ANDROID SLIPS SOLUTIONS 1-20

	android:layout_centerInParent="tru e"
Slip 1:	android:textSize="18sp"
Q1 Create a Simple Application which shows the Life Cycle of Activity	android:textColor="#000" />
Ans: XML file:	Java file:
xml version="1.0"</td <td>import android.os.Bundle;</td>	import android.os.Bundle;
encoding="utf-8"?>	import android.util.Log;
<pre><relativelayout <="" pre="" xmlns:android="http://schemas.and roid.com/apk/res/android"></relativelayout></pre>	import android.widget.TextView;
xmlns:tools="http://schemas.androi d.com/tools"	import androidx.appcompat.app.AppComp atActivity;
android:layout_width="match_pare nt"	<pre>public class MainActivity extends AppCompatActivity {</pre>
android:layout_height="match_pare nt"	<pre>private static final String TAG = "MainActivity";</pre>
tools:context=".MainActivity">	private TextView textView;
<textview< td=""><td>@Override</td></textview<>	@Override
android:id="@+id/text_view"	<pre>protected void onCreate(Bundle savedInstanceState) {</pre>
android:layout_width="wrap_conte nt"	super.onCreate(savedInstanceState);
android:layout_height="wrap_conte nt"	setContentView(R.layout.activity_m ain);

```
textView =
                                             @Override
findViewById(R.id.text_view);
                                             protected void onStop() {
    logLifecycle("onCreate");
                                               super.onStop();
  }
                                               logLifecycle("onStop");
                                             }
  @Override
  protected void onStart() {
                                             @Override
    super.onStart();
                                             protected void onDestroy() {
                                               super.onDestroy();
                                               logLifecycle("onDestroy");
                                             }
                                             @Override
  logLifecycle("onStart");
                                             protected void onRestart() {
  }
                                               super.onRestart();
                                               logLifecycle("onRestart");
  @Override
                                             }
  protected void onResume() {
    super.onResume();
                                             private void logLifecycle(String
    logLifecycle("onResume");
                                           lifecycleEvent) {
  }
                                               Log.d(TAG, lifecycleEvent);
                                               String currentText =
                                           textView.getText().toString();
  @Override
                                               currentText += lifecycleEvent +
  protected void onPause() {
                                           "\n";
    super.onPause();
                                               textView.setText(currentText);
    logLifecycle("onPause");
                                             }
  }
                                           }
```

	nt"
	android:text="Pick Date"
Q2. Create an Android Application that demonstrate DatePicker and	android:layout_centerInParent="tru e" />
DatePickerDailog.	
Ans:	
xml version="1.0" encoding="utf-8"?	
<relativelayout< td=""><td>import android.app.DatePickerDialog;</td></relativelayout<>	import android.app.DatePickerDialog;
xmlns:android="http://schemas.and roid.com/apk/res/android"	import android.os.Bundle;
	import android.view.View;
xmlns:tools="http://schemas.android.com/tools"	import android.widget.Button;
,	import android.widget.DatePicker;
android:layout_width="match_pare nt"	import android.widget.Toast;
android:layout_height="match_pare nt"	<pre>import androidx.appcompat.app.AppComp atActivity;</pre>
tools:context=".MainActivity">	
<button< td=""><td>import java.util.Calendar;</td></button<>	import java.util.Calendar;
android:id="@+id/btn_pick_date"	<pre>public class MainActivity extends AppCompatActivity {</pre>
android:layout_width="wrap_conte nt"	private Button pickDateButton;

android:layout_height="wrap_conte

```
calendar.get(Calendar.DAY_OF_MO
  @Override
                                          NTH);
  protected void onCreate(Bundle
savedInstanceState) {
                                              // Create DatePickerDialog and
                                          set listener
super.onCreate(savedInstanceState);
                                               DatePickerDialog
                                          datePickerDialog = new
setContentView(R.layout.activity_m
                                          DatePickerDialog(this,
ain);
                                                   new
                                          DatePickerDialog.OnDateSetListener
    pickDateButton =
                                          () {
findViewById(R.id.btn_pick_date);
                                                     @Override
                                                     public void
pickDateButton.setOnClickListener(
                                          onDateSet(DatePicker view, int year,
new View.OnClickListener() {
                                          int month, int dayOfMonth) {
      @Override
                                                       // Display the selected
      public void onClick(View v) {
                                          date
        showDatePickerDialog();
                                                       String selectedDate =
                                          dayOfMonth + "/" + (month + 1) +
      }
                                          "/" + year;
    });
  }
                                          Toast.makeText(MainActivity.this,
                                          "Selected Date: " + selectedDate,
                                          Toast.LENGTH SHORT).show();
  private void
                                                     }
showDatePickerDialog() {
                                                   }, year, month,
    // Get current date
                                          dayOfMonth);
    final Calendar calendar =
Calendar.getInstance();
                                              // Show the dialog
    int year =
calendar.get(Calendar.YEAR);
                                              datePickerDialog.show();
    int month =
                                            }
calendar.get(Calendar.MONTH);
                                          }
```

int dayOfMonth =

	nt"
Slip 2	
Q1. Create a Simple Application, which reads a positive number from the user and display its	android:layout_height="wrap_conte nt"
factorial value in another activity	android:layout_centerHorizontal="tr ue"
.Design the Layout for Number Input Activity (activity_input_number.xml)	android:layout_marginTop="50dp"
xml version="1.0" encoding="utf-</td <td>android:inputType="number"</td>	android:inputType="number"
8"?> <relativelayout< td=""><td>android:hint="Enter a positive number" /></td></relativelayout<>	android:hint="Enter a positive number" />
xmlns:android="http://schemas.and roid.com/apk/res/android"	<button< td=""></button<>
Tota.com/apk/res/anarota	android:id="@+id/btn_submit"
xmlns:tools="http://schemas.android.com/tools"	android:layout_width="wrap_conte nt"
android:layout_width="match_pare nt"	android:layout_height="wrap_conte nt"
android:layout_height="match_pare nt"	android:layoutbelow="@id/edit_tex t_number"
tools:context=".InputNumberActivit y">	android:layout_centerHorizontal="true"
<edittext< td=""><td></td></edittext<>	
android:id="@+id/edit_text_numbe	android:layout_marginTop="20dp"
r"	android:text="Submit" />

android:layout_width="wrap_conte

(activity_display_factorial.xml) xml version="1.0" encoding="utf-8"? Implement the Input Number Activity (InputNumberActivity.java))
<relativelayout android.content.intent;<="" import="" td=""><td></td></relativelayout>	
xmlns:android="http://schemas.and import android.os.Bundle;	
roid.com/apk/res/android" import android.view.View;	
xmlns:tools="http://schemas.androi d.com/tools" import android.widget.Button;	
import android.widget.EditText;	
android:layout_width="match_pare	
nt" import androidx.appcompat.app.AppComp	р
android:layout_height="match_pare atActivity; nt"	
tools:context=".DisplayFactorialActiv ity"> public class InputNumberActivity extends AppCompatActivity {	
<textview< td=""><td></td></textview<>	
private EditText editTextNumber;	;
android:id="@+id/text_view_factori private Button btnSubmit; al"	
@Override	
android:layout_width="wrap_conte nt" protected void onCreate(Bundle	
savedInstanceState) {	
android:layout_height="wrap_conte nt" super.onCreate(savedInstanceState)	<u>:</u>);
android:layout_centerInParent="tru setContentView(R.layout.activity_ir e" put_number);	n
android:textSize="18sp"	
android:textColor="#000" />	

```
editTextNumber =
                                                   } else {
findViewById(R.id.edit_text_number
);
                                           editTextNumber.setError("Please
    btnSubmit =
                                           enter a number");
findViewById(R.id.btn_submit);
                                                   }
                                                 }
                                               });
btnSubmit.setOnClickListener(new
View.OnClickListener() {
                                             }
                                          Implement the Factorial Display
      @Override
                                           Activity
      public void onClick(View v) {
                                           (DisplayFactorialActivity.java)
        String numberStr =
                                           import android.os.Bundle;
editTextNumber.getText().toString().
                                           import android.widget.TextView;
trim();
        if (!numberStr.isEmpty()) {
           int number =
                                          import
                                           androidx.appcompat.app.AppComp
Integer.parseInt(numberStr);
                                           atActivity;
           if (number > 0) {
             // Start
                                           public class DisplayFactorialActivity
DisplayFactorialActivity and pass the
                                           extends AppCompatActivity {
number
             Intent intent = new
Intent(InputNumberActivity.this,
                                             private TextView
DisplayFactorialActivity.class);
                                          textViewFactorial;
intent.putExtra("number", number);
                                             @Override
             startActivity(intent);
                                             protected void onCreate(Bundle
           } else {
                                          savedInstanceState) {
editTextNumber.setError("Please
                                          super.onCreate(savedInstanceState);
enter a positive number");
           }
```

```
}
setContentView(R.layout.activity_di
                                            }
splay_factorial);
                                            Declare Activities in Manifest: Open
    textViewFactorial =
                                            AndroidManifest.xml
findViewById(R.id.text view factori
al);
                                            <activity
                                           android:name=".InputNumberActivi
    // Retrieve the number passed
                                           ty" />
from InputNumberActivity
                                            <activity
    int number =
                                           android:name=".DisplayFactorialActi
getIntent().getIntExtra("number",
                                           vity"/>
0);
    // Calculate factorial
    long factorial =
calculateFactorial(number);
    // Display factorial
textViewFactorial.setText("Factorial
of " + number + " is " + factorial);
  }
  private long calculateFactorial(int
n) {
    if (n == 0)
      return 1;
    else
      return n *
calculateFactorial(n - 1);
```

```
// Start the AudioService
    startService(new Intent(this,
AudioService.class));
  }
  // Method to stop the service
(called when a button is clicked, for
example)
  public void
stopAudioService(View view) {
    stopService(new Intent(this,
AudioService.class));
  }
}
import android.media.MediaPlayer;
import android.os.IBinder;
import
androidx.annotation.Nullable;
public class AudioService extends
Service {
  private MediaPlayer mediaPlayer;
  @Override
  public void onCreate() {
    super.onCreate();
    mediaPlayer =
MediaPlayer.create(this,
R.raw.song);
```

```
background. Audio will notbe
stopped even if you switch to
another activity. To stop the audio,
you need to stop the service.
import android.app.Service;
import android.content.Intent;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import
androidx.appcompat.app.AppComp
atActivity;
public class MainActivity extends
AppCompatActivity {
  @Override
  protected void onCreate(Bundle
savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_m
ain);
```

Q2. Create an Android application that plays an audio(song) in the

```
// Open AndroidManifest.xml and
    mediaPlayer.setLooping(true);
// Loop the audio
                                          declare the AudioService inside the
                                          <application>
    mediaPlayer.start(); // Start
playing the audio
  }
                                          <service
                                          android:name=".AudioService" />
  @Override
                                          Add a Button to Stop the Service:
  public int onStartCommand(Intent
intent, int flags, int startId) {
                                          <Button
    return START STICKY;
                                          android:id="@+id/stop audio butto
  }
                                          n"
  @Override
                                          android:layout width="wrap conte
                                          nt"
  public void onDestroy() {
    super.onDestroy();
                                          android:layout_height="wrap_conte
    if (mediaPlayer != null) {
                                          nt"
      mediaPlayer.stop(); // Stop
                                            android:text="Stop Audio Service"
the audio when the service is
destroyed
                                          android:onClick="stopAudioService"
      mediaPlayer.release();
                                          />
    }
  }
  @Nullable
  @Override
  public IBinder onBind(Intent
intent) {
                                          Sllip3
    return null;
                                          Q1. Create an Android Application
  }
                                          that will change color of the
                                          College Name on click of Push
}
```

Button and change the font size, font style of text view using xml.

