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SUBJECT - MOBILE APPLICATION DEVELOPMENT

Question 1 - Create a basic Hello World program.
Solution –
activity_main.xml

```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:layout_width="209dp"
        android:layout_height="86dp"
        android:text="Hello World!"
        android:textAlignment="center"
        android:textSize="34sp"
        android:textStyle="bold"
        android:gravity="center"
        android:textColor="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

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

Output –

My Application

Hello World!

Question 2 - Create a simple application to change Color of background of any textbox with the click of a button.
Solution –
activity _main.xml

```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/TextView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:background="#FFFFFFFF"
    android:text="Hello World!"
    android:textColor="#FF03DAC5"
    android:textSize="50sp"
    android:textStyle="bold"

    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.314" />

  <Button
    android:id="@+id/Button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Red"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.90"
    app:layout_constraintLeft_toLeftOf="@id/Button2"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="@id/TextView1" />

  <Button
    android:id="@+id/Button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Yellow"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.10"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="@id/Button1"
    app:layout_constraintTop_toTopOf="@id/TextView1" />

  <Button
    android:id="@+id/Button3"
    android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:text="Reset"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintLeft_toLeftOf="@id/Button2"
        app:layout_constraintRight_toRightOf="@id/Button1"
        app:layout_constraintTop_toTopOf="@id/TextView1" />

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

MainActivity.java

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        TextView textview;
        Button button1, button2, button3;
        textview=findViewById(R.id.TextView1);
        button1=findViewById(R.id.Button1);
        button2=findViewById(R.id.Button2);
        button3=findViewById(R.id.Button3);
        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                textview.setBackgroundColor(Color.RED);
            }
        });
        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                textview.setBackgroundColor(Color.YELLOW);
            }
        });
        button3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                textview.setBackgroundColor(Color.WHITE);
            }
        });
    }
}
```

Output –

My Application

Hello World!

YELLOW   RESET   RED

My Application

Hello World!

YELLOW   RESET   RED

My Application

Hello World!

YELLOW   RESET   RED

My Application

Hello World!

YELLOW   RESET   RED

Question 3 - Create a simple app to change background colour on button click.
Solution –
activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/R"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/Button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp"
        android:text="Red" />

    <Button
        android:id="@+id/Button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/Button1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="52dp"
        android:text="Blue" />

    <Button
        android:id="@+id/Button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/Button2"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="53dp"
        android:layout_marginBottom="383dp"
        android:text="Reset" />
</RelativeLayout>
```
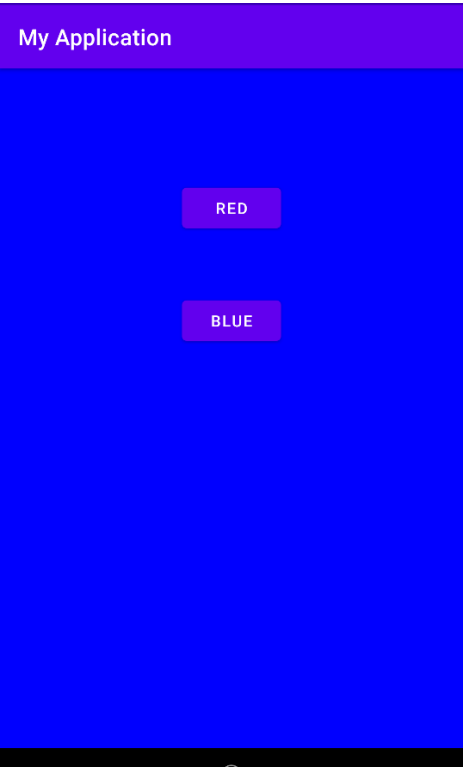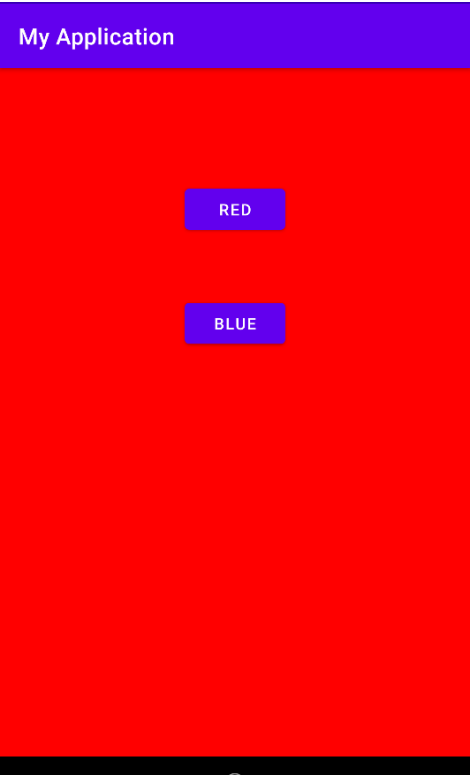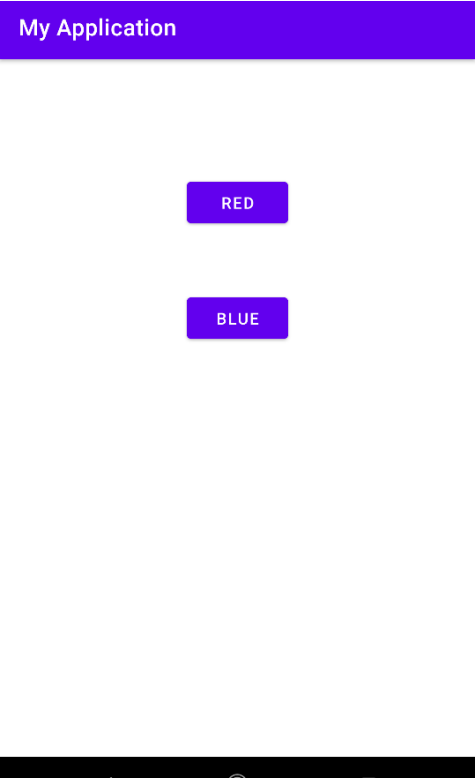
Output –

Question 4 - Create a simple app to add two numbers.
Solution –
activity_main.xml

```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/tv1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/b1"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/et2" />

    <EditText
        android:id="@+id/et1"
        android:layout_width="250dp"
        android:layout_height="40dp"
        android:layout_marginTop="56dp"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/et2"
        android:layout_width="250dp"
        android:layout_height="40dp"
        android:layout_marginTop="52dp"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/et1" />

    <Button
        android:id="@+id/b1"
        android:layout_width="100dp"
        android:layout_height="48dp"
        android:layout_marginBottom="304dp"
        android:text="add"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent" />

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

MainActivity.java

```java
package com.example.myapplication;

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 {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        EditText value1, value2;
        TextView result;
        Button b;

        value1=findViewById(R.id.et1);
        value2=findViewById(R.id.et2);
        result=findViewById(R.id.tv1);
        b=findViewById(R.id.b1);
        b.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int sum=Integer.parseInt(value1.getText().toString()) + Integer.parseInt(value2.getText().toString());
                result.setText(String.valueOf(sum));

            }
        });
    }
}
```

Output –

My Application	My Application
	25
	68
	93
ADD	ADD

Question 5 - Create a simple app to create a simple Calculator in android.
Solution –
activity_main.xml

```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/tv1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/b1"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/et2" />

    <EditText
        android:id="@+id/et1"
        android:layout_width="250dp"
        android:layout_height="40dp"
        android:layout_marginTop="56dp"
        android:inputType="number"
        android:hint="Enter First value"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/et2"
        android:layout_width="250dp"
        android:layout_height="40dp"
        android:layout_marginTop="52dp"
        android:inputType="number"
        android:hint="Enter Second value"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/et1" />

