Question 1 - Create a basic Hello World program. 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">
  <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

```
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

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

activity _main.xml

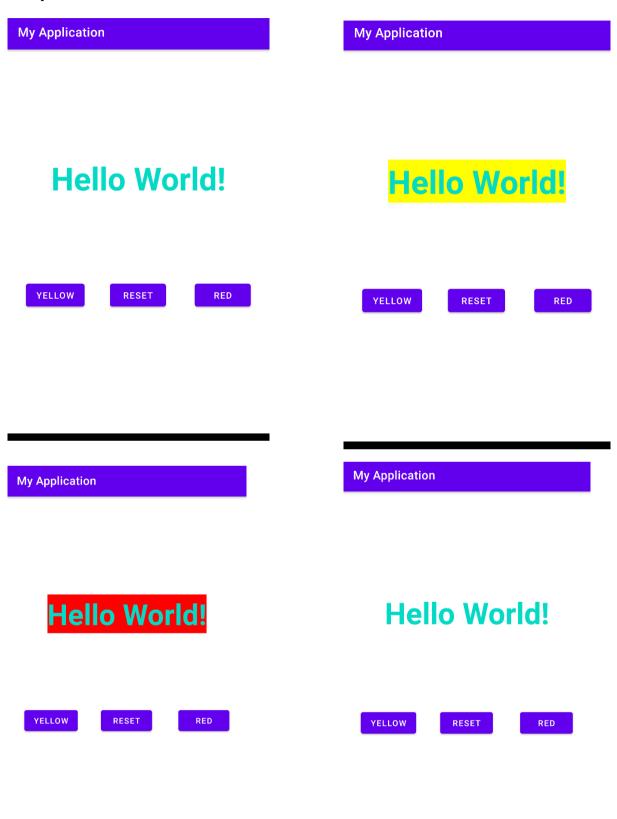
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:lavout width="match parent"
  android:layout height="match parent"
  tools:context=".MainActivity">
  <TextView
    android:id="@+id/TextView1"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:background="#FFFFFFF"
    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" />
```

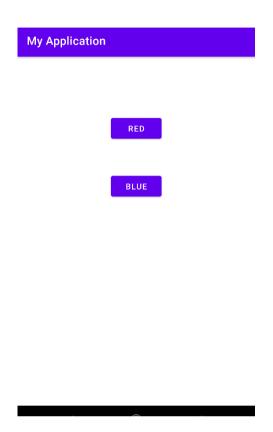
</androidx.constraintlayout.widget.ConstraintLayout>

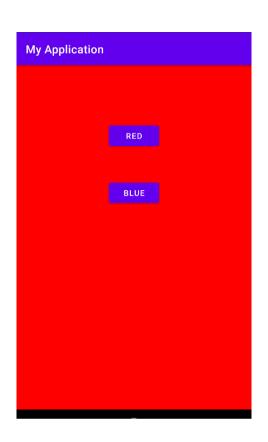
```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color:
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
  @Override
  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=findViewBvId(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);
    });
  }
}
```

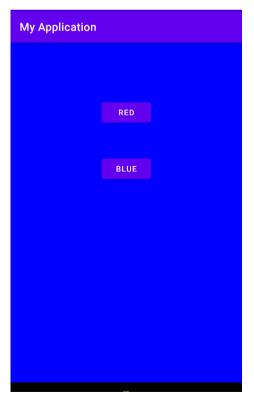


Question 3 - Create a simple app to change background colour on button click. Solution – activity_main.xml

```
<?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:lavout 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:lavout alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="53dp"
    android:layout marginBottom="383dp"
    android:text="Reset"/>
</RelativeLayout>
```







Question 4 - Create a simple app to add two numbers. 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">
  <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"
```

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

</androidx.constraintlayout.widget.ConstraintLayout>

```
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=findViewBvId(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));
    });
  }
}
```

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 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"
```

```
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>