• Open activity_main.xml from the res/layout directory.

<?xml version="1.0" encoding="utf8"?>

<RelativeLayout xmlns:android="http://schemas.and roid.com/apk/res/android"

android:layout_width="match_pare
nt"

android:layout_height="match_pare
nt"

android:padding="16dp">

<TextView

android:id="@+id/text_college_nam e"

android:layout_width="wrap_conte nt"

android:layout_height="wrap_conte
nt"

android:text="My College"
android:textSize="24sp"
android:textStyle="bold"

android:layout_centerHorizontal="true"

android:layout_marginTop="50dp"
/>

<Button

android:id="@+id/btn_change_color"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Change Color"

android:layout_below="@id/text_c ollege_name"

android:layout_centerHorizontal="true"

android:layout_marginTop="20dp"
/>

</RelativeLayout>

Create a new XML file (text_color_selector.xml)

```
<selector
xmlns:android="http://schemas.and
                                         super.onCreate(savedInstanceState);
roid.com/apk/res/android">
  <item
                                         setContentView(R.layout.activity m
android:state_pressed="true"
                                          ain);
android:color="@android:color/hol
o blue dark" />
                                              collegeNameTextView =
  <item
                                         findViewById(R.id.text college nam
android:color="@android:color/blac
                                          e);
k" />
                                              changeColorButton =
</selector>
                                         findViewById(R.id.btn_change_color
                                         );
Open MainActivity.java
import android.os.Bundle;
                                         changeColorButton.setOnClickListen
import android.view.View;
                                          er(new View.OnClickListener() {
import android.widget.Button;
                                                @Override
import android.widget.TextView;
                                                public void onClick(View v) {
import
androidx.appcompat.app.AppComp
atActivity;
                                         collegeNameTextView.setTextColor(
                                         getResources().getColorStateList(R.c
                                          olor.text color selector));
public class MainActivity extends
AppCompatActivity {
                                          collegeNameTextView.setTextSize(3
                                         0); // Change font size to 30sp
  private TextView
collegeNameTextView;
                                          collegeNameTextView.setTypeface(n
                                          ull, Typeface.ITALIC); // Change font
  private Button
                                         style to italic
changeColorButton;
                                                }
                                              });
  @Override
                                            }
  protected void onCreate(Bundle
savedInstanceState) {
                                         }
```

Q2. Create an Android Application to find the factorial of a number and Display the Resulton Alert Box

```
public class MainActivity extends
AppCompatActivity {
```

@Override

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

```
super.onCreate(savedInstanceState);
```

setContentView(R.layout.activity_m
ain);

```
// Call the method to calculate factorial and display result
```

```
int number = 5; // Example: Factorial of 5
```

```
int factorial =
calculateFactorial(number);
```

```
displayResult(factorial);
```

```
private int calculateFactorial(int n)
{
```

```
if (n == 0) {
    return 1;
}
```

}

```
int factorial = 1;
    for (int i = 1; i <= n; i++) {
       factorial *= i;
    }
    return factorial;
  }
  private void displayResult(int
factorial) {
    AlertDialog.Builder builder =
new AlertDialog.Builder(this);
    builder.setTitle("Factorial
Result");
    builder.setMessage("The
factorial of the number is: " +
factorial);
    builder.setPositiveButton("OK",
new
DialogInterface.OnClickListener() {
       @Override
       public void
onClick(DialogInterface dialog, int
which) {
         // Close the dialog if
needed
         dialog.dismiss();
       }
    });
    builder.show();
  }
}
```

Slip 4

3iip 4	
Q1. Create a Simple Application, that performs Arithmetic	android:layout_height="wrap_conte nt"
Operations. (Use constraint layout)	android:ems="10"
	android:inputType="number"
activity_main.xml	
xml version="1.0" encoding="utf-8"?	app:layout_constraintBottom_toTop Of="@+id/textView2"
<pre><androidx.constraintlayout.widget.c <="" onstraintlayout="" pre="" xmlns:android="http://schemas.and roid.com/apk/res/android"></androidx.constraintlayout.widget.c></pre>	app:layout_constraintEnd_toEndOf= "parent"
xmlns:app="http://schemas.android .com/apk/res-auto"	app:layout_constraintHorizontal_bia s="0.5"
xmlns:tools="http://schemas.android.com/tools"	app:layout_constraintStart_toStartO f="parent"
android:layout_width="match_pare nt"	<pre>app:layout_constraintTop_toTopOf= "parent" /></pre>
	<edittext< td=""></edittext<>
<pre>android:layout_height="match_pare nt" tools:context=".MainActivity"></pre>	android:id="@+id/editTextNumber2
<edittext< td=""><td>android:layout_width="wrap_conte nt"</td></edittext<>	android:layout_width="wrap_conte nt"
android:id="@+id/editTextNumber1 "	android:layout_height="wrap_conte nt"
android:layout_width="wrap_conte	android:ems="10"
nt"	android:inputType="number"

app:layout_constraintBottom_toTop Of="@+id/textView3"	<button< th=""></button<>
app:layout_constraintEnd_toEndOf= "parent"	android:id="@+id/buttonSubtract"
app:layout_constraintHorizontal_bia s="0.5"	android:layout_width="wrap_conte nt"
app:layout_constraintStart_toStartO f="parent"	<pre>android:layout_height="wrap_conte nt" android:text="Subtract"</pre>
<pre>app:layout_constraintTop_toBottom Of="@+id/editTextNumber1" /></pre>	app:layout_constraintEnd_toEndOf= "parent"
<button <="" android:id="@+id/buttonAdd" td=""><td>app:layout_constraintStart_toStartO f="parent"</td></button>	app:layout_constraintStart_toStartO f="parent"
android:layout_width="wrap_conte nt"	app:layout_constraintTop_toBottom Of="@+id/buttonAdd" />
android:layout_height="wrap_conte nt"	<button< td=""></button<>
android:text="Add"	android:id="@+id/buttonMultiply"
app:layout_constraintEnd_toEndOf= "parent"	android:layout_width="wrap_conte nt"
app:layout_constraintStart_toStartO f="parent"	android:layout_height="wrap_conte nt" android:text="Multiply"
annulayout constraintTon toDottors	anaroia.text- ivialtiply
<pre>app:layout_constraintTop_toBottom Of="@+id/editTextNumber2" /></pre>	

app:layout_constraintEnd_toEndOf= "parent"	android:layout_width="wrap_conte nt"
app:layout_constraintStart_toStartO f="parent"	android:layout_height="wrap_conte nt"
app:layout_constraintTop_toBottom	android:text="Number 1"
Of="@+id/buttonSubtract" />	app:layout_constraintBottom_toTop Of="@+id/editTextNumber1"
<button< td=""><td></td></button<>	
android:id="@+id/buttonDivide"	app:layout_constraintEnd_toEndOf= "parent"
android:layout_width="wrap_conte nt"	app:layout_constraintHorizontal_bia s="0.5"
android:layout_height="wrap_conte nt"	<pre>app:layout_constraintStart_toStartO f="parent"</pre>
android:text="Divide"	<pre>app:layout_constraintTop_toTopOf= "parent" /></pre>
app:layout_constraintEnd_toEndOf= "parent"	parent />
	<textview< td=""></textview<>
app:layout_constraintStart_toStartO f="parent"	android:id="@+id/textView3"
app:layout_constraintTop_toBottom Of="@+id/buttonMultiply" />	android:layout_width="wrap_conte nt"
<textview< td=""><td>android:layout_height="wrap_conte nt"</td></textview<>	android:layout_height="wrap_conte nt"
	android:text="Number 2"
android:id="@+id/textView2"	

app:layout_constraintBottom_toTop Of="@+id/editTextNumber2"	app:layout_constraintHorizontal_bia s="0.5"
app:layout_constraintEnd_toEndOf= "parent"	app:layout_constraintStart_toStartO f="parent"
app:layout_constraintHorizontal_bia s="0.5"	app:layout_constraintTop_toBottom Of="@+id/buttonDivide" />
app:layout_constraintStart_toStartO f="parent"	<pre></pre>
app:layout_constraintTop_toBottom Of="@+id/textView2" />	Java file
<textview< td=""><td>package com.example.arithmeticoperations;</td></textview<>	package com.example.arithmeticoperations;
android:id="@+id/textViewResult"	<pre>import androidx.appcompat.app.AppComp atActivity;</pre>
android:layout_width="wrap_conte nt"	import android.os.Bundle;
	import android.view.View;
android:layout_height="wrap_conte nt"	import android.widget.Button;
android:text="Result"	import android.widget.EditText;
anarora.text Nesart	import android.widget.TextView;
<pre>app:layout_constraintBottom_toTop Of="@+id/buttonAdd" app:layout_constraintEnd_toEndOf=</pre>	<pre>public class MainActivity extends AppCompatActivity {</pre>
"parent"	EditText editTextNumber1, editTextNumber2;

```
TextView textViewResult;
                                                @Override
                                                public void onClick(View v) {
  @Override
                                                   performOperation('+');
                                                }
  protected void onCreate(Bundle
savedInstanceState) {
                                              });
super.onCreate(savedInstanceState);
                                          buttonSubtract.setOnClickListener(n
setContentView(R.layout.activity m
                                          ew View.OnClickListener() {
ain);
                                                @Override
                                                public void onClick(View v) {
    editTextNumber1 =
                                                   performOperation('-');
findViewById(R.id.editTextNumber1)
                                                }
    editTextNumber2 =
                                              });
findViewById(R.id.editTextNumber2)
    textViewResult =
                                          buttonMultiply.setOnClickListener(n
findViewById(R.id.textViewResult);
                                          ew View.OnClickListener() {
                                                @Override
    Button buttonAdd =
                                                public void onClick(View v) {
findViewById(R.id.buttonAdd);
                                                   performOperation('*');
    Button buttonSubtract =
findViewById(R.id.buttonSubtract);
                                                }
    Button buttonMultiply =
                                              });
findViewById(R.id.buttonMultiply);
    Button buttonDivide =
findViewById(R.id.buttonDivide);
                                          buttonDivide.setOnClickListener(ne
                                          w View.OnClickListener() {
                                                @Override
buttonAdd.setOnClickListener(new
                                                public void onClick(View v) {
View.OnClickListener() {
                                                   performOperation('/');
```

```
}
                                                 case '-':
    });
                                                    result = num1 - num2;
  }
                                                    break;
                                                 case '*':
  private void
                                                    result = num1 * num2;
performOperation(char operation) {
                                                    break;
    String num1Str =
                                                 case '/':
editTextNumber1.getText().toString(
                                                   if (num2 == 0) {
);
    String num2Str =
editTextNumber2.getText().toString(
                                           textViewResult.setText("Cannot
                                           divide by zero.");
);
                                                      return;
    if (num1Str.isEmpty() | |
                                                    }
num2Str.isEmpty()) {
                                                    result = num1 / num2;
                                                    break;
textViewResult.setText("Please
                                               }
enter both numbers.");
      return;
                                               textViewResult.setText("Result:
    }
                                           " + result);
                                             }
    double num1 =
                                           }
Double.parseDouble(num1Str);
    double num2 =
Double.parseDouble(num2Str);
                                           Q2. Create an Android Application
                                           that sends the Notification on click
    double result = 0;
                                           of the button and displays the
                                           notification message on the second
                                           activity
    switch (operation) {
      case '+':
         result = num1 + num2;
                                           MainActivity.java
         break;
```

```
import
                                            @Override
android.app.NotificationChannel;
                                            protected void onCreate(Bundle
                                          savedInstanceState) {
import
android.app.NotificationManager;
import android.app.PendingIntent;
                                          super.onCreate(savedInstanceState);
import android.content.Context;
                                          setContentView(R.layout.activity_m
import android.content.Intent;
                                          ain);
import android.os.Build;
import android.os.Bundle;
                                              createNotificationChannel();
import android.view.View;
import android.widget.Button;
                                              Button button =
                                          findViewById(R.id.button);
import
                                              button.setOnClickListener(new
androidx.appcompat.app.AppComp
                                          View.OnClickListener() {
atActivity;
                                                @Override
import
                                                public void onClick(View v) {
androidx.core.app.NotificationComp
                                                   sendNotification();
at;
                                                }
import
androidx.core.app.NotificationMana
                                              });
gerCompat;
                                            }
public class MainActivity extends
                                            private void
AppCompatActivity {
                                          createNotificationChannel() {
                                              if (Build.VERSION.SDK_INT >=
  private static final String
                                          Build.VERSION_CODES.O) {
CHANNEL ID =
                                                CharSequence name =
"notification channel";
                                          getString(R.string.channel_name);
  private static final int
                                                String description =
NOTIFICATION_ID = 101;
                                          getString(R.string.channel descripti
                                          on);
```

```
NotificationCompat.Builder(this,
      int importance =
NotificationManager.IMPORTANCE
                                          CHANNEL_ID)
DEFAULT;
      NotificationChannel channel
                                          .setSmallIcon(R.drawable.ic notifica
= new
                                          tion)
NotificationChannel(CHANNEL_ID,
name, importance);
                                          .setContentTitle(getString(R.string.n
                                          otification title))
channel.setDescription(description);
                                          .setContentText(getString(R.string.n
                                          otification message))
      NotificationManager
notificationManager =
getSystemService(NotificationMana
                                          .setPriority(NotificationCompat.PRI
                                          ORITY DEFAULT)
ger.class);
notificationManager.createNotificati
                                          .setContentIntent(pendingIntent)
onChannel(channel);
                                                   .setAutoCancel(true);
    }
  }
                                              NotificationManagerCompat
                                          notificationManager =
                                          NotificationManagerCompat.from(t
  private void sendNotification() {
                                          his);
    Intent intent = new Intent(this,
NotificationActivity.class);
                                          notificationManager.notify(NOTIFIC
                                          ATION ID, builder.build());
intent.setFlags(Intent.FLAG_ACTIVIT
                                            }
Y NEW TASK |
Intent.FLAG ACTIVITY CLEAR TASK)
                                          }
                                          NotificationActivity.java
    PendingIntent pendingIntent =
                                          import android.os.Bundle;
PendingIntent.getActivity(this, 0,
                                          import android.widget.TextView;
intent, 0);
```