    <Button
        android:id="@+id/b1"
        android:layout_width="100dp"
        android:layout_height="48dp"
        android:layout_marginBottom="308dp"
        android:text="add"
```

```xml
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/b2"
        app:layout_constraintHorizontal_bias="0.267"
        app:layout_constraintStart_toStartOf="parent" />

    <Button
        android:id="@+id/b2"
        android:layout_width="120dp"
        android:layout_height="48dp"
        android:layout_marginBottom="308dp"
        android:text="Subtract"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/b3"
        app:layout_constraintHorizontal_bias="0.858"
        app:layout_constraintStart_toStartOf="parent" />

    <Button
        android:id="@+id/b3"
        android:layout_width="120dp"
        android:layout_height="48dp"
        android:layout_marginBottom="308dp"
        android:text="multiply"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.945"
        app:layout_constraintStart_toStartOf="parent" />

    <Button
        android:id="@+id/b4"
        android:layout_width="120dp"
        android:layout_height="48dp"
        android:text="divide"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.457"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/b2"
        app:layout_constraintVertical_bias="0.084" />

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

MainActivity.java

```java
package com.example.myapplication;
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 {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

```java
setContentView(R.layout.activity_main);
EditText value1, value2;
TextView result;
Button b1,b2,b3,b4;

value1=findViewById(R.id.et1);
value2=findViewById(R.id.et2);
result=findViewById(R.id.tv1);
b1=findViewById(R.id.b1);
b2=findViewById(R.id.b2);
b3=findViewById(R.id.b3);
b4=findViewById(R.id.b4);
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        int sum=Integer.parseInt(value1.getText().toString()) + Integer.parseInt(value2.getText().toString());
        result.setText(String.valueOf(sum));
    }
});
b2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {

        int sub=Integer.parseInt(value1.getText().toString()) - Integer.parseInt(value2.getText().toString());
        result.setText(String.valueOf(sub));
    }
});

b3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {

        int mul=Integer.parseInt(value1.getText().toString()) * Integer.parseInt(value2.getText().toString());
        result.setText(String.valueOf(mul));
    }
});

b4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {

        int div=Integer.parseInt(value1.getText().toString()) / Integer.parseInt(value2.getText().toString());
        result.setText(String.valueOf(div));
    }
});
}
```

NAME – Pankaj Singh Bhandari

ROLLNO –1922040

My Application

Enter First value

Enter Second value

ADD   SUBTRACT   MULTIPLY

DIVIDE

My Application

25

5

20

ADD   SUBTRACT   MULTIPLY

DIVIDE

My Application

25

5

125

ADD   SUBTRACT   MULTIPLY

DIVIDE

My Application

25

5

5

ADD   SUBTRACT   MULTIPLY

DIVIDE

NAME – Pankaj Singh Bhandari

ROLLNO –1922040

My Application

25

5

30

ADD   SUBTRACT   MULTIPLY

DIVIDE

Question 6 - Create an app to set image on Image view.
Solution –
activity_main.xml

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

    <ImageView
        android:id="@+id/imageView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:srcCompat="@drawable/paintedstyle" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.util.Log;
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);
    }
}
```

Output –

Question 7 - Create a program to change image on button click.
Solution –
activity_ main.java

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

    <ImageView
        android:id="@+id/iv1"
        android:layout_width="410dp"
        android:layout_height="485dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/bt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="70dp"
        android:text="Previous"
        android:backgroundTint="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/iv1"
        app:layout_constraintVertical_bias="0.498" />

    <Button
        android:id="@+id/bt2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="70dp"
        android:text="Next"
        android:backgroundTint="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/iv1"
        app:layout_constraintVertical_bias="0.498" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.imageview;
import androidx.appcompat.app.AppCompatActivity;
import android.media.Image;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
```

```java
public class MainActivity extends AppCompatActivity {
    Button bt1,bt2;
    ImageView iv1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        iv1=findViewById(R.id.iv1);
        bt1=findViewById(R.id.bt1);
        bt2=findViewById(R.id.bt2);
        bt1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                iv1.setImageResource(R.drawable.bone);
            }
        });
        bt2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                iv1.setImageResource(R.drawable.iiustration);
            }
        });
    }
}
```

Output –

Image View

Image View

PREVIOUS	NEXT

PREVIOUS	NEXT

Question 8 - Create a program to depict activity lifecycle.
Solution –
activity_main.xml

```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/textView4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="TextView"
        android:textSize="20sp"
        android:textStyle="bold"
        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

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;

public class MainActivity extends AppCompatActivity {
    public static final String status=MainActivity.class.getSimpleName();
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.i(status,"In method onCreate");
    }
    @Override
    protected void onStart() {
        super.onStart();
        Log.i(status,"In method onStart");
    }
    @Override
    protected void onResume() {
        super.onResume();
        Log.i(status,"In method onResume");
    }
    @Override
    protected void onPause() {
        super.onPause();
        Log.i(status,"In method onPause");
```
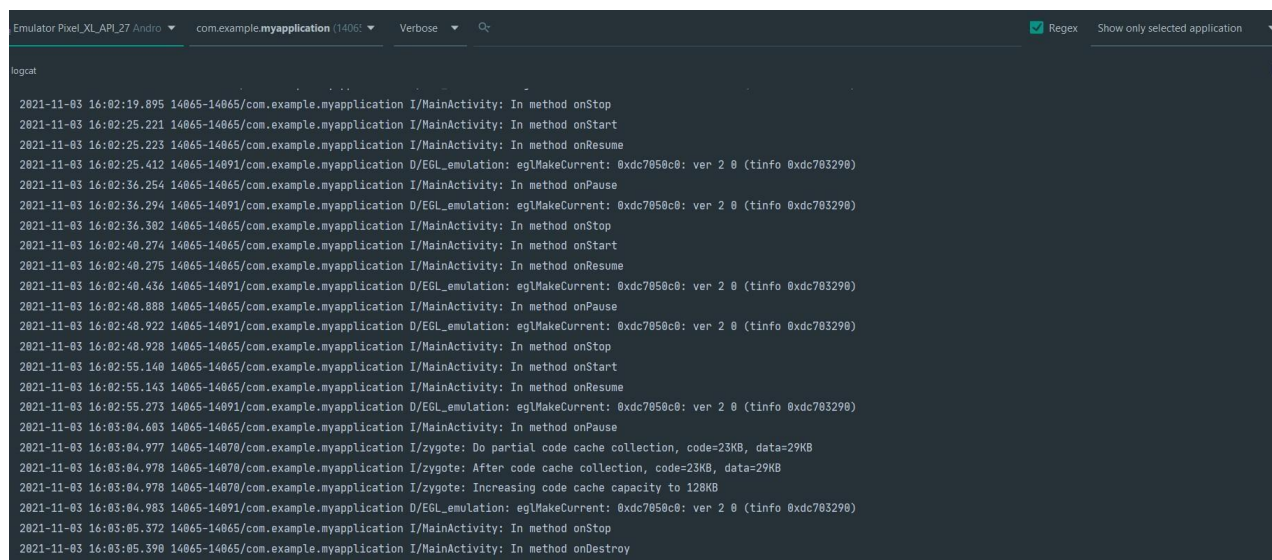
```
    }
    @Override
    protected void onStop() {
        super.onStop();
        Log.i(status,"In method onStop");
    }
    @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.i(status,"In method onDestroy");
    }
}
```

Output -

Question 9 - Create a program to show implicit intent.
Solution –
activity_main.xml

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

    <EditText
        android:id="@+id/et1"
        android:layout_width="365dp"
        android:layout_height="45dp"
        android:hint="Url"
        app:layout_constraintBottom_toTopOf="@+id/bt1"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.691" />
    <Button
        android:id="@+id/bt1"
        android:layout_width="348dp"
        android:layout_height="52dp"
        android:text="Search"
        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

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
    EditText et1;
    Button bt1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        et1=findViewById(R.id.et1);
        bt1=findViewById(R.id.bt1);
```

```
bt1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String url=et1.getText().toString();
        Intent i=new Intent(Intent.ACTION_VIEW, Uri.parse(url));
        startActivity(i);
    }
});
}

}
```

