAR EMI CALCULATOR

CAR EMI CALCULATOR

PRINCIPLE AMOUNT 520000

DOWN PAYMENT 100000

INTREST RATE 8.6

LOAN TERM 3.5

CALCULATE MONTLY EMI

10161.72



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