NotificationCompat.Builder

builder = new

```
import
                                         <RelativeLayout
                                         xmlns:android="http://schemas.and
androidx.appcompat.app.AppComp
                                         roid.com/apk/res/android"
atActivity;
public class NotificationActivity
extends AppCompatActivity {
                                         xmlns:tools="http://schemas.androi
                                         d.com/tools"
  @Override
                                         android:layout width="match pare
  protected void onCreate(Bundle
                                         nt"
savedInstanceState) {
                                         android:layout height="match pare
super.onCreate(savedInstanceState);
                                         nt"
                                            tools:context=".MainActivity">
setContentView(R.layout.activity no
tification);
                                            <Button
                                              android:id="@+id/button"
    String message =
getIntent().getStringExtra("message
");
                                         android:layout width="wrap conte
                                         nt"
    TextView textViewMessage =
                                         android:layout height="wrap conte
findViewById(R.id.textViewMessage
                                         nt"
);
                                              android:text="Send
                                         Notification"
textViewMessage.setText(message);
  }
                                         android:layout centerInParent="tru
}
                                         e"/>
                                         </RelativeLayout>
activity_main.xml (MainActivity
                                         activity_notification.xml
                                         (NotificationActivity layout)
layout)
<?xml version="1.0" encoding="utf-
                                         <?xml version="1.0" encoding="utf-
8"?>
                                         8"?>
```

<RelativeLayout xmlns:android="http://schemas.and roid.com/apk/res/android"

xmlns:tools="http://schemas.android.com/tools"

android:layout_width="match_pare
nt"

android:layout_height="match_pare
nt"

tools:context=".NotificationActivity" >

<TextView

android:id="@+id/textViewMessage"

android:layout_width="wrap_conte nt"

android:layout_height="wrap_conte
nt"

android:text=""

android:layout_centerInParent="tru
e"/>

</RelativeLayout>

Slip 5

Q1. Create an Android Application to accept two numbers and find power and Average. Display the result on the next activity on Button click

MainActivity.java

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import

androidx.appcompat.app.AppComp
atActivity;

public class MainActivity extends
AppCompatActivity {

EditText editTextNumber1, editTextNumber2;

@Override

```
protected void onCreate(Bundle
                                              double num2 =
savedInstanceState) {
                                          Double.parseDouble(editTextNumbe
                                          r2.getText().toString());
super.onCreate(savedInstanceState);
                                              // Calculate power
setContentView(R.layout.activity m
                                              double powerResult =
ain);
                                          Math.pow(num1, num2);
    editTextNumber1 =
                                              // Calculate average
findViewById(R.id.editTextNumber1)
                                              double averageResult = (num1
                                          + num2) / 2;
    editTextNumber2 =
findViewById(R.id.editTextNumber2)
                                              Intent intent = new Intent(this,
                                          ResultActivity.class);
                                              intent.putExtra("powerResult",
    Button buttonCalculate =
findViewById(R.id.buttonCalculate);
                                          powerResult);
                                          intent.putExtra("averageResult",
buttonCalculate.setOnClickListener(
new View.OnClickListener() {
                                          averageResult);
                                              startActivity(intent);
      @Override
                                            }
      public void onClick(View v) {
        calculateAndDisplay();
                                          }
                                          ResultActivity.java
      }
                                          import android.os.Bundle;
    });
                                          import android.widget.TextView;
  }
  private void calculateAndDisplay()
                                          import
{
                                          androidx.appcompat.app.AppComp
                                          atActivity;
    double num1 =
Double.parseDouble(editTextNumbe
r1.getText().toString());
```

public class ResultActivity extends } AppCompatActivity { } activity_main.xml (activity_main layout) @Override <?xml version="1.0" encoding="utfprotected void onCreate(Bundle 8"?> savedInstanceState) { <RelativeLayout xmlns:android="http://schemas.and super.onCreate(savedInstanceState); roid.com/apk/res/android" setContentView(R.layout.activity_re sult); xmlns:tools="http://schemas.androi d.com/tools" double powerResult = android:layout width="match pare getIntent().getDoubleExtra("powerR nt" esult", 0); double averageResult = android:layout height="match pare getIntent().getDoubleExtra("average nt" Result", 0); tools:context=".MainActivity"> TextView textViewPowerResult <EditText findViewById(R.id.textViewPowerRe sult); android:id="@+id/editTextNumber1 textViewPowerResult.setText("Powe r Result: " + powerResult); android:layout width="match pare nt" **TextView** textViewAverageResult = android:layout height="wrap conte findViewById(R.id.textViewAverageR nt" esult); android:hint="Enter number 1" textViewAverageResult.setText("Ave

rage Result: " + averageResult);

android:inputType="numberDecima " />	android:layout_centerHorizontal="true"	
	android:text="Calculate" />	
<edittext< td=""><td></td></edittext<>		
android:id="@+id/editTextNumber2 "		
android:layout_width="match_pare nt"	activity_result.xml (activity_result layout)	
android:layout_height="wrap_conte	xml version="1.0" encoding="utf-8"?	
nt"	<relativelayout @id="" edittex<br="" xmlns:android="http://schemas.and</td></tr><tr><td>android:layout_below=">tNumber1"</relativelayout>	roid.com/apk/res/android"
android:hint="Enter number 2"	xmlns:tools="http://schemas.androi d.com/tools"	
android:inputType="numberDecima I" />	android:layout_width="match_pare nt"	
<button< td=""><td>android:layout_height="match_pare nt"</td></button<>	android:layout_height="match_pare nt"	
android:id="@+id/buttonCalculate"	tools:context=".ResultActivity">	
android:layout_width="wrap_conte nt"	<textview< td=""></textview<>	
android:layout_height="wrap_conte nt"	android:id="@+id/textViewPowerRe sult"	
android:layout_below="@id/editTex tNumber2"	android:layout_width="wrap_conte nt"	

```
android:layout_height="wrap_conte
nt"
    android:text=""
android:layout centerInParent="tru
e"/>
  <TextView
android:id="@+id/textViewAverage
Result"
android:layout_width="wrap_conte
nt"
android:layout height="wrap conte
nt"
android:layout_below="@id/textVie
wPowerResult"
    android:text=""
android:layout centerHorizontal="tr
```

ue"/>

</RelativeLayout>

Q2. Create an Android Application to perform Zoom In, Zoom Out operation and display Satellite view, on Google Map.

Add Google Play Services Dependency

build.gradle file.

implementation 'com.google.android.gms:playservices-maps:20.1.0'

Create Layout File (activity_maps.xml)

<!-- activity_maps.xml -->

<?xml version="1.0" encoding="utf8"?>

<RelativeLayout xmlns:android="http://schemas.and roid.com/apk/res/android"