Output –

My Application

https://twitter.com

SEARCH

My Application

https://twitter.com

SEARCH

Open with Chrome

JUST ONCE   ALWAYS

Use a different app

WebView Browser Tester

Question 10 - Create a program to show explicit intent.
Solution –
activity_main.xml

Activity1
activity_main.xml

```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">

   <Button
      android:id="@+id/bt1"
      android:layout_width="348dp"
      android:layout_height="52dp"
      android:text="Next Activity"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```
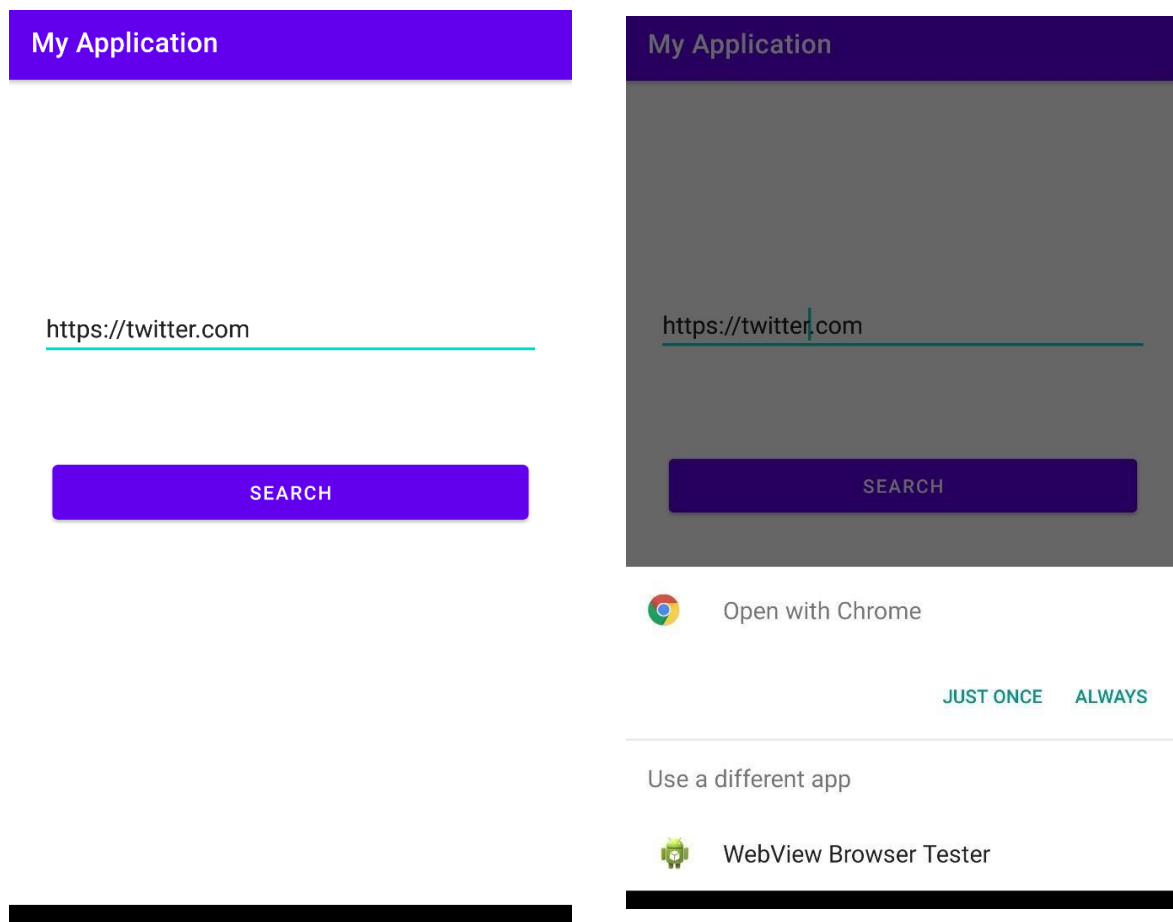
MainActivity.java

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {

   EditText et1;
   Button bt1;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      bt1=findViewById(R.id.bt1);
      bt1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            Intent i=new Intent(getApplicationContext(), Activity2.class);
          startActivity(i);
        }
      });
   }
```

}

Activity2

activity_main.xml

```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=".Activity2">
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Second Activity"
        android:textColor="#157FDC"
        android:textSize="34sp"
        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_toTopOf="parent"
        app:layout_constraintVertical_bias="0.332" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class Activity2 extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_2);
    }
}
```

Output –

My Application

Second Activity

My Application

NEXT ACTIVITY

Question 11 - Create a program to show text view and its attributes.
Solution –
activity_main.xml

```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:layout_width="209dp"
        android:layout_height="86dp"
        android:fontFamily="sans-serif-medium"
        android:gravity="center"
        android:text="Hello World!"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textSize="34sp"
        android:textStyle="italic"
        android:typeface="monospace"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class Activity2 extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_2);
    }
}
```

Output –

My Application

Hello World!

Question 12 - Create a program to depict fragment.
Solution –
activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <fragment
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:id="@+id/f1"
        android:layout_weight="1"
        android:name="com.example.myapplication.FirstFragment"/>
    <fragment
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:id="@+id/f2"
        android:layout_weight="1"
        android:name="com.example.myapplication.SecondFragment"/>
</LinearLayout>
```

MainActivity.java

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

fragment_first.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#FF03DAC5"
    tools:context=".FirstFragment">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="First Fragment"
        android:gravity="center"
        android:textSize="36sp"
        android:textStyle="bold"
        android:textColor="@color/white"/>
</FrameLayout>
```

FisrtFragment.java

```java
package com.example.myapplication;
import android.os.Bundle;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
public class FirstFragment extends Fragment {
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";
    private String mParam1;
    private String mParam2;
    public FirstFragment() {
    }
    public static FirstFragment newInstance(String param1, String param2) {
        FirstFragment fragment = new FirstFragment();
        Bundle args = new Bundle();
        args.putString(ARG_PARAM1, param1);
        args.putString(ARG_PARAM2, param2);
        fragment.setArguments(args);
        return fragment;
    }
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        if (getArguments() != null) {
            mParam1 = getArguments().getString(ARG_PARAM1);
            mParam2 = getArguments().getString(ARG_PARAM2);
        }
    }
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                    Bundle savedInstanceState) {

        return inflater.inflate(R.layout.fragment_first, container, false);
    }
}
```

fragment_second.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#FF03DAC5"
    tools:context=".SecondFragment">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Second Fragment"
        android:gravity="center"
        android:textSize="36sp"
        android:textStyle="bold"
        android:textColor="@color/black"/>
</FrameLayout>
```

SecondFragment.java

```java
package com.example.myapplication;
import android.os.Bundle;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
public class FirstFragment extends Fragment {
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";
    private String mParam1;
    private String mParam2;
    public FirstFragment() {
    }
    public static FirstFragment newInstance(String param1, String param2) {
        FirstFragment fragment = new FirstFragment();
        Bundle args = new Bundle();
        args.putString(ARG_PARAM1, param1);
        args.putString(ARG_PARAM2, param2);
        fragment.setArguments(args);
        return fragment;
    }
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        if (getArguments() != null) {
            mParam1 = getArguments().getString(ARG_PARAM1);
            mParam2 = getArguments().getString(ARG_PARAM2);
        }
    }
}
```

Output -

Question 13 - Create a program in android to show the use of array adapter.
Solution –
activtity_main.xml