```
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);
```

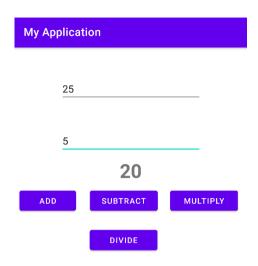
}

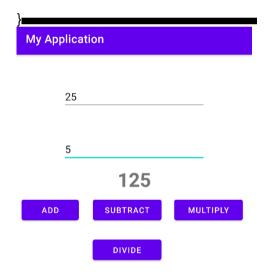
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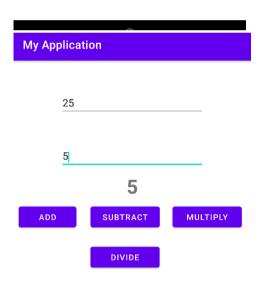
```
setContentView(R.layout.activity main);
EditText value1, value2;
TextView result:
Button b1,b2,b3,b4;
value1=findViewById(R.id.et1);
value2=findViewById(R.id.et2);
result=findViewById(R.id.tv1);
b1=findViewById(R.id.b1);
b2=findViewById(R.id.b2);
b3=findViewById(R.id.b3);
b4=findViewById(R.id.b4);
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));
});
```

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My Applicat	ion	
Enter	First value	
Enter	Second value	
ADD	SUBTRACT	MULTIPLY
	DIVIDE	







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My Applicat	iion	
25		
5		
	30	
ADD	SUBTRACT	MULTIPLY
	DIVIDE	

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

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlavout.widget.ConstraintLavout
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">
  < Image View
    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

```
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);
  }
}
```

My Application



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

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlavout.widget.ConstraintLavout
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">
  < Image View
    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

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;

```
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 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:lavout 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>
```

```
package com.example.mvapplication:
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");
```

ROLLNO -1922040

```
}
@Override
protected void onStop() {
    super.onStop();
    Log.i(status,"In method onStop");
}
@Override
protected void onDestroy() {
    super.onDestroy();
    Log.i(status,"In method onDestroy");
}
```

```
Legaz Comexample.myapplication [1402 * Verbose * Cr Verbo
```

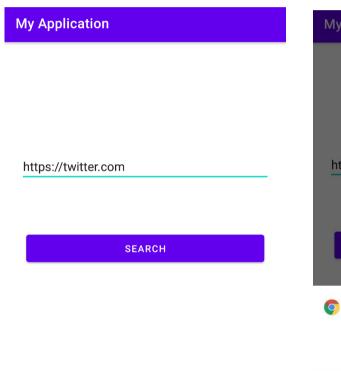
Question 9 - Create a program to show implicit intent. Solution – activity_main.xml

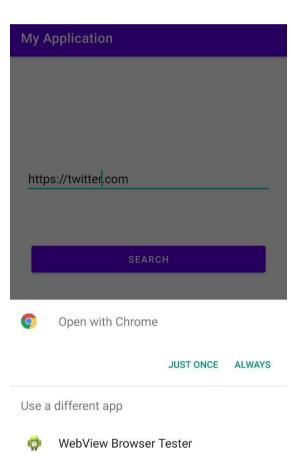
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout width="match parent"
  android:layout height="match parent"
  tools:context=".MainActivity">
  <EditText
    android:id="@+id/et1"
    android:lavout 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>
```

```
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);
```

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```
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);
    }
});
}
```





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

Activity1

```
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">
  <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>
```

```
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);
    });
```

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}

Activity2

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=".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:textStvle="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>
```

```
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);
    }
}
```

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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 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:lavout constraintBottom toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout constraintRight toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

```
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);
    }
}
```

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Output -

My Application

Hello World!

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

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

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

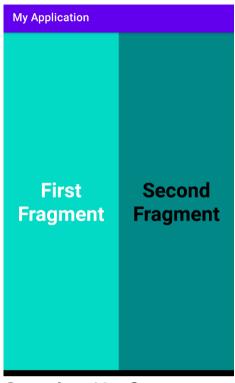
package com.example.myapplication;

FisrtFragment.java

```
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 on Create View (Layout Inflater inflater, View Group container,
                 Bundle savedInstanceState) {
    return inflater.inflate(R.layout.fragment_first, container, false);
  }
}
fragment_second.xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  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

```
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);
    }
  }
```



Question 13 - Create a program in android to show the use of array adapter. Solution – activtity_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">
  <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

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

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```
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);
}
name view.xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"</p>
  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>
```

Array Adapter			
	Gaurav		
	Abhey		
	Yogi		
	Sachin		
	Naveen		
	Nitin		
	Sanket		

Question 14 – Create a program to show a Toast. 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"</pre>

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```
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();
       }});}}
```

CLICK FOR TOAST

Here is your Toast

Question 15 - Implement the following designs using Tabular Layout in android. Solution –

1.: Table.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);
    }
}
```

<u> </u>		
Array Adapte	r	
Row 2 Column2	Row 2 Column2	Row 2 Column2
Row 2 Column2		Row 2 Column2
	Row 3 Column1	

2.: table.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"
```

```
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"
```

```
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" />
  <lmageView
    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"/>
  < Image View
    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	-\ \		**	p p p	-