xmlns:tools="http://schemas.android.com/tools"	import android.widget.Button;
android:layout_width="match_pare	import androidx.annotation.NonNull;
nt"	<pre>import androidx.appcompat.app.AppComp atActivity;</pre>
android:layout_height="match_pare nt"	
tools:context=".MapsActivity">	<pre>import com.google.android.gms.maps.Cam eraUpdateFactory;</pre>
<pre><com.google.android.gms.maps.ma pre="" pview<=""></com.google.android.gms.maps.ma></pre>	import com.google.android.gms.maps.Goo gleMap;
android:id="@+id/mapView"	import com.google.android.gms.maps.Map
android:layout_width="match_pare nt"	View; import
android:layout_height="match_pare	com.google.android.gms.maps.OnMapReadyCallback;
nt" android:apiKey="@string/google_m	<pre>import com.google.android.gms.maps.Supp ortMapFragment;</pre>
aps_key" />	import
	com.google.android.gms.maps.mod el.LatLng;
Set Up Google Maps in Activity (MapsActivity.java)	public class MapsActivity extends AppCompatActivity implements OnMapReadyCallback {
import android.os.Bundle;	private GoogleMap mMap;
import android.view.View;	private MapView mMapView;

```
if (mMap != null) {
  private Button zoomInButton,
zoomOutButton;
                                        mMap.animateCamera(CameraUpd
                                        ateFactory.zoomIn());
  @Override
                                                }
  protected void onCreate(Bundle
                                              }
savedInstanceState) {
                                            });
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_m
                                        zoomOutButton.setOnClickListener(
aps);
                                        new View.OnClickListener() {
                                              @Override
    mMapView =
                                              public void onClick(View v) {
findViewById(R.id.mapView);
                                                if (mMap != null) {
    zoomInButton =
findViewById(R.id.zoomInButton);
                                        mMap.animateCamera(CameraUpd
    zoomOutButton =
                                        ateFactory.zoomOut());
findViewById(R.id.zoomOutButton);
                                                }
                                              }
                                            });
mMapView.onCreate(savedInstance
State);
                                          }
    mMapView.onResume();
                                          @Override
    mMapView.getMapAsync(this);
                                          public void
                                        onMapReady(GoogleMap
                                        googleMap) {
                                            mMap = googleMap;
zoomInButton.setOnClickListener(ne
w View.OnClickListener() {
                                        mMap.setMapType(GoogleMap.MA
      @Override
                                        P TYPE SATELLITE); // Set map type
      public void onClick(View v) {
                                        to satellite
```

```
// Add a marker in your
                                          public void onLowMemory() {
preferred location
                                            super.onLowMemory();
    LatLng location = new
                                            mMapView.onLowMemory();
LatLng(40.7128, -74.0060); //
                                          }
Example: New York City
                                        }
mMap.moveCamera(CameraUpdate
Factory.newLatLngZoom(location,
12)); // Zoom level 12
  }
                                        Slip 6
                                        Q1.
  @Override
                                        Create a Simple Application Which
  public void onResume() {
                                        Send —Hello! message from one
    super.onResume();
                                        activity to anotherwith help of
                                        Button (Use Intent)
    mMapView.onResume();
  }
                                        MainActivity.java
                                        import android.content.Intent;
  @Override
  public void onPause() {
                                        import android.os.Bundle;
                                        import android.view.View;
    super.onPause();
                                        import android.widget.Button;
    mMapView.onPause();
  }
                                        import
                                        androidx.appcompat.app.AppComp
  @Override
                                        atActivity;
  public void onDestroy() {
    super.onDestroy();
                                        public class MainActivity extends
    mMapView.onDestroy();
                                        AppCompatActivity {
  }
                                          @Override
  @Override
```

```
protected void onCreate(Bundle
                                          import android.os.Bundle;
savedInstanceState) {
                                          import android.widget.TextView;
super.onCreate(savedInstanceState);
                                          import
                                          androidx.appcompat.app.AppComp
setContentView(R.layout.activity m
                                          atActivity;
ain);
                                          public class DisplayMessageActivity
    Button sendButton =
                                          extends AppCompatActivity {
findViewById(R.id.sendButton);
                                            @Override
sendButton.setOnClickListener(new
View.OnClickListener() {
                                            protected void onCreate(Bundle
                                          savedInstanceState) {
      @Override
      public void onClick(View v) {
                                          super.onCreate(savedInstanceState);
        sendMessage();
      }
                                          setContentView(R.layout.activity_di
    });
                                          splay_message);
  }
                                              Intent intent = getIntent();
  private void sendMessage() {
                                              String message =
                                          intent.getStringExtra("message");
    Intent intent = new Intent(this,
DisplayMessageActivity.class);
    intent.putExtra("message",
                                              TextView textViewMessage =
"Hello!");
                                          findViewById(R.id.textViewMessage
                                          );
    startActivity(intent);
  }
                                          textViewMessage.setText(message);
}
                                            }
DisplayMessageActivity.java
                                          }
                                          activity_main.xml
import android.content.Intent;
```

xml version="1.0" encoding="utf-8"?	xml version="1.0" encoding="utf-8"?
<relativelayout xmlns:android="http://schemas.and roid.com/apk/res/android"</relativelayout 	<relativelayout xmlns:android="http://schemas.and roid.com/apk/res/android"</relativelayout
xmlns:tools="http://schemas.android.com/tools"	xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_pare nt"	android:layout_width="match_pare nt"
android:layout_height="match_pare nt"	android:layout_height="match_pare nt"
tools:context=".MainActivity"> <button< td=""><td>tools:context=".DisplayMessageActi vity"></td></button<>	tools:context=".DisplayMessageActi vity">
android:id="@+id/sendButton"	<textview< td=""></textview<>
android:layout_width="wrap_conte nt"	android:id="@+id/textViewMessage
android:layout_height="wrap_conte nt"	android:layout_width="wrap_conte nt"
	android:layout_width="wrap_conte
nt" android:layout_centerInParent="tru	android:layout_width="wrap_conte nt" android:layout_height="wrap_conte
nt" android:layout_centerInParent="tru e" android:text="Send Message"	android:layout_width="wrap_conte nt" android:layout_height="wrap_conte nt"

```
</RelativeLayout>
                                            protected void onCreate(Bundle
                                          savedInstanceState) {
Q2.
                                          super.onCreate(savedInstanceState);
Create an Android Application that
Demonstrates ListView and Onclick
                                          setContentView(R.layout.activity m
of List Displaythe Toast.
                                          ain);
MainActivity.java
                                              listView =
import android.os.Bundle;
                                          findViewById(R.id.listView);
import android.view.View;
import
                                              ArrayAdapter<String> adapter =
android.widget.AdapterView;
                                          new ArrayAdapter<>(this,
import
android.widget.ArrayAdapter;
                                          android.R.layout.simple_list_item_1
                                          , android.R.id.text1, items);
import android.widget.ListView;
import android.widget.Toast;
                                              listView.setAdapter(adapter);
import
androidx.appcompat.app.AppComp
atActivity;
                                          listView.setOnItemClickListener(new
                                          AdapterView.OnItemClickListener() {
                                                 @Override
public class MainActivity extends
AppCompatActivity {
                                                 public void
                                          onItemClick(AdapterView<?>
                                          parent, View view, int position, long
  private ListView listView;
                                          id) {
  private String[] items = {"Item 1",
                                                   String selectedItem =
"Item 2", "Item 3", "Item 4", "Item
                                          (String)
5"};
                                          parent.getItemAtPosition(position);
                                                   showToast(selectedItem);
  @Override
                                                 }
```

```
});
                                         android:layout_width="match_pare
  }
                                         nt"
  private void showToast(String
                                         android:layout_height="match_pare
message) {
                                         nt" />
    Toast.makeText(this, "You
clicked: " + message,
                                         </RelativeLayout>
Toast.LENGTH_SHORT).show();
  }
                                         Slip 7
}
                                         Q1.
                                         Create an Android Application that
activity main.xml
                                         Demonstrate Radio Button.
                                         MainActivity.java
<?xml version="1.0" encoding="utf-
8"?>
                                         import android.os.Bundle;
<RelativeLayout
xmlns:android="http://schemas.and
                                         import android.widget.RadioButton;
roid.com/apk/res/android"
                                         import android.widget.RadioGroup;
                                         import android.widget.Toast;
xmlns:tools="http://schemas.androi
d.com/tools"
                                         import
                                         androidx.appcompat.app.AppComp
android:layout_width="match_pare
nt"
                                         atActivity;
android:layout_height="match_pare
                                         public class MainActivity extends
nt"
                                         AppCompatActivity {
  tools:context=".MainActivity">
                                           private RadioGroup radioGroup;
  <ListView
    android:id="@+id/listView"
                                           @Override
```

```
protected void onCreate(Bundle
                                           private void showToast(String
                                         message) {
savedInstanceState) {
                                             Toast.makeText(this, message,
super.onCreate(savedInstanceState);
                                         Toast.LENGTH SHORT).show();
                                           }
setContentView(R.layout.activity m
                                         }
ain);
                                         activity_main.xml
    radioGroup =
                                         <?xml version="1.0" encoding="utf-
findViewById(R.id.radioGroup);
                                         8"?>
                                         <RelativeLayout
                                         xmlns:android="http://schemas.and
radioGroup.setOnCheckedChangeLis
                                         roid.com/apk/res/android"
tener(new
RadioGroup.OnCheckedChangeListe
                                         xmlns:tools="http://schemas.androi
ner() {
                                         d.com/tools"
      @Override
      public void
                                         android:layout width="match pare
onCheckedChanged(RadioGroup
                                         nt"
group, int checkedId) {
        RadioButton radioButton =
                                         android:layout height="match pare
findViewById(checkedId);
                                         nt"
        if (radioButton != null) {
                                           tools:context=".MainActivity">
          String text =
radioButton.getText().toString();
                                           <RadioGroup
          showToast("You selected:
                                             android:id="@+id/radioGroup"
" + text);
        }
                                         android:layout width="wrap conte
      }
                                         nt"
    });
  }
                                         android:layout_height="wrap_conte
                                         nt"
```

android:layout_centerInParent="tru e"	android:layout_width="wrap_conte nt"
android:orientation="vertical">	android:layout_height="wrap_conte nt"
<radiobutton< td=""><td>android:text="Option 3" /></td></radiobutton<>	android:text="Option 3" />
android:id="@+id/radioButtonOption1"	
android:layout_width="wrap_conte nt"	
android:layout_height="wrap_conte nt"	Q2. Write an android code to turn ON /OFF the Wi-Fi
android:text="Option 1" />	import android.content.Context;
(Dadia Dattara	import android.net.wifi.WifiManager;
<radiobutton< td=""><td>import android.os.Bundle;</td></radiobutton<>	import android.os.Bundle;
android:id="@+id/radioButtonOptio	import android.view.View;
n2"	import android.widget.Button;
android:layout_width="wrap_conte nt"	<pre>import androidx.appcompat.app.AppComp atActivity;</pre>
android:layout_height="wrap_conte nt"	<pre>public class MainActivity extends AppCompatActivity {</pre>
android:text="Option 2" />	
	private WifiManager wifiManager;
<radiobutton< td=""><td>5 ,</td></radiobutton<>	5 ,
android:id="@+id/radioButtonOption3"	@Override

```
protected void onCreate(Bundle
                                              });
savedInstanceState) {
                                            private void turnOnWifi() {
super.onCreate(savedInstanceState);
                                              if
                                          (!wifiManager.isWifiEnabled()) {
setContentView(R.layout.activity m
ain);
                                          wifiManager.setWifiEnabled(true);
                                              }
    wifiManager = (WifiManager)
                                            }
getApplicationContext().getSystemS
ervice(Context.WIFI SERVICE);
                                            private void turnOffWifi() {
                                              if (wifiManager.isWifiEnabled())
                                          {
    Button buttonTurnOn =
findViewById(R.id.buttonTurnOn);
    Button buttonTurnOff =
                                          wifiManager.setWifiEnabled(false);
findViewById(R.id.buttonTurnOff);
                                              }
                                            }
buttonTurnOn.setOnClickListener(ne
                                          }
w View.OnClickListener() {
                                          activity main.xml
      @Override
                                          <?xml version="1.0" encoding="utf-
      public void onClick(View v) {
                                          8"?>
        turnOnWifi();
                                          <RelativeLayout
      }
                                          xmlns:android="http://schemas.and
                                          roid.com/apk/res/android"
    });
                                          xmlns:tools="http://schemas.androi
buttonTurnOff.setOnClickListener(ne
                                          d.com/tools"
w View.OnClickListener() {
      @Override
                                          android:layout width="match pare
      public void onClick(View v) {
                                          nt"
        turnOffWifi();
      }
                                          android:layout height="match pare
                                          nt"
```

tools:context=".MainActivity">	android:layout_centerHorizontal="tr
<button< td=""><td>ue"</td></button<>	ue"
android:id="@+id/buttonTurnOn"	<pre>android:layout_marginTop="20dp"/ ></pre>
android:layout_width="wrap_conte nt"	
android:layout_height="wrap_conte nt"	Make sure to add the following permissions to your AndroidManifest.xml file:
android:text="Turn On Wi-Fi"	
android:layout_centerHorizontal="tr ue"	<pre><uses-permission android:name="android.permission. CHANGE_WIFI_STATE"></uses-permission></pre>
	<uses-permission< td=""></uses-permission<>
android:layout_marginTop="50dp"/ >	android:name="android.permission. ACCESS_WIFI_STATE" />
	•
>	ACCESS_WIFI_STATE" /> Slip 8 Q1. Create an Android App with Login Screen. On successful login, gives message go to next Activity
> <button< td=""><td>ACCESS_WIFI_STATE" /> Slip 8 Q1. Create an Android App with Login Screen. On successful login,</td></button<>	ACCESS_WIFI_STATE" /> Slip 8 Q1. Create an Android App with Login Screen. On successful login,
<pre>></pre>	Slip 8 Q1. Create an Android App with Login Screen. On successful login, gives message go to next Activity (Without Using Database& use
<pre>></pre>	Slip 8 Q1. Create an Android App with Login Screen. On successful login, gives message go to next Activity (Without Using Database& use Table Layout).
<pre>></pre>	Slip 8 Q1. Create an Android App with Login Screen. On successful login, gives message go to next Activity (Without Using Database& use Table Layout). import android.content.Intent;
<pre>></pre>	Slip 8 Q1. Create an Android App with Login Screen. On successful login, gives message go to next Activity (Without Using Database& use Table Layout). import android.content.Intent; import android.os.Bundle;