```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">

    <ListView
        android:id="@+id/lv1"
        android:layout_width="350dp"
        android:layout_height="500dp"
        android:background="#AEEFED"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

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

MainActivity.java

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

```java
public class MainActivity extends AppCompatActivity {
    ListView lv1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        lv1=findViewById(R.id.lv1);
        String names[]={"Gaurav","Abhey","Yogi","Sachin","Naveen","Nitin","Sanket"};
        ArrayAdapter<String> ad=new ArrayAdapter<String>(this, R.layout.name_view, R.id.tv1, names);
        lv1.setAdapter(ad);
    }
}
```

```xml
name_view.xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/tv1"
        android:layout_gravity="center"
        android:textColor="@color/black"
        android:textSize="32sp"
        android:textStyle="bold"
        android:layout_marginStart="20dp"/>
</LinearLayout>
```

Output -

Array Adapter

Gaurav

Abhey

Yogi

Sachin

Naveen

Nitin

Sanket

Question 14 – Create a program to show a Toast.
Solution –
activity_main.xml

```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">
    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="#020101"
        android:text="Click for Toast"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.arrayadapter;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=findViewById(R.id.b1);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Toast.makeText(MainActivity.this, "Here is your Toast", Toast.LENGTH_LONG).show();
            }});}}
```

Output –

NAME – Pankaj Singh Bhandari

ROLLNO –1922040

Array Adapter

CLICK FOR TOAST

Here is your Toast

Question 15 - Implement the following designs using Tabular Layout in android.
Solution –
1.: Table.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >
    <TableRow
        android:layout_width="wrap_content"
        android:layout_height="match_parent">
        <TextView
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:id="@+id/tv1"
            android:text="Row 2\nColumn2"
            android:padding="18dp"
            android:gravity="center"
            android:textStyle="bold"
            android:textColor="@color/black"
            android:textSize="25sp"
            android:background="@drawable/border"/>
        <TextView
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:id="@+id/tv2"
            android:text="Row 2\nColumn2"
            android:textColor="@color/black"
            android:padding="18dp"
            android:gravity="center"
            android:textStyle="bold"
            android:textSize="25sp"
            android:background="@drawable/border"  />
        <TextView
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:id="@+id/tv3"
            android:text="Row 2\nColumn2"
            android:textColor="@color/black"
            android:padding="18dp"
            android:gravity="center"
            android:textStyle="bold"
            android:textSize="25sp"
            android:background="@drawable/border"/>
    </TableRow>
    <TableRow>
        <TextView
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:id="@+id/tv4"
            android:text="Row 2\nColumn2"
            android:textColor="@color/black"
            android:padding="18dp"
            android:gravity="center"
            android:textStyle="bold"
```

```
            android:textSize="25sp"
            android:layout_span="2"
            android:background="@drawable/border"/>
        <TextView
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:id="@+id/tv5"
            android:text="Row 2\nColumn2"
            android:textColor="@color/black"
            android:padding="18dp"
            android:gravity="center"
            android:textStyle="bold"
            android:textSize="25sp"
            android:background="@drawable/border"/>
    </TableRow>
    <TableRow>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_span="3"
            android:background="@drawable/border"
            android:gravity="center"
            android:padding="18dp"
            android:text="Row 3\nColumn1"
            android:textColor="@color/black"
            android:textSize="25sp"
            android:textStyle="bold" />
    </TableRow>
</TableLayout>
```

MainActivity.xml

```
package com.example.arrayadapter;
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.table);
    }
}
```

Output -

Array Adapter		
Row 2 Column2	Row 2 Column2	Row 2 Column2
Row 2 Column2		Row 2 Column2
Row 3 Column1		

2. : table.xml

```xml
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TableRow
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:layout_gravity="center"
        >
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:background="@drawable/border"
            android:gravity="center"
            android:paddingTop="30dp"
            android:paddingBottom="30dp"
            android:paddingStart="70dp"
            android:paddingEnd="70dp"
            android:text="Weather Table"
            android:textColor="@color/black"
            android:textSize="40sp"
            android:textStyle="bold"
            android:layout_span="6"/>
    </TableRow>
    <TableRow>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:background="@drawable/border"
            android:gravity="center"
            android:padding="18dp"
            android:text=""
            android:paddingStart="52dp"
            android:paddingEnd="52dp"
            android:textColor="@color/black"
            android:textSize="32sp"
            />
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="match_parent"
            android:background="@drawable/border"
            android:gravity="center"
            android:padding="18dp"
            android:text="Feb 7"
            android:paddingStart="60dp"
            android:paddingEnd="60dp"
            android:textColor="@color/black"
            android:textSize="30sp"
            />
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="match_parent"
            android:background="@drawable/border"
```

```
        android:gravity="center"
        android:padding="18dp"
        android:text="Feb 8"
        android:paddingStart="60dp"
        android:paddingEnd="60dp"
        android:textColor="@color/black"
        android:textSize="30sp"
        />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:text="Feb 9"
        android:paddingStart="60dp"
        android:paddingEnd="60dp"
        android:textColor="@color/black"
        android:textSize="30sp"
        />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:text="Feb 10"
        android:paddingStart="60dp"
        android:paddingEnd="60dp"
        android:textColor="@color/black"
        android:textSize="30sp"
        />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:text="Feb 11"
        android:paddingStart="60dp"
        android:paddingEnd="60dp"
        android:textColor="@color/black"
        android:textSize="30sp"
        />
  </TableRow>
  <TableRow>
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:text="Day High"
        android:paddingStart="52dp"
        android:paddingEnd="52dp"
        android:textColor="@color/black"
```

```
      android:textSize="32sp"
      android:textStyle="bold" />
  <TextView
      android:layout_width="wrap_content"
      android:layout_height="match_parent"
      android:background="@drawable/border"
      android:gravity="center"
      android:padding="18dp"
      android:paddingStart="60dp"
      android:paddingEnd="60dp"
      android:text="28\u2109"
      android:textColor="@color/black"
      android:textSize="32sp" />
  <TextView
      android:layout_width="wrap_content"
      android:layout_height="match_parent"
      android:background="@drawable/border"
      android:gravity="center"
      android:padding="18dp"
      android:paddingStart="70dp"
      android:paddingEnd="70dp"
      android:text="26\u2109"
      android:textColor="@color/black"
      android:textSize="32sp" />
  <TextView
      android:layout_width="wrap_content"
      android:layout_height="match_parent"
      android:background="@drawable/border"
      android:gravity="center"
      android:padding="18dp"
      android:paddingStart="70dp"
      android:paddingEnd="70dp"
      android:text="23\u2109"
      android:textColor="@color/black"
      android:textSize="32sp"/>
  <TextView
      android:layout_width="wrap_content"
      android:layout_height="match_parent"
      android:background="@drawable/border"
      android:gravity="center"
      android:padding="18dp"
      android:paddingStart="60dp"
      android:paddingEnd="60dp"
      android:text="17\u2109"
      android:textColor="@color/black"
      android:textSize="32sp" />
  <TextView
      android:layout_width="wrap_content"
      android:layout_height="match_parent"
      android:background="@drawable/border"
      android:gravity="center"
      android:padding="18dp"
      android:paddingStart="60dp"
      android:paddingEnd="60dp"
      android:text="19\u2109"
      android:textColor="@color/black"
```