3.: activity_main.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"
```

```
android:lavout 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:lavout width="275dp"
         android:layout height="wrap content"
         android:hint="Password"
         android:layout marginStart="20dp"/>
     </TableRow>
  </TableLayout>
  <Button
    android:layout height="wrap content"
    android:lavout_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>
```

```
package com.example.tabularlayout;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

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```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
}
```

Tabular Layout				
Login Form				
User Name	User Name			
Password	Password			
	LOG IN			

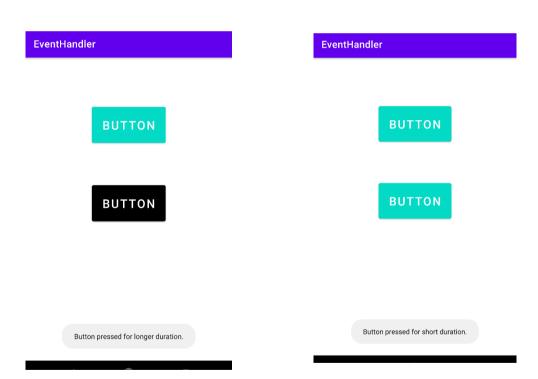
Question 16 - Create a program in android to demonstrate Event Handlers and Event Listeners.

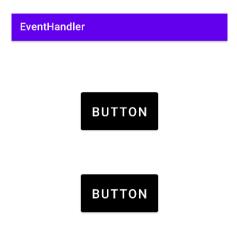
Solution – activity_main.xml

```
<androidx.constraintlavout.widget.ConstraintLavout
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:lavout 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>
```

```
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();
                                    }}); }}
```





Question 17 - Create an android application to insert an audio and play it using Media Player Class. 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">
  <LinearLayout
    android:layout width="match parent"
    android:lavout 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" />
    <lmageView
       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>
```

```
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();
  }}
```



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:tools="http://schemas.android.com/tools"
xmlns:app="http://schemas.android.com/apk/res-auto"
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>
```

```
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>
```

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

```
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.guery(uri,null,null,null,null);
    Log.i("Contacts", "Total # of contacts:::"+Integer.toString(cursor.getCount()));
    if (cursor.getCount()>0)
       while (cursor.moveToNext()){
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 version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"</pre>
  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:roundlcon="@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>
```

Question 21 - Create an android application to show Internal storage. 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"
  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>
```

```
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();
            FileOutputStream fout=openFileOutput(file, Context.MODE_PRIVATE);
            fout.write(data.getBytes());
            Toast.makeText(getBaseContext(), "Save", Toast.LENGTH SHORT).show();
         catch (Exception e){
            e.printStackTrace();
    });
```

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```
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 -

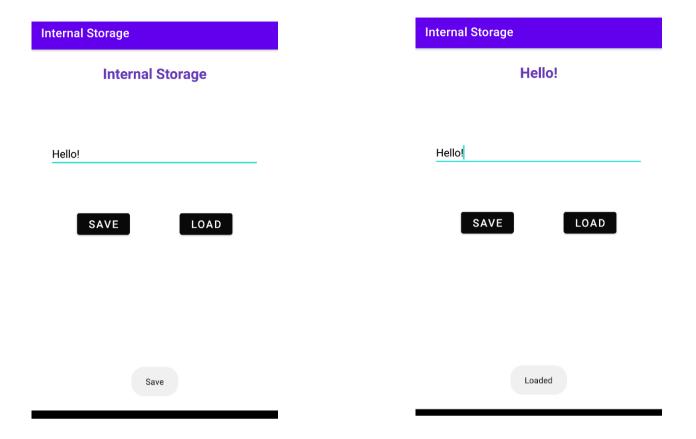
Internal Storage

Internal Storage

SAVE

LOAD

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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"
```

```
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:lavout 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>
```

```
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.lavout.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 -

hared Preferences	
Gaurav Nath	_
8279854154	_
LesinghGaurav@gmail.com	

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

Solution – activity_main.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
```

```
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:lavout 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"/>
</RelativeLavout>
```

```
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+"\")");
  }
```

```
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



Question 24- Create a program to depict Bluetooth Adapter class. Solution – activity_main.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:lavout 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:lavout 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>
```

```
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)findViewBvId(R.id.button2):
    b3=(Button)findViewBvId(R.id.button3):
    b4=(Button)findViewById(R.id.button4);
    BA = BluetoothAdapter.getDefaultAdapter();
    Iv = 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 -



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;
           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);
```

```
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 version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"</pre>
  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:roundlcon="@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"/>
       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>
```

SUBJECT - MOBILE APPLICATION DEVELOPMENT