import android.widget.TextView;

```
import android.widget.Toast;
                                              editTextUsername =
                                          findViewById(R.id.editTextUsernam
                                          e);
import
                                              editTextPassword =
androidx.appcompat.app.AppComp
                                          findViewById(R.id.editTextPassword)
atActivity;
                                              buttonLogin =
public class MainActivity extends
                                          findViewById(R.id.buttonLogin);
AppCompatActivity {
  private EditText
                                          buttonLogin.setOnClickListener(new
editTextUsername,
                                          View.OnClickListener() {
editTextPassword;
                                                @Override
  private Button buttonLogin;
                                                public void onClick(View v) {
                                                  login();
  // Hardcoded username and
                                                }
password for demonstration
                                              });
  private static final String
USERNAME = "admin";
                                            }
  private static final String
PASSWORD = "admin123";
                                            private void login() {
                                              String username =
  @Override
                                          editTextUsername.getText().toString
                                          ().trim();
  protected void onCreate(Bundle
savedInstanceState) {
                                              String password =
                                          editTextPassword.getText().toString(
                                          ).trim();
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_m
                                              if
                                          (username.equals(USERNAME) &&
ain);
                                          password.equals(PASSWORD)) {
```

```
Toast.makeText(this, "Login
successful!",
                                          super.onCreate(savedInstanceState);
Toast.LENGTH SHORT).show();
                                          setContentView(R.layout.activity ne
      openNextActivity();
                                         xt);
    } else {
                                            }
      Toast.makeText(this, "Invalid
username or password!",
                                          }
Toast.LENGTH SHORT).show();
                                          activity_main.xml
    }
  }
                                          <?xml version="1.0" encoding="utf-
                                          8"?>
                                          <LinearLayout
  private void openNextActivity() {
                                          xmlns:android="http://schemas.and
    Intent intent = new Intent(this,
                                          roid.com/apk/res/android"
NextActivity.class);
    startActivity(intent);
                                          android:layout width="match pare
    finish();
                                          nt"
 }
                                          android:layout height="match pare
}
                                          nt"
NextActivity.java
                                            android:gravity="center"
import android.os.Bundle;
                                            android:orientation="vertical">
import
                                            <TableLayout
androidx.appcompat.app.AppComp
atActivity;
                                          android:layout width="match pare
                                          nt"
public class NextActivity extends
AppCompatActivity {
                                          android:layout_height="wrap_conte
                                          nt"
  @Override
                                          android:layout margin="16dp">
  protected void onCreate(Bundle
savedInstanceState) {
```

```
android:layout_height="wrap_conte
    <TableRow>
                                        nt"
      <TextView
                                                android:text="Password:"
                                        />
android:layout width="wrap conte
nt"
                                              <EditText
android:layout height="wrap conte
nt"
                                        android:id="@+id/editTextPassword
        android:text="Username:"
/>
                                        android:layout width="0dp"
      <EditText
                                        android:layout height="wrap conte
                                        nt"
android:id="@+id/editTextUsernam
                                                android:layout weight="1"
e"
                                        android:inputType="textPassword"
android:layout width="0dp"
                                                android:hint="Enter
                                        password" />
android:layout height="wrap conte
nt"
                                            </TableRow>
        android:layout weight="1"
        android:hint="Enter
                                            <TableRow>
username" />
                                              <Button
    </TableRow>
                                        android:id="@+id/buttonLogin"
    <TableRow>
                                        android:layout width="wrap conte
      <TextView
                                        nt"
android:layout_width="wrap_conte
                                        android:layout height="wrap conte
nt"
                                        nt"
```

```
android:text="Login" />
                                             android:textStyle="bold"
    </TableRow>
                                             android:padding="16dp"/>
  </TableLayout>
                                         </LinearLayout>
</LinearLayout>
activity next.xml (NextActivity
layout)
                                         Q2. Create application to send
                                         email with attachment.
<?xml version="1.0" encoding="utf-
8"?>
                                         AndroidManifest.xml
<LinearLayout
                                         <uses-permission
xmlns:android="http://schemas.and
                                         android:name="android.permission.
roid.com/apk/res/android"
                                         INTERNET" />
                                         <uses-permission
android:layout width="match pare
                                         android:name="android.permission.
nt"
                                         WRITE EXTERNAL STORAGE" />
android:layout height="match pare
nt"
                                         <application
  android:gravity="center"
                                           ...>
  android:orientation="vertical">
                                           cprovider
  <TextView
                                         android:name="androidx.core.conte
                                         nt.FileProvider"
android:layout width="wrap conte
nt"
                                         android:authorities="${applicationId
                                         }.fileprovider"
android:layout_height="wrap_conte
nt"
                                             android:exported="false"
    android:text="Welcome to Next
                                         android:grantUriPermissions="true"
Activity!"
                                         >
    android:textSize="20sp"
```

```
<meta-data
                                         import
                                         androidx.core.content.FileProvider;
android:name="android.support.FIL
E PROVIDER PATHS"
                                         import java.io.File;
android:resource="@xml/file paths
" />
                                         public class MainActivity extends
                                         AppCompatActivity {
  </provider>
                                            private static final int
</application>
                                         EMAIL REQUEST CODE = 101;
res/xml/file paths.xml
<?xml version="1.0" encoding="utf-
                                            @Override
8"?>
                                            protected void onCreate(Bundle
<paths
                                         savedInstanceState) {
xmlns:android="http://schemas.and
roid.com/apk/res/android">
                                         super.onCreate(savedInstanceState);
  <external-path
name="external files" path="."/>
                                         setContentView(R.layout.activity_m
</paths>
                                         ain);
MainActivity.java
import android.content.Intent;
                                              Button buttonSendEmail =
import android.net.Uri;
                                         findViewById(R.id.buttonSendEmail)
import android.os.Bundle;
import android.os.Environment;
                                         buttonSendEmail.setOnClickListener
import android.view.View;
                                         (new View.OnClickListener() {
import android.widget.Button;
                                                @Override
                                                public void onClick(View v) {
import
                                                  sendEmail();
androidx.appcompat.app.AppComp
                                                }
atActivity;
                                             });
```

```
}
                                           emailIntent.addFlags(Intent.FLAG_G
                                           RANT READ URI PERMISSION);
  private void sendEmail() {
    Intent emailIntent = new
                                               // Attach the file to the email
Intent(Intent.ACTION SEND);
                                           emailIntent.putExtra(Intent.EXTRA_
emailIntent.setType("text/plain");
                                          STREAM, uri);
emailIntent.putExtra(Intent.EXTRA
EMAIL, new
                                               // Verify if there's an app
String[]{"recipient@example.com"})
                                           available to handle this intent
                                               if
                                           (emailIntent.resolveActivity(getPack
                                          ageManager()) != null) {
emailIntent.putExtra(Intent.EXTRA
SUBJECT, "Subject of the Email");
                                           startActivityForResult(Intent.createC
                                          hooser(emailIntent, "Send Email"),
    // Get the file path of the
                                           EMAIL REQUEST CODE);
attachment
                                               }
    File file = new
File(Environment.getExternalStorag
                                             }
eDirectory(), "example.txt");
                                          }
                                          activity main.xml
    // Get the URI of the file using
                                          <?xml version="1.0" encoding="utf-
FileProvider
                                          8"?>
    Uri uri =
                                           <RelativeLayout
FileProvider.getUriForFile(this,
                                          xmlns:android="http://schemas.and
getApplicationContext().getPackage
                                           roid.com/apk/res/android"
Name() + ".fileprovider", file);
                                          xmlns:tools="http://schemas.androi
    // Grant read permission to the
                                          d.com/tools"
URI
                                           android:layout_width="match_pare
                                           nt"
```

android:layout_height="match_pare nt"	Slip 9
tools:context=".MainActivity">	Q1. Write an Android application to accept two numbers from the user, and display them, but reject input if
<button< td=""><td>both numbers are greater than 10 and asks for two new numbers.</td></button<>	both numbers are greater than 10 and asks for two new numbers.
android:id="@+id/buttonSendEmail "	MainActivity.java
	import android.os.Bundle;
android:layout_width="wrap_conte nt"	import android.view.View;
	import android.widget.Button;
android:layout_height="wrap_conte	import android.widget.EditText;
nt" android:text="Send Email"	import android.widget.TextView;
android:layout_centerInParent="tru e"/>	import androidx.appcompat.app.AppComp atActivity;
	<pre>public class MainActivity extends AppCompatActivity {</pre>
	<pre>private EditText editTextNumber1, editTextNumber2;</pre>
	private TextView textViewResult;
	@Override
	<pre>protected void onCreate(Bundle savedInstanceState) {</pre>

super.onCreate(savedInstanceState);

```
setContentView(R.layout.activity_m
                                          Integer.parseInt(editTextNumber2.g
ain);
                                          etText().toString());
    editTextNumber1 =
                                              if (num1 <= 10 && num2 <= 10)
findViewById(R.id.editTextNumber1)
                                         {
                                         textViewResult.setText("Number 1:
    editTextNumber2 =
                                         " + num1 + "\nNumber 2: " + num2);
findViewById(R.id.editTextNumber2)
                                              } else {
    textViewResult =
                                                editTextNumber1.setText("");
findViewById(R.id.textViewResult);
                                                editTextNumber2.setText("");
    Button buttonSubmit =
findViewById(R.id.buttonSubmit);
                                         textViewResult.setText("Please
                                          enter two numbers less than or
                                          equal to 10.");
buttonSubmit.setOnClickListener(ne
                                              }
w View.OnClickListener() {
                                            }
      @Override
                                          }
      public void onClick(View v) {
                                         activity_main.xml
validateAndDisplayNumbers();
                                         <?xml version="1.0" encoding="utf-
      }
                                         8"?>
    });
                                          <RelativeLayout
  }
                                         xmlns:android="http://schemas.and
                                          roid.com/apk/res/android"
  private void
validateAndDisplayNumbers() {
                                         xmlns:tools="http://schemas.androi
                                         d.com/tools"
    int num1 =
Integer.parseInt(editTextNumber1.g
etText().toString());
                                          android:layout_width="match_pare
                                          nt"
```

int num2 =

android:layout_height="match_pare nt"	android:layout_below="@id/editTex tNumber1"
tools:context=".MainActivity"> <edittext< td=""><td>android:layout_centerHorizontal="tr ue"</td></edittext<>	android:layout_centerHorizontal="tr ue"
android:id="@+id/editTextNumber1 "	<pre>android:layout_marginTop="20dp" android:hint="Enter Number 2" android:inputType="number"/></pre>
android:layout_width="wrap_conte nt"	<button< td=""></button<>
android:layout_height="wrap_conte nt"	android:id="@+id/buttonSubmit"
android:layout_centerHorizontal="tr ue"	android:layout_width="wrap_conte nt"
android:layout_marginTop="50dp" android:hint="Enter Number 1"	android:layout_height="wrap_conte nt"
android:inputType="number"/>	android:layout_below="@id/editTex tNumber2"
<edittext< td=""><td>android:layout_centerHorizontal="tr ue"</td></edittext<>	android:layout_centerHorizontal="tr ue"
android:id="@+id/editTextNumber2 "	android:layout_marginTop="20dp"
android:layout_width="wrap_conte nt"	android:text="Submit"/>
android:layout_height="wrap_conte	<textview< td=""></textview<>
nt"	android:id="@+id/textViewResult"

import android:layout width="wrap conte androidx.annotation.NonNull; nt" import androidx.appcompat.app.AppComp android:layout_height="wrap_conte atActivity; nt" import android:layout below="@id/button com.google.android.gms.location.Fu Submit" sedLocationProviderClient; import android:layout centerHorizontal="tr com.google.android.gms.location.Lo ue" cationCallback; import android:layout marginTop="20dp"/ com.google.android.gms.location.Lo > cationRequest; import </RelativeLayout> com.google.android.gms.location.Lo cationResult; import Q2. Write a program to find the com.google.android.gms.location.Lo specific location of an Android cationServices; device and display details ofthe place like Address line, city with import Geocoding com.google.android.gms.maps.mod el.LatLng; MainActivity.java import java.io.IOException; import android.location.Address; import java.util.List; import android.location.Geocoder; import java.util.Locale; import android.location.Location; import android.os.Bundle; public class MainActivity extends import android.widget.TextView;

import android.widget.Toast;