```xml
        android:textSize="32sp"/>
    </TableRow>
    <TableRow>
      <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:text="Day Low"
        android:paddingStart="52dp"
        android:paddingEnd="52dp"
        android:textColor="@color/black"
        android:textSize="32sp"
        android:textStyle="bold"  />
      <TextView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:paddingStart="60dp"
        android:paddingEnd="60dp"
        android:text="15\u2109"
        android:textColor="@color/black"
        android:textSize="32sp" />
      <TextView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:paddingStart="70dp"
        android:paddingEnd="70dp"
        android:text="14\u2109"
        android:textColor="@color/black"
        android:textSize="32sp" />
      <TextView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:paddingStart="70dp"
        android:paddingEnd="70dp"
        android:text="3\u2109"
        android:textColor="@color/black"
        android:textSize="32sp"/>
      <TextView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:background="@drawable/border"
        android:gravity="center"
        android:padding="18dp"
        android:paddingStart="60dp"
        android:paddingEnd="60dp"
```

```xml
            android:text="5\u2109"
            android:textColor="@color/black"
            android:textSize="32sp" />
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="match_parent"
            android:background="@drawable/border"
            android:gravity="center"
            android:padding="18dp"
            android:paddingStart="60dp"
            android:paddingEnd="60dp"
            android:text="6\u2109"
            android:textColor="@color/black"
            android:textSize="32sp"/>

    </TableRow>
    <TableRow>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:background="@drawable/border"
            android:gravity="center"
            android:text="Conditions"
            android:paddingTop="60dp"
            android:paddingBottom="60dp"
            android:paddingStart="52dp"
            android:paddingEnd="52dp"
            android:textColor="@color/black"
            android:textSize="32sp"
            android:textStyle="bold"  />
        <ImageView
            android:layout_width="150dp"
            android:layout_height="match_parent"
            android:src="@drawable/sun2"
            android:background="@drawable/border"/>
        <ImageView
            android:layout_width="150dp"
            android:layout_height="match_parent"
            android:src="@drawable/cloud"
            android:background="@drawable/border"/>
        <ImageView
            android:layout_width="150dp"
            android:layout_height="match_parent"
            android:src="@drawable/snow"
            android:background="@drawable/border"/>
        <ImageView
            android:layout_width="150dp"
            android:layout_height="match_parent"
            android:src="@drawable/snow"
            android:background="@drawable/border"/>
        <ImageView
            android:layout_width="150dp"
            android:layout_height="match_parent"
            android:src="@drawable/cloud"
            android:background="@drawable/border"/>
    </TableRow>
```

</TableLayout>

MainActivity.java

```
package com.example.arrayadapter;
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.table);
    }}
```

Output -

Weather Table

	Feb 7	Feb 8	Feb 9	Feb 10	Feb 11
Day High	28°F	26°F	23°F	17°F	19°F
Day Low	15°F	14°F	3°F	5°F	6°F
Conditions	☀	⛅	🌨	🌨	⛅

3.: activity_main.xml

```xml
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/tv1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Login Form"
        android:textColor="#FF018786"
        android:gravity="center"
        android:textSize="24sp"
        android:textStyle="bold"
        android:layout_marginTop="10dp"/>
    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="150dp"
```

```xml
        android:layout_below="@+id/tv1"
        android:id="@+id/tl1"
        android:paddingTop="30dp">
        <TableRow
            android:layout_height="wrap_content"
            android:layout_width="wrap_content">
            <TextView
                android:layout_height="wrap_content"
                android:layout_width="wrap_content"
                android:text="User Name"
                android:textColor="@color/black"
                android:textSize="18sp"
                android:layout_marginStart="15dp"/>
            <EditText
                android:layout_width="275dp"
                android:layout_height="wrap_content"
                android:hint="User Name"
                android:layout_marginStart="20dp"/>
        </TableRow>
        <TableRow
            android:layout_height="wrap_content"
            android:layout_width="wrap_content">
            <TextView
                android:layout_height="wrap_content"
                android:layout_width="wrap_content"
                android:text="Password"
                android:textColor="@color/black"
                android:textSize="18sp"
                android:layout_marginStart="15dp"/>
            <EditText
                android:layout_width="275dp"
                android:layout_height="wrap_content"
                android:hint="Password"
                android:layout_marginStart="20dp"/>
        </TableRow>
    </TableLayout>
    <Button
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:id="@+id/bt1"
        android:layout_centerHorizontal="true"
        android:text="Log In"
        android:layout_below="@+id/tl1"
        android:backgroundTint="#FF018786"
        android:layout_marginTop="30dp"/>
</RelativeLayout>
```

MainActivity.java

```java
package com.example.tabularlayout;
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 –

Tabular Layout

Login Form

User Name	User Name
Password	Password

LOG IN

Question 16 - Create a program in android to demonstrate Event Handlers and Event Listeners.
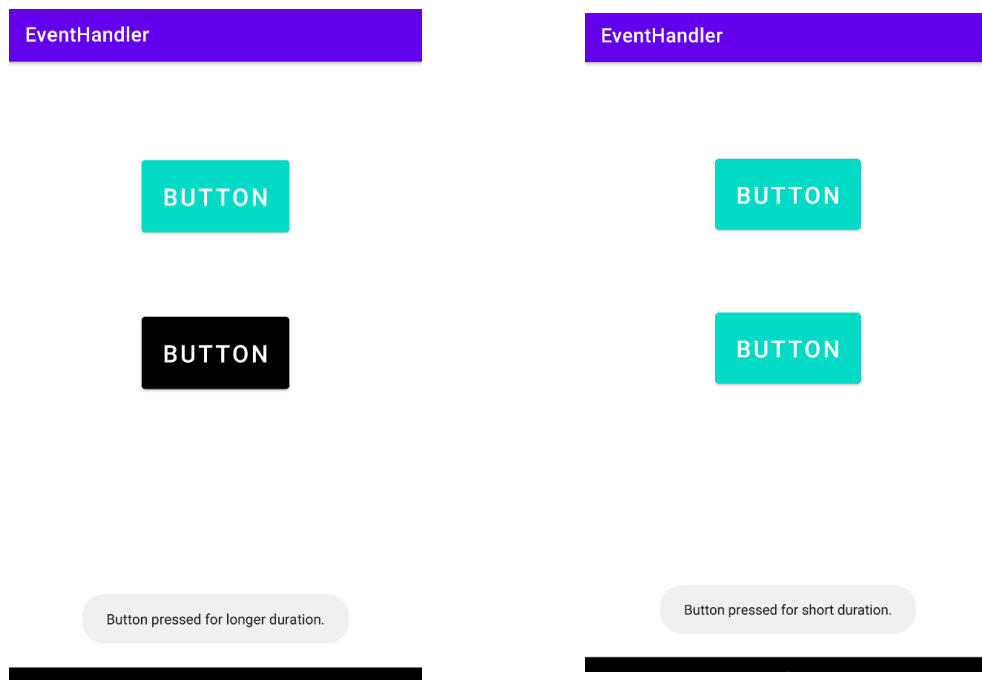## Solution –
activity_main.xml

```xml
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/bt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="92dp"
        android:backgroundTint="@color/black"
        android:padding="20dp"
        android:text="Button"
        android:textSize="24sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <Button
        android:id="@+id/bt2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="72dp"
        android:backgroundTint="@color/black"
        android:padding="20dp"
        android:text="Button"
        android:textSize="24sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/bt1" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.eventhandler;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    Button bt1;
    Button bt2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
bt1=findViewById(R.id.bt1);
bt2=findViewById(R.id.bt2);
bt1.setOnLongClickListener(new View.OnLongClickListener() {
    @Override
    public boolean onLongClick(View view) {
        bt1.setBackgroundColor(Color.parseColor("#FF03DAC5"));
        Toast.makeText(getApplicationContext(),"Button pressed for longer
duration.",Toast.LENGTH_LONG).show();
        return false;
    }
});
bt2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        bt2.setBackgroundColor(Color.parseColor("#FF03DAC5"));
        Toast.makeText(getApplicationContext(),"Button pressed for short duration.",
Toast.LENGTH_LONG).show();          }}); }}
```

Output –

EventHandler

BUTTON

BUTTON

Question 17 - Create an android application to insert an audio and play it using Media Player Class.
Solution –
activity_main.xml

```xml
<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">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="600dp"
        android:gravity="center"
        android:orientation="horizontal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toTopOf="parent">
        <ImageView
            android:id="@+id/imageView"
            android:layout_width="50dp"
            android:layout_height="50dp"
            android:background="#4A4A4A"
            android:onClick="pause"
            app:srcCompat="@android:drawable/ic_media_pause"
            tools:layout_editor_absoluteX="47dp"
            tools:layout_editor_absoluteY="498dp" />
        <ImageView
            android:id="@+id/imageView2"
            android:layout_width="50dp"
            android:layout_height="50dp"
            android:layout_marginStart="20dp"
            android:layout_marginEnd="20dp"
            android:background="#3E3D3D"
            android:onClick="play"
            app:srcCompat="@android:drawable/ic_media_play"
            tools:layout_editor_absoluteX="162dp"
            tools:layout_editor_absoluteY="498dp" />
```

```
    <ImageView
        android:id="@+id/imageView3"
        android:layout_width="50dp"
        android:layout_height="50dp"
        android:onClick="stop"
        app:srcCompat="@android:drawable/btn_dialog"
        tools:layout_editor_absoluteX="287dp"
        tools:layout_editor_absoluteY="498dp" />
    </LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.eventhandler;
import androidx.appcompat.app.AppCompatActivity;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    MediaPlayer player;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void play(View view)
    {
        if(player==null)
        {
            player=MediaPlayer.create(this,R.raw.teejiseat);
        }
        player.start();
    }
    public void pause(View view)
    {
        if(player!=null)
        {
            player.pause();
    } }
    public void stop(View view)
    {
        StopPlayer();    }
    public void StopPlayer(){
        if(player!=null)
        {
            player.release();
            player=null;
            Toast.makeText(this, "Media Player is released",Toast.LENGTH_LONG).show();
        }
    }}
```

Output –

Question 18 - Create an application in android to play a video and add some video controls using Media Controller class.
Solution –
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">
    <VideoView
        android:layout_width="wrap_content"
android:layout_height="wrap_content"        app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent" app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent"
android:id="@+id/v21"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.videoplayer;
import androidx.appcompat.app.AppCompatActivity;
import android.net.Uri; import android.os.Bundle; import android.widget.MediaController; import
android.widget.VideoView;
public class MainActivity extends AppCompatActivity {
VideoView v1;     @Override
    protected void onCreate(Bundle savedInstanceState) {        super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
        v1=findViewById(R.id.v21);
        String path
="android.resource://"+getPackageName()+"/"+R.raw.videoplayback;
        Uri u = Uri.parse(path);        v1.setVideoURI(u);
        MediaController m = new MediaController(this);
v1.setMediaController(m);
        m.setAnchorView(v1);
}}
```

Output –

Videoplayer

Question 19 - Create a program in android to display all the built-in sensors of emulator/machine.
Solution –
activity_main.xml

```
<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">
<ScrollView
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/tv1"
        android:text=""
        android:lineSpacingExtra="20dp"
        android:textSize="24sp"
        android:textColor="@color/black"
        android:textAlignment="center"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</ScrollView>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.sensors;
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.hardware.Sensor;
import android.hardware.SensorManager;
import android.os.Bundle;
import android.widget.TextView;
import java.util.List;
public class MainActivity extends AppCompatActivity {
    TextView tv1;
    SensorManager sm;
    int i;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv1=findViewById(R.id.tv1);
        sm=(SensorManager)getSystemService(SENSOR_SERVICE);
        List<Sensor>  mList=sm.getSensorList(Sensor.TYPE_ALL);
        for (i = 1; i<mList.size(); i++)
        {
            tv1.append("\n"+mList.get(i).getName());
        }
    }
}
```

Output –

Sensors

Goldfish 3-axis Gyroscope

Goldfish 3-axis Magnetic field sensor

Goldfish Orientation sensor

Goldfish Temperature sensor

Goldfish Proximity sensor

Goldfish Light sensor

Goldfish Pressure sensor

Goldfish Humidity sensor

Goldfish 3-axis Magnetic field sensor

(uncalibrated)

Game Rotation Vector Sensor

GeoMag Rotation Vector Sensor

Question 20 - Create an application in android to fetch data from one application's database into another's using content provider.
Solution –
activity_main.xml

```
<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">
   <ScrollView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintHorizontal_bias="1.0"
      app:layout_constraintLeft_toLeftOf="parent"
      app:layout_constraintRight_toRightOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintVertical_bias="1.0">
      <Button
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:text="View Contacts"
         android:layout_gravity="center"
         android:onClick="Contacts"
         android:backgroundTint="@color/black"/>
   </ScrollView>
</androidx.constraintlayout.widget.ConstraintLayout>
```
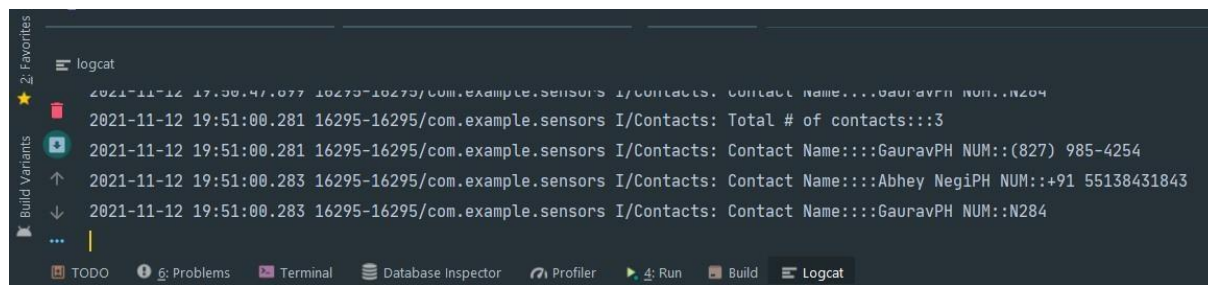
MainActivity.java

```
package com.example.sensors;
public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
```

```java
    setContentView(R.layout.activity_main);
  }
  public void Contacts(View view)
  {
    getContacts();
  }
  public void getContacts()
  {
    if (ContextCompat.checkSelfPermission(this, Manifest.permission.READ_CONTACTS)!=
PackageManager.PERMISSION_GRANTED)
    {
      ActivityCompat.requestPermissions(this,new String[]{Manifest.permission.READ_CONTACTS},0);
    }
    ContentResolver contentResolver=getContentResolver();
    Uri uri= ContactsContract.CommonDataKinds.Phone.CONTENT_URI;
    Cursor cursor=contentResolver.query(uri,null,null,null,null);
    Log.i("Contacts","Total # of contacts:::"+Integer.toString(cursor.getCount()));
    if (cursor.getCount()>0)
    {
      while (cursor.moveToNext()){
        String
contactName=cursor.getString(cursor.getColumnIndex(ContactsContract.CommonDataKinds.Phone.DISPLAY
_NAME));
        String
contactNum=cursor.getString(cursor.getColumnIndex(ContactsContract.CommonDataKinds.Phone.NUMBER)
);
        Log.i("Contacts","Contact Name::::"+contactName+"PH NUM::"+contactNum); }
    } } }
```

AndroidManifest.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
  package="com.example.sensors">
  <uses-permission android:name="android.permission.READ_CONTACTS"/>
  <uses-permission android:name="android.permission.WRITE_CONTACTS"/>
  <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.Sensors">
    <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 –

Question 21 - Create an android application to show Internal storage.
Solution –
activity_main.xml