AppCompatActivity {

```
private
                                                     return;
FusedLocationProviderClient
fusedLocationProviderClient;
                                                   for (Location location:
  private LocationCallback
                                          locationResult.getLocations()) {
locationCallback;
  private TextView
                                          showLocationDetails(location);
textViewLocationDetails;
                                                   }
                                                 }
  @Override
                                               };
  protected void onCreate(Bundle
savedInstanceState) {
                                               requestLocationUpdates();
super.onCreate(savedInstanceState);
                                             }
setContentView(R.layout.activity_m
                                             private void
ain);
                                          requestLocationUpdates() {
                                               LocationRequest
    textViewLocationDetails =
                                          locationRequest =
findViewById(R.id.textViewLocation
                                          LocationRequest.create();
Details);
                                          locationRequest.setPriority(Location
    fusedLocationProviderClient =
                                          Request.PRIORITY_HIGH_ACCURACY
LocationServices.getFusedLocationP
                                          );
roviderClient(this);
                                          locationRequest.setInterval(10000);
                                          // 10 seconds
    locationCallback = new
LocationCallback() {
      @Override
                                          fusedLocationProviderClient.request
      public void
                                          LocationUpdates(locationRequest,
onLocationResult(LocationResult
                                          locationCallback, null);
locationResult) {
                                             }
        if (locationResult == null) {
```

```
}
  private void
showLocationDetails(Location
location) {
                                             @Override
    Geocoder geocoder = new
                                             protected void onPause() {
Geocoder(this, Locale.getDefault());
                                               super.onPause();
    try {
      List<Address> addresses =
                                          fusedLocationProviderClient.remove
geocoder.getFromLocation(location.
                                          LocationUpdates(locationCallback);
getLatitude(),
location.getLongitude(), 1);
                                            }
      if (!addresses.isEmpty()) {
                                          }
        Address address =
                                          activity main.xml
addresses.get(0);
        String addressLine =
                                          <?xml version="1.0" encoding="utf-
address.getAddressLine(0);
                                          8"?>
        String city =
address.getLocality();
                                          <RelativeLayout
                                          xmlns:android="http://schemas.and
        String country =
                                          roid.com/apk/res/android"
address.getCountryName();
        String postalCode =
                                          xmlns:tools="http://schemas.androi
address.getPostalCode();
                                          d.com/tools"
         String details = "Address: "
                                          android:layout width="match pare
+ addressLine + "\nCity: " + city +
                                          nt"
"\nCountry: " + country + "\nPostal
Code: " + postalCode;
                                          android:layout_height="match_pare
                                          nt"
textViewLocationDetails.setText(det
                                             tools:context=".MainActivity">
ails);
      }
                                             <TextView
    } catch (IOException e) {
      e.printStackTrace();
                                          android:id="@+id/textViewLocation
                                          Details"
    }
```

android:layout_width="wrap_conte nt"	<pre>import android.widget.CompoundButton; import android.widget.Switch;</pre>
	,
android:layout_height="wrap_conte	import android.widget.Toast;
nt"	import android.widget.ToggleButton;
android:layout_centerInParent="tru e"	import androidx.appcompat.app.AppComp
android:padding="16dp"	atActivity;
android:text=""	<pre>public class MainActivity extends AppCompatActivity {</pre>
android:textSize="16sp"/>	private Switch switchButton;
	private ToggleButton toggleButton;
	@Override
	<pre>protected void onCreate(Bundle savedInstanceState) {</pre>
	super.onCreate(savedInstanceState);
	setContentView(R.layout.activity_m ain);
Slip 10 Q1. Create an Android Application that Demonstrate Switch and Toggle Button	<pre>switchButton = findViewById(R.id.switchButton); toggleButton = findViewById(R.id.toggleButton);</pre>
MainActivity.java import android.os.Bundle; import android.view.View;	switchButton.setOnCheckedChange Listener(new CompoundButton.OnCheckedChang eListener() {

```
}
      @Override
      public void
                                                }
onCheckedChanged(CompoundButt
                                             });
on buttonView, boolean isChecked) {
                                            }
        if (isChecked) {
                                         }
Toast.makeText(MainActivity.this,
                                         activity main.xml
"Switch is ON",
                                         <?xml version="1.0" encoding="utf-
Toast.LENGTH SHORT).show();
                                         8"?>
        } else {
                                         <RelativeLayout
                                         xmlns:android="http://schemas.and
                                         roid.com/apk/res/android"
Toast.makeText(MainActivity.this,
"Switch is OFF",
Toast.LENGTH_SHORT).show();
                                         xmlns:tools="http://schemas.androi
                                         d.com/tools"
        }
      }
                                         android:layout width="match pare
    });
                                         nt"
toggleButton.setOnClickListener(ne
                                         android:layout height="match pare
w View.OnClickListener() {
                                         nt"
      @Override
                                            tools:context=".MainActivity">
      public void onClick(View v) {
        if
                                            <Switch
(toggleButton.isChecked()) {
                                         android:id="@+id/switchButton"
Toast.makeText(MainActivity.this,
"Toggle Button is ON",
Toast.LENGTH SHORT).show();
                                         android:layout_width="wrap_conte
                                         nt"
        } else {
                                         android:layout height="wrap conte
Toast.makeText(MainActivity.this,
                                         nt"
"Toggle Button is OFF",
                                              android:text="Switch"
Toast.LENGTH_SHORT).show();
```

	import android.os.Bundle;
android:layout_centerHorizontal="tr ue"	import android.widget.ArrayAdapter;
android:layout_marginTop="50dp"/ >	import android.widget.ListView;
	import
<togglebutton< td=""><td>androidx.appcompat.app.AppComp atActivity;</td></togglebutton<>	androidx.appcompat.app.AppComp atActivity;
android:id="@+id/toggleButton"	public class MainActivity extends
android:layout_width="wrap_conte nt"	AppCompatActivity {
android:layout_height="wrap_conte	private ListView listViewFruits;
nt"	@Override
android:text="Toggle Button"	_
android:layout_below="@id/switch	<pre>protected void onCreate(Bundle savedInstanceState) {</pre>
Button"	super.onCreate(savedInstanceState);
android:layout_centerHorizontal="tr ue"	<pre>setContentView(R.layout.activity_m ain);</pre>
android:layout_marginTop="50dp"/	
>	listViewFruits =
	findViewById(R.id.listViewFruits);
Q2. Demonstrate Array Adapter	// Array of fruits
using List View to display list of	String[] fruits = {"Apple",
fruits.	"Banana", "Orange", "Mango", "Grapes", "Strawberry",
MainActivity.java	"Pineapple", "Watermelon", "Kiwi", "Peach"};

```
// Create an ArrayAdapter
                                         android:id="@+id/listViewFruits"
    ArrayAdapter<String> adapter =
new ArrayAdapter<>(this,
android.R.layout.simple list item 1
                                         android:layout_width="match_pare
                                         nt"
, fruits);
                                         android:layout height="match pare
    // Set the ArrayAdapter on the
                                         nt"/>
ListView
listViewFruits.setAdapter(adapter);
                                         </RelativeLayout>
  }
}
activity main.xml
<?xml version="1.0" encoding="utf-
8"?>
<RelativeLayout
                                         Slip11
xmlns:android="http://schemas.and
roid.com/apk/res/android"
                                         Q.1 Create android application to
                                         change Font Size, Color and Font
                                         Family of String
xmlns:tools="http://schemas.androi
d.com/tools"
                                         Xml file
                                         <?xml version="1.0" encoding="utf-
                                         8"?>
android:layout width="match pare
nt"
                                         <androidx.constraintlayout.widget.C
                                         onstraintLayout
android:layout_height="match_pare"
                                         xmlns:android="http://schemas.and
nt"
                                         roid.com/apk/res/android"
  tools:context=".MainActivity">
                                         xmlns:app="http://schemas.android
                                         .com/apk/res-auto"
```