```xml
<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:backgroundTint="@color/white"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/tv1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="24dp"
        android:text="Internal Storage"
        android:textColor="#673AB7"
        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/et1"
        android:layout_width="350dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="96dp"
        android:textColor="@color/black"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.491"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/tv1" />
    <Button
        android:id="@+id/bt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
    android:layout_marginStart="76dp"
    android:layout_marginBottom="140dp"
    android:backgroundTint="#090909"
    android:text="Save"
    android:textSize="18sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/et1"
    app:layout_constraintVertical_bias="0.323" />
<Button
    android:id="@+id/bt2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginEnd="76dp"
    android:layout_marginBottom="140dp"
    android:backgroundTint="#090909"
    android:text="Load"
    android:textSize="18sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/et1"
    app:layout_constraintVertical_bias="0.323" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    EditText et1;
    TextView tv1;
    Button bt1, bt2;
    String data;
    private String file="My Data";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        et1=findViewById(R.id.et1);
        tv1=findViewById(R.id.tv1);
        bt1=findViewById(R.id.bt1);
        bt2=findViewById(R.id.bt2);
        bt1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                data=et1.getText().toString();
                try {
                    FileOutputStream fout=openFileOutput(file, Context.MODE_PRIVATE);
                    fout.write(data.getBytes());
                    Toast.makeText(getBaseContext(),"Save",Toast.LENGTH_SHORT).show();
                }
                catch (Exception e){
                    e.printStackTrace();
                }
            }
        });
```

```
bt2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        try {
            FileInputStream fin = openFileInput(file);
            int c;
            String temp = "";
            while ((c = fin.read()) != -1) {
                temp = temp + Character.toString((char) c);
            }
            tv1.setText(temp);
            Toast.makeText(getBaseContext(), "Loaded", Toast.LENGTH_SHORT).show();
        }
        catch (Exception e){
            e.printStackTrace();
        }}});}}
```
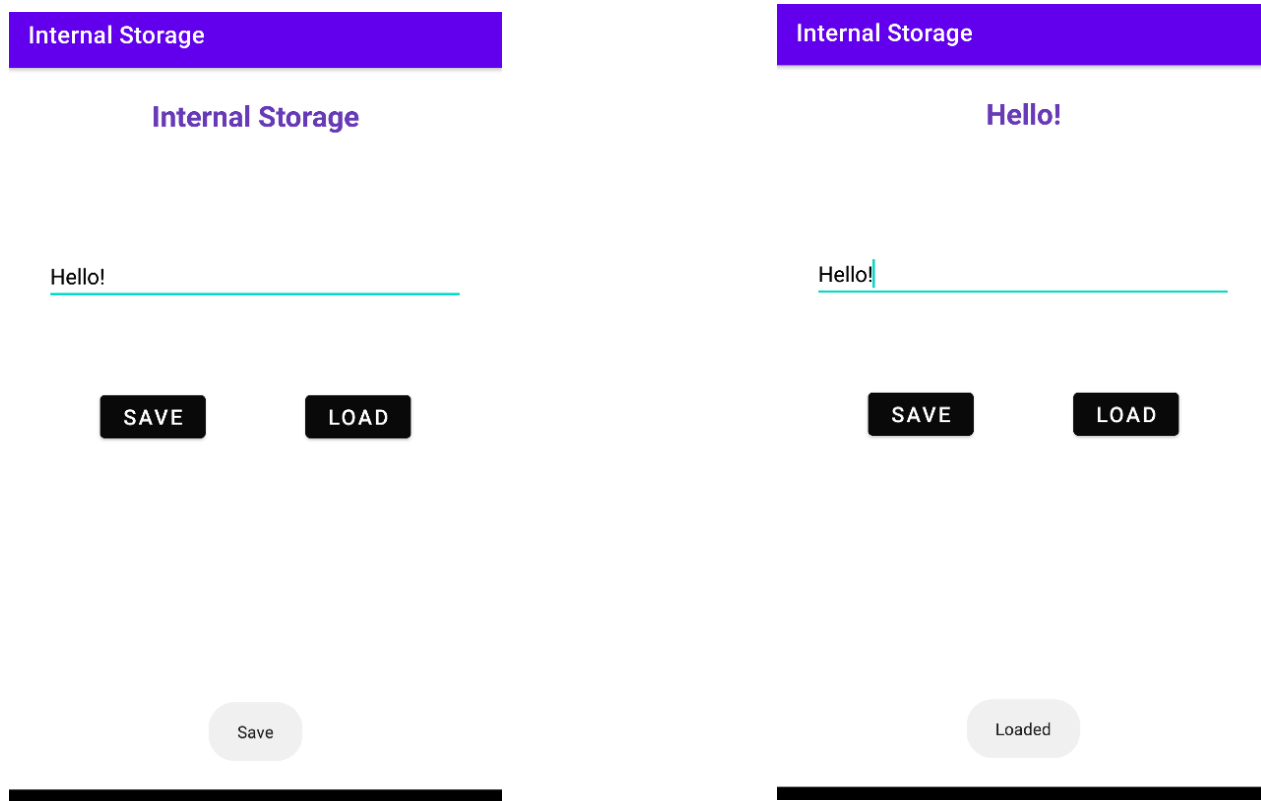
Output –

Internal Storage

Internal Storage

SAVE   LOAD

Internal Storage

Internal Storage

Hello!

SAVE   LOAD

Save

Internal Storage

Hello!

Hello!

SAVE   LOAD

Loaded

Question 22 - Create an application to show shared preferences.
Solution –
activity_main.xml

```
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <EditText
      android:id="@+id/et1"
      android:layout_width="350dp"
      android:layout_height="wrap_content"
      android:layout_marginTop="60dp"
      android:text=""
      android:hint="Name"
      android:textColor="@color/black"
      app:layout_constraintLeft_toLeftOf="parent"
      app:layout_constraintRight_toRightOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
   <EditText
      android:id="@+id/et2"
      android:layout_width="350dp"
      android:layout_height="wrap_content"
      android:layout_marginTop="65dp"
```

```xml
        android:text=""
        android:hint="Phone Number"
        android:textColor="@color/black"
        app:layout_constraintHorizontal_bias="0.491"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="@+id/et1" />
    <EditText
        android:id="@+id/et3"
        android:layout_width="350dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="65dp"
        android:hint="Email"
        android:text=""
        android:textColor="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintHorizontal_bias="0.508"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="@+id/et2"
        app:layout_constraintVertical_bias="0.008" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```java
package com.example.sharedpreferences;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    EditText  et1,et2,et3;
    SharedPreferences sharedPreferences;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        et1=findViewById(R.id.et1);
        et2=findViewById(R.id.et2);
        et3=findViewById(R.id.et3);
    }
    @Override
    protected void onResume(){
        super.onResume();
        SharedPreferences sharedPreferences=getSharedPreferences("MyPREFERENCES",MODE_PRIVATE);
        String n=sharedPreferences.getString("et1","");
        String pn=sharedPreferences.getString("et2","");
        String e=sharedPreferences.getString("et3","");
        et1.setText(n);
        et2.setText(pn);
        et3.setText(e);
    }
    @Override
    protected void onPause(){
        super.onPause();
        SharedPreferences sharedPreferences=getSharedPreferences("MyPREFERENCES",MODE_PRIVATE);
        SharedPreferences.Editor   editor=sharedPreferences.edit();
        editor.putString("et1",et1.getText().toString());
```

```
        editor.putString("et2",et2.getText().toString());
        editor.putString("et3",et3.getText().toString());
        editor.apply();
        Toast.makeText(MainActivity.this, "Data is Saved", Toast.LENGTH_SHORT).show();
    }
}
```

Output –

Shared Preferences

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Question 23 - Create a program in android to show CRUD operations using SQLite Databases and cursor.
Solution –
activity_main.xml

```xml
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/ed1"
        android:hint="Enter Data"/>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_gravity="center"
        android:gravity="center">
        <Button
```

```xml
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Insert"
        android:onClick="insert"
        android:layout_margin="10dp"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Read"
        android:onClick="read"
        android:layout_margin="10dp"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Delete"
        android:onClick="delete"
        android:layout_margin="10dp"/>
  </LinearLayout>
  <TextView
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Click on read to load data."
      android:gravity="center"
      android:id="@+id/display"/>
</RelativeLayout>
```

MainActivity.java

```java
import androidx.appcompat.app.AppCompatActivity;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.icu.text.UnicodeSetSpanner;
import android.os.Bundle;
import  android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    SQLiteDatabase db;
    Cursor c;
    TextView display;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        db= openOrCreateDatabase("mydb",MODE_PRIVATE,null);
        db.execSQL("create table if not exists stud(name varchar2(200) not null)");
    }
    public void insert(View view){
        String name="";
        EditText ed = (EditText) findViewById(R.id.ed1);
        name = ed.getText().toString();
        db.execSQL("insert into stud(name) values(\""+name+"\")");
    }
```

```java
public  void read(View view){
    String sql = "Select * from stud";
    display = findViewById(R.id.display);
    try{
        c = db.rawQuery(sql,null);
        if(c.getCount()==0){
            display.setText("No data");
        }
        else{
            c.moveToFirst();
            String name = c.getString(0);
            display.setText(name);
        }
    }
    catch(Exception e){
        e.printStackTrace();
    }
}
public void delete(View view){
    try {
        String sql = "delete from stud";
        db.execSQL(sql);
    }
    catch(Exception e){
        e.printStackTrace();
    }
}
}
```

Output –

crud

Hello

INSERT   READ   DELETE

Hello

Question 24- Create a program to depict Bluetooth Adapter class.
Solution –
activity_main.xml

```xml
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:transitionGroup="true">
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="2dp"
        android:layout_marginTop="2dp"
        android:layout_marginEnd="103dp"
        android:layout_marginRight="103dp"
        android:clickable="true"
        android:onClick="on"
        android:text="Turn On" />
    <Button
```

```
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBottom="@+id/button"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="2dp"
        android:layout_marginEnd="160dp"
        android:layout_marginBottom="1dp"
        android:onClick="visible"
        android:text="Get visible" />
    <Button
        android:id="@+id/button3"
        android:layout_width="124dp"
        android:layout_height="38dp"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_marginStart="74dp"
        android:layout_marginLeft="74dp"
        android:layout_marginTop="4dp"
        android:layout_marginEnd="15dp"

  android:onClick="list"
        android:text="List devices" />
    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
        android:layout_height="37dp"
        android:layout_below="@+id/button"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:onClick="off"
        android:text="turn off" />
    <ListView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/listView"
        android:layout_alignParentBottom="true"
        android:layout_alignLeft="@+id/button"
        android:layout_alignStart="@+id/button"
        android:layout_below="@+id/textView2" />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Paired devices:"
        android:id="@+id/textView2"
        android:textColor="#ff34ff06"
        android:textSize="25dp"
        android:layout_below="@+id/button4"
        android:layout_alignLeft="@+id/listView"
        android:layout_alignStart="@+id/listView" />
</RelativeLayout>
```

MainActivity.java

```java
package com.example.bluetooth;
import androidx.appcompat.app.AppCompatActivity;
import android.bluetooth.BluetoothAdapter;
import android.bluetooth.BluetoothDevice;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import  android.widget.Button;
import android.widget.ListView;
import android.widget.Toast;
import java.util.ArrayList;
import java.util.Set;
public class MainActivity extends AppCompatActivity {
  Button b1,b2,b3,b4;
   private BluetoothAdapter BA;
    private Set<BluetoothDevice> pairedDevices;
   ListView lv;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
       super.onCreate(savedInstanceState);
       setContentView(R.layout.activity_main);
       b1 = (Button) findViewById(R.id.button);
       b2=(Button)findViewById(R.id.button2);
       b3=(Button)findViewById(R.id.button3);
       b4=(Button)findViewById(R.id.button4);
       BA = BluetoothAdapter.getDefaultAdapter();
       lv = findViewById(R.id.listView);
   }
   public void on(View v){
       if (!BA.isEnabled()) {
          Intent turnOn = new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);
         onActivityResult(0,0,turnOn);
          Toast.makeText(getApplicationContext(), "Turned on",Toast.LENGTH_LONG).show();
       } else {
          Toast.makeText(getApplicationContext(), "Already on", Toast.LENGTH_LONG).show();
       }
   }
   public void off(View v){
       BA.disable();
       Toast.makeText(getApplicationContext(), "Turned off" ,Toast.LENGTH_LONG).show();
   }

   public  void visible(View v){
       Intent getVisible = new Intent(BluetoothAdapter.ACTION_REQUEST_DISCOVERABLE);
       onActivityResult(0,0,getVisible);
   }

   public void list(View v){
       pairedDevices = BA.getBondedDevices();
       ArrayList list = new ArrayList();
       for(BluetoothDevice bt : pairedDevices) list.add(bt.getName());
       Toast.makeText(getApplicationContext(), "Showing Paired Devices",Toast.LENGTH_SHORT).show();

       final ArrayAdapter adapter = new ArrayAdapter(this,android.R.layout.simple_list_item_1, list);
       lv.setAdapter(adapter);
```
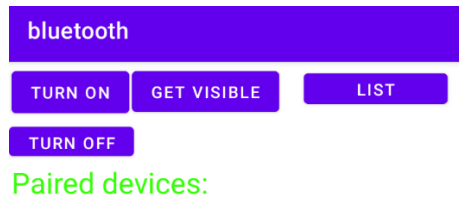
```
  }
}
```

Output –

bluetooth

TURN ON   GET VISIBLE   LIST

TURN OFF

Paired devices:

Question 25 - Create a Google Maps application using android.
Solution –
MainActivity.java

package com.example.googlemap;
import androidx.fragment.app.FragmentActivity;
import android.os.Bundle;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import   com.google.android.gms.maps.model.MarkerOptions;
import com.example.googlemap.databinding.ActivityMapsBinding;
public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {
    private GoogleMap mMap;
    private ActivityMapsBinding binding;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        binding = ActivityMapsBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());
        // Obtain the SupportMapFragment and get notified when the map is ready to be used.
        SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()
                .findFragmentById(R.id.map);
```

```java
      mapFragment.getMapAsync(this);
   }
   @Override
   public void onMapReady(GoogleMap googleMap) {
      mMap = googleMap;
      mMap.setMapType(GoogleMap.MAP_TYPE_HYBRID);
      LatLng India = new LatLng(30.183472, 78.174234);
      mMap.addMarker(new MarkerOptions().position(India).title("Marker in Sydney"));
      mMap.moveCamera(CameraUpdateFactory.newLatLng(India));
   }
}
```

AndroidManifest.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
   package="com.example.googlemap">
   <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
   <uses-permission android:name="android.permission.INTERNET"/>
   <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
   <uses-permission android:name="android.permission.REQUEST_INSTALL_PACKAGES"/>
   <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.GoogleMap">
      <meta-data
         android:name="com.google.android.geo.API_KEY"
         android:value="@string/google_maps_key" />
      <activity
         android:name=".MapsActivity"
         android:label="@string/title_activity_maps">
         <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
         </intent-filter>
      </activity>
   </application>
</manifest>
```

Output -

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