<ListView

xmlns:tools="http://schemas.androi Date of birth, Address, Email ID and d.com/tools" display all information on Second Activity whenuser click on android:layout width="match pare nt" the Submit button. android:layout height="match pare FirstActivity.java nt" import android.content.Intent; tools:context=".MainActivity" import android.os.Bundle; android:background="@color/color import android.view.View; Accent"> import android.widget.Button; <TextView import android.widget.EditText; android:layout width="wrap conte nt" import androidx.appcompat.app.AppComp android:layout height="wrap conte atActivity; nt" public class FirstActivity extends android:text="Hello TYBCA!" AppCompatActivity { android:fontFamily="cursive" EditText firstNameEditText, android:textSize="70dp" middleNameEditText, lastNameEditText, dobEditText, app:layout_constraintBottom_toBot addressEditText, emailEditText; tomOf="parent" Button submitButton; app:layout constraintLeft toLeftOf= "parent" @Override app:layout_constraintRight_toRight protected void onCreate(Bundle Of="parent" savedInstanceState) { app:layout constraintTop toTopOf= "parent" /> super.onCreate(savedInstanceState); </androidx.constraintlayout.widget. ConstraintLayout> setContentView(R.layout.activity_fir st); Q.2 Create First Activity to accept // Initialize views information like Student First firstNameEditText = Name, Middle Name, Last Name, findViewById(R.id.firstNameEditText);

```
middleNameEditText =
                                                    String email =
findViewById(R.id.middleNameEditT
                                           emailEditText.getText().toString();
ext);
                                           // Create Intent to pass data to
    lastNameEditText =
                                           SecondActivity
findViewById(R.id.lastNameEditText)
                                                    Intent intent = new
                                           Intent(FirstActivity.this,
    dobEditText =
                                           SecondActivity.class);
findViewById(R.id.dobEditText);
    addressEditText =
                                           intent.putExtra("firstName",
findViewById(R.id.addressEditText);
                                           firstName);
    emailEditText =
findViewById(R.id.emailEditText);
                                           intent.putExtra("middleName",
                                           middleName);
    submitButton =
findViewById(R.id.submitButton);
                                           intent.putExtra("lastName",
submitButton.setOnClickListener(ne
                                           lastName);
w View.OnClickListener() {
                                                    intent.putExtra("dob",
      @Override
                                           dob);
      public void onClick(View v) {
                                                    intent.putExtra("address",
        // Get user input
                                           address);
        String firstName =
                                                    intent.putExtra("email",
firstNameEditText.getText().toString(
                                           email);
);
                                            // Start SecondActivity
         String middleName =
                                                    startActivity(intent);
middleNameEditText.getText().toStri
                                                  }
ng();
        String lastName =
                                               });
lastNameEditText.getText().toString(
                                             }
);
                                           }
        String dob =
                                           activity_first.xml
dobEditText.getText().toString();
        String address =
                                           <!-- activity first.xml -->
addressEditText.getText().toString();
```

```
<RelativeLayout
xmlns:android="http://schemas.and
                                           setContentView(R.layout.activity_se
roid.com/apk/res/android"
                                          cond);
                                               // Initialize views
xmlns:tools="http://schemas.androi
                                               displayTextView =
d.com/tools"
                                          findViewById(R.id.displayTextView);
                                               // Get data from Intent
android:layout width="match pare
nt"
                                               String firstName =
                                           getIntent().getStringExtra("firstNam
                                           e");
android:layout height="match pare
nt"
                                               String middleName =
                                          getIntent().getStringExtra("middleN
  tools:context=".FirstActivity">
                                           ame");
<!-- Input fields for student
                                               String lastName =
information -->
                                          getIntent().getStringExtra("lastNam
  <!-- Add EditText fields and labels
                                          e");
for each input, and a Button for
                                               String dob =
submission -->
                                          getIntent().getStringExtra("dob");
</RelativeLayout>
                                               String address =
                                          getIntent().getStringExtra("address"
SecondActivity.java
                                          );
import android.os.Bundle;
                                               String email =
import android.widget.TextView;
                                          getIntent().getStringExtra("email");
import
                                              // Display data
androidx.appcompat.app.AppComp
                                               String displayText = "Name: " +
atActivity;
                                          firstName + " " + middleName + " "
public class SecondActivity extends
                                           + lastName + "\n" +
AppCompatActivity {
                                                   "Date of Birth: " + dob +
  TextView displayTextView;
                                           "\n" +
  @Override
                                                   "Address: " + address +
                                           "\n" +
  protected void onCreate(Bundle
savedInstanceState) {
                                                   "Email: " + email;
```

super.onCreate(savedInstanceState);

	<application< th=""></application<>
displayTextView.setText(displayText) ;	Other application configurations
<pre>} }</pre>	<activity android:name=".ResultActivity"></activity>
activity_second.xml:	
activity_second.xml	activity_main.xml
<relativelayout xmlns:android="http://schemas.and roid.com/apk/res/android"</relativelayout 	xml version="1.0" encoding="utf-8"?
xmlns:tools="http://schemas.androi d.com/tools"	<pre><relativelayout <="" pre="" xmlns:android="http://schemas.and roid.com/apk/res/android"></relativelayout></pre>
android:layout_width="match_pare nt"	xmlns:tools="http://schemas.androi d.com/tools"
android:layout_height="match_pare nt"	android:layout_width="match_pare nt"
tools:context=".SecondActivity">	
TextView to display student information	android:layout_height="match_pare nt"
	tools:context=".MainActivity">
	<button< td=""></button<>
Slip no – 12	android:id="@+id/sendButton"
Q1.Create a Simple Application Which Send —Hi message from one activity to another with help of Button (Use Intent).	android:layout_width="wrap_conte nt"
② Open your AndroidManifest.xml file and add the ResultActivity declaration within	android:layout_height="wrap_conte nt"
code.	android:text="Send Hi Message"

android:layout_centerInParent="tru e"/>	Intent intent = new Intent(MainActivity.this, ResultActivity.class);
<td>// Put extra data (message) with</td>	// Put extra data (message) with
MainActivity.java	the intent
package	<pre>intent.putExtra("message", "Hi");</pre>
com.example.activitylifecycle;	// Start the SecondActivity
import android.content.Intent;	startActivity(intent);
import android.os.Bundle;	}
import android.view.View;	}) ;
import android.widget.Button;	}
import	}
androidx.appcompat.app.AppComp atActivity;	ResultActivity.java
public class MainActivity extends AppCompatActivity {	package com.example.activitylifecycle;
@Override	import android.os.Bundle;
protected void onCreate(Bundle	import android.widget.TextView;
savedInstanceState) {	<pre>import androidx.appcompat.app.AppComp atActivity;</pre>
super.onCreate(savedInstanceState);	public class ResultActivity extends AppCompatActivity {
<pre>setContentView(R.layout.activity_m ain);</pre>	@Override
Button sendButton = findViewById(R.id.sendButton);	protected void onCreate(Bundle savedInstanceState) {
sendButton.setOnClickListener(new View.OnClickListener() {	super.onCreate(savedInstanceState);
@Override	
<pre>public void onClick(View v) {</pre>	<pre>setContentView(R.layout.activity_re sult);</pre>
// Create an Intent to start the SecondActivity	// Get the message from the intent

```
String message =
getIntent().getStringExtra("message
                                         android:layout height="wrap conte
");
                                         nt"
// Display the message in TextView
                                         android:textSize="24sp"
TextView messageTextView =
findViewById(R.id.messageTextView
                                         android:layout centerInParent="tru
);
                                         e"/>
messageTextView.setText(message);
                                         </RelativeLayout>
}
}
                                         Q2. Create a custom "Contact"
                                         layout to hold multiple pieces of
activity_result.xml
                                         information, including:
<?xml version="1.0" encoding="utf-
                                         Photo, Name, Contact Number, E-
8"?>
                                         mail id.
<RelativeLayout
xmlns:android="http://schemas.and
roid.com/apk/res/android"
                                         contact_item.xml
                                         <LinearLayout
xmlns:tools="http://schemas.androi
                                         xmlns:android="http://schemas.and
d.com/tools"
                                         roid.com/apk/res/android"
android:layout_width="match_pare
                                         android:layout_width="match_pare
nt"
                                         nt"
android:layout_height="match_pare"
                                         android:layout_height="wrap_conte
                                         nt"
nt"
tools:context=".ResultActivity">
                                           android:orientation="horizontal"
                                           android:padding="16dp">
<TextView
android:id="@+id/messageTextView
                                           <!-- Photo -->
                                           <ImageView
android:layout width="wrap conte
nt"
```

```
android:text="Name"
android:id="@+id/contactPhotoIma
                                               android:textSize="18sp"
geView"
                                               android:textStyle="bold" />
    android:layout width="80dp"
    android:layout_height="80dp"
                                             <!-- Contact number -->
android:src="@drawable/default_co
                                             <TextView
ntact image" />
                                        android:id="@+id/contactNumberTe
                                        xtView"
  <!-- Contact information -->
  <LinearLayout
                                         android:layout_width="match_pare
                                         nt"
    android:layout width="0dp"
android:layout height="wrap conte
                                         android:layout height="wrap conte
nt"
                                         nt"
    android:layout weight="1"
                                               android:text="Contact
                                         Number"
    android:orientation="vertical"
                                               android:textSize="16sp" />
android:layout marginStart="16dp"
                                             <!-- Email -->
                                             <TextView
    <!-- Name -->
                                         android:id="@+id/contactEmailText
    <TextView
                                        View"
android:id="@+id/contactNameText
View"
                                         android:layout width="match pare
                                         nt"
android:layout width="match pare
nt"
                                         android:layout height="wrap conte
                                         nt"
android:layout height="wrap conte
                                               android:text="Email"
nt"
                                               android:textSize="16sp" />
```

```
this.context = context;
  </LinearLayout>
                                            }
</LinearLayout>
                                            @NonNull
                                            @Override
Java file
                                            public ContactViewHolder
                                          onCreateViewHolder(@NonNull
import android.content.Context;
                                          ViewGroup parent, int viewType) {
import android.view.LayoutInflater;
                                              View view =
import android.view.View;
                                          LayoutInflater.from(parent.getConte
                                          xt()).inflate(R.layout.contact item,
import android.view.ViewGroup;
                                          parent, false);
import android.widget.ImageView;
                                              return new
import android.widget.TextView;
                                          ContactViewHolder(view);
import
                                            }
androidx.annotation.NonNull;
import
                                            @Override
androidx.recyclerview.widget.Recycl
erView;
                                            public void
                                          onBindViewHolder(@NonNull
import java.util.List;
                                          ContactViewHolder holder, int
                                          position) {
public class ContactAdapter extends
                                              Contact contact =
RecyclerView.Adapter<ContactAdap
                                          contactList.get(position);
ter.ContactViewHolder> {
                                          holder.contactNameTextView.setTex
                                          t(contact.getName());
  private List<Contact> contactList;
  private Context context;
                                          holder.contactNumberTextView.setT
                                          ext(contact.getPhoneNumber());
  public
ContactAdapter(List<Contact>
                                          holder.contactEmailTextView.setText
contactList, Context context) {
                                          (contact.getEmail());
    this.contactList = contactList;
```

```
// Set photo here if you have
                                               contactNumberTextView =
photo data in your Contact object
                                         itemView.findViewById(R.id.contact
                                         NumberTextView);
  }
                                               contactEmailTextView =
                                         itemView.findViewById(R.id.contact
  @Override
                                         EmailTextView);
  public int getItemCount() {
                                             }
    return contactList.size();
                                           }
  }
                                         }
  public static class
                                         Slip13 (Scroll view)
ContactViewHolder extends
                                         Q1. Create following Vertical Scroll
RecyclerView.ViewHolder {
                                         View Creation in Android.
                                         //Activity Main.java
    ImageView
                                         package com.example.slip22 1;
contactPhotoImageView;
                                         import
    TextView
                                         androidx.appcompat.app.AppComp
contactNameTextView;
                                         atActivity;
    TextView
                                         import android.os.Bundle;
contactNumberTextView;
                                         public class MainActivity extends
    TextView
                                         AppCompatActivity {
contactEmailTextView;
                                         @Override
                                         protected void onCreate(Bundle
    public
                                         savedInstanceState) {
ContactViewHolder(@NonNull View
itemView) {
                                         super.onCreate(savedInstanceState);
                                         setContentView(R.layout.activity_m
      super(itemView);
                                         ain);
      contactPhotoImageView =
itemView.findViewById(R.id.contact
                                         }
PhotoImageView);
                                         }
      contactNameTextView =
                                         //activity_main.xml
itemView.findViewById(R.id.contact
NameTextView);
```

xml version="1.0" encoding="utf-</th <th>android:text="Button 1" /></th>	android:text="Button 1" />
8"?>	<button< td=""></button<>
<androidx.constraintlayout.widget.c onstraintlayout<="" td=""><td>android:layout_width="wrap_conte nt"</td></androidx.constraintlayout.widget.c>	android:layout_width="wrap_conte nt"
xmlns:android="http://schemas.and roid.com/apk/res/android"	android:layout_height="wrap_conte nt"
xmlns:app="http://schemas.android .com/apk/res-auto"	android:layout_gravity="center"
xmlns:tools="http://schemas.androi d.com/tools"	android:text="Button 2" /> <button< td=""></button<>
android:layout_width="match_pare nt"	android:layout_width="wrap_conte nt"
android:layout_height="match_pare nt"	android:layout_height="wrap_conte nt"
tools:context=".MainActivity">	android:layout_gravity="center"
<scrollview< td=""><td>android:text="Button 3" /></td></scrollview<>	android:text="Button 3" />
android:layout_width="match_pare	<button< td=""></button<>
nt"	android:layout_width="wrap_conte
android:layout_height="match_pare nt">	nt"
<linearlayout< td=""><td>android:layout_height="wrap_conte nt"</td></linearlayout<>	android:layout_height="wrap_conte nt"
android:layout_width="match_pare	android:layout_gravity="center"
nt"	android:text="Button 4" />
android:layout_height="wrap_conte nt"	<button< td=""></button<>
android:orientation="vertical">	android:layout_width="wrap_conte nt"
<button< td=""><td>android:layout_height="wrap_conte</td></button<>	android:layout_height="wrap_conte
android:layout_width="wrap_conte	nt"
nt"	android:layout_gravity="center"
android:layout_height="wrap_conte nt"	android:text="Button 5" />
android:layout_gravity="center"	<button< td=""></button<>

android:layout_width="wrap_conte nt"	android:layout_height="wrap_conte nt"
android:layout_height="wrap_conte	android:layout_gravity="center"
nt"	android:text="Button 9" />
android:layout_gravity="center"	<button< td=""></button<>
By: Shivarkar S.Y. Page 28	android:layout_width="wrap_conte
android:text="Button 6" />	nt"
<button< td=""><td>android:layout_height="wrap_conte</td></button<>	android:layout_height="wrap_conte
android:layout_width="wrap_conte	nt"
nt"	android:layout_gravity="center"
android:layout_height="wrap_conte nt"	android:text="Button 11" />
	<button< td=""></button<>
android:layout_gravity="center"	android:layout_width="wrap_conte
android:text="Button 7" />	nt"
<button< td=""><td>android:layout_height="wrap_conte nt"</td></button<>	android:layout_height="wrap_conte nt"
android:layout_width="wrap_conte nt"	android:layout_gravity="center"
	, =-
android:layout_height="wrap_conte nt"	android:text="Button 12" />
android:layout_gravity="center"	<button< td=""></button<>
android:text="Button 10" />	android:layout_width="wrap_conte nt"
<button< td=""><td>android:layout_height="wrap_conte</td></button<>	android:layout_height="wrap_conte
	nt"
android:layout_width="wrap_conte nt"	android:layout_gravity="center"
android:layout_height="wrap_conte	android:text="Button 13" />
nt"	<button< td=""></button<>
android:layout_gravity="center"	android:layout_width="wrap_conte
android:text="Button 8" />	nt"
<button< td=""><td>android:layout_height="wrap_conte</td></button<>	android:layout_height="wrap_conte
android:layout_width="wrap_conte	nt"
nt"	android:layout_gravity="center"

android:text="Button 14" /> android:layout width="wrap conte nt" <Button android:layout height="wrap conte android:layout width="wrap conte nt" nt" android:layout gravity="center" android:layout height="wrap conte nt" android:text="Button 19" /> By: Shivarkar S.Y. Page 29 <Button android:layout gravity="center" android:layout_width="wrap_conte nt" android:text="Button 15" /> android:layout_height="wrap conte <Button nt" android:layout width="fill parent" android:layout gravity="center" android:layout_height="wrap_conte android:text="Button 20" /> nt" </LinearLayout> android:text="Button 16" /> </ScrollView> <Button </androidx.constraintlayout.widget.</pre> android:layout width="wrap conte ConstraintLayout> nt" android:layout height="wrap conte nt" Q2. Write an application to accept a teacher name from user and android:layout gravity="center" display the names of studentsalong android:text="Button 17" /> with subjects to whom they are <Button teaching. android:layout width="wrap conte Create table Student (sno, nt" s_name,s_class,s_addr) android:layout height="wrap conte Teacher (tno, t_name, qualification, nt" experience) android:layout gravity="center" Student-Teacher has Many to Many relationship. android:text="Button 18" /> <Button Java file

```
import android.content.Context;
                                           public static final String
                                         COLUMN S CLASS = "s class";
import
android.database.sqlite.SQLiteDatab
                                           public static final String
                                         COLUMN S ADDR = "s addr";
ase;
import
android.database.sqlite.SQLiteOpen
                                           // Teacher table - column names
Helper;
                                           public static final String
                                         COLUMN T NAME = "t name";
public class DatabaseHelper extends
                                           public static final String
SQLiteOpenHelper {
                                         COLUMN_QUALIFICATION =
                                         "qualification";
  private static final String
                                           public static final String
                                         COLUMN EXPERIENCE =
DATABASE NAME = "school.db";
                                         "experience";
  private static final int
DATABASE_VERSION = 1;
                                           // TeachingAssignment table -
                                         column names
  // Table names
                                           public static final String
  public static final String
                                         COLUMN STUDENT ID =
TABLE STUDENT = "Student";
                                         "student id";
  public static final String
                                           public static final String
TABLE TEACHER = "Teacher";
                                         COLUMN TEACHER ID =
  public static final String
                                         "teacher id";
TABLE TEACHING ASSIGNMENT =
"TeachingAssignment";
                                           // Create table statements
                                           private static final String
  // Common column names
                                         CREATE TABLE STUDENT = "CREATE
  public static final String
                                         TABLE " + TABLE STUDENT + "(" +
COLUMN ID = "id";
                                               COLUMN_ID + " INTEGER
                                         PRIMARY KEY AUTOINCREMENT," +
  // Student table - column names
                                                COLUMN S NAME + "TEXT,"
                                         +
  public static final String
COLUMN_S_NAME = "s_name";
```

```
COLUMN S CLASS + "TEXT,"
                                       REFERENCES " + TABLE TEACHER +
                                       "(" + COLUMN ID + "))";
+
      COLUMN S_ADDR + " TEXT"
+")";
                                         public DatabaseHelper(Context
                                       context) {
                                           super(context,
  private static final String
CREATE_TABLE_TEACHER = "CREATE
                                       DATABASE_NAME, null,
TABLE " + TABLE TEACHER + "(" +
                                       DATABASE VERSION);
      COLUMN ID + "INTEGER
                                         }
PRIMARY KEY AUTOINCREMENT," +
      COLUMN_T_NAME + " TEXT,"
                                         @Override
+
                                         public void
      COLUMN QUALIFICATION + "
                                       onCreate(SQLiteDatabase db) {
TEXT," +
                                          // Creating required tables
      COLUMN_EXPERIENCE + "
TEXT" + ")";
                                       db.execSQL(CREATE TABLE STUDEN
                                       T);
  private static final String
CREATE TABLE TEACHING ASSIGN
                                       db.execSQL(CREATE TABLE TEACHE
MENT = "CREATE TABLE" +
                                       R);
TABLE TEACHING ASSIGNMENT +
"(" +
                                       db.execSQL(CREATE_TABLE_TEACHI
      COLUMN_ID + " INTEGER
                                       NG ASSIGNMENT);
PRIMARY KEY AUTOINCREMENT," +
                                         }
      COLUMN_STUDENT_ID + "
INTEGER," +
                                         @Override
      COLUMN_TEACHER_ID + "
INTEGER," +
                                         public void
      "FOREIGN KEY(" +
                                       onUpgrade(SQLiteDatabase db, int
                                       oldVersion, int newVersion) {
COLUMN STUDENT ID + ")
REFERENCES " + TABLE_STUDENT +
                                          // Drop older tables if existed
"(" + COLUMN ID + ")," +
                                           db.execSQL("DROP TABLE IF
      "FOREIGN KEY(" +
                                       EXISTS " + TABLE_STUDENT);
COLUMN_TEACHER_ID + ")
```

```
db.execSQL("DROP TABLE IF
                                            protected void onCreate(Bundle
EXISTS " + TABLE_TEACHER);
                                         savedInstanceState) {
    db.execSQL("DROP TABLE IF
EXISTS "+
                                         super.onCreate(savedInstanceState);
TABLE_TEACHING_ASSIGNMENT);
                                         setContentView(R.layout.activity m
                                         ain);
    // Create tables again
                                             Log.d(TAG, "onCreate");
    onCreate(db);
                                            }
  }
}
                                            @Override
                                            protected void onStart() {
Slip14
                                              super.onStart();
Q1. Create a Simple Application
                                             Log.d(TAG, "onStart");
which shows Life Cycle of Activity.
[10 Marks]
                                            }
{Use log}.
                                            @Override
MainActivity.java:
                                            protected void onResume() {
import android.os.Bundle;
                                              super.onResume();
import android.util.Log;
                                              Log.d(TAG, "onResume");
import
androidx.appcompat.app.AppComp
                                            }
atActivity;
                                            @Override
public class MainActivity extends
                                            protected void onPause() {
AppCompatActivity {
                                              super.onPause();
                                             Log.d(TAG, "onPause");
  private static final String TAG =
                                            }
"MainActivity";
                                            @Override
  @Override
```

```
protected void onStop() {
                                         android:layout_height="match_pare
    super.onStop();
                                         nt"
    Log.d(TAG, "onStop");
                                            tools:context=".MainActivity">
  }
                                            <TextView
  @Override
                                              android:id="@+id/textView"
  protected void onDestroy() {
    super.onDestroy();
                                         android:layout width="wrap conte
                                         nt"
    Log.d(TAG, "onDestroy");
  }
                                         android:layout_height="wrap_conte
                                         nt"
  @Override
                                              android:text="Lifecycle events
                                         will be displayed here"
  protected void onRestart() {
                                              android:textSize="18sp"
    super.onRestart();
    Log.d(TAG, "onRestart");
                                         android:layout centerInParent="tru
  }
                                         e"/>
}
activity_main.xml:
                                         </RelativeLayout>
<!-- activity main.xml -->
                                         Manifest.xml:
<?xml version="1.0" encoding="utf-
                                         <manifest
8"?>
                                         xmlns:android="http://schemas.and
                                         roid.com/apk/res/android"
<RelativeLayout
xmlns:android="http://schemas.and
roid.com/apk/res/android"
                                         package="com.example.lifecycle">
xmlns:tools="http://schemas.androi
                                            <application
d.com/tools"
                                              android:allowBackup="true"
android:layout width="match pare
nt"
```

```
import android.net.Uri;
android:icon="@mipmap/ic launch
                                         import android.os.Bundle;
er"
                                         import android.view.View;
                                         import android.widget.Button;
android:label="@string/app_name"
                                         import
android:roundlcon="@mipmap/ic | 1
                                         androidx.appcompat.app.AppComp
auncher round"
                                         atActivity;
    android:supportsRtl="true"
                                         public class MainActivity extends
                                         AppCompatActivity {
android:theme="@style/AppTheme
">
    <activity
                                           @Override
android:name=".MainActivity">
                                           protected void onCreate(Bundle
      <intent-filter>
                                         savedInstanceState) {
        <action
android:name="android.intent.actio
                                         super.onCreate(savedInstanceState);
n.MAIN" />
                                         setContentView(R.layout.activity_m
                                         ain);
        <category
android:name="android.intent.cate
gory.LAUNCHER" />
                                             Button sendEmailButton =
      </intent-filter>
                                         findViewById(R.id.sendEmailButton)
    </activity>
  </application>
                                         sendEmailButton.setOnClickListener
                                         (new View.OnClickListener() {
</manifest>
                                                @Override
                                                public void onClick(View v) {
Q2. Create an Android application
                                                  composeEmail();
to send email.
                                                }
MainActivity.java:
                                             });
import android.content.Intent;
```

```
}
                                          <RelativeLayout
                                          xmlns:android="http://schemas.and
                                          roid.com/apk/res/android"
  public void composeEmail() {
    String[] recipients =
                                          xmlns:tools="http://schemas.androi
{"recipient@example.com"}; //
                                          d.com/tools"
Change this to the recipient's email
address
                                          android:layout width="match pare
    Intent intent = new
                                          nt"
Intent(Intent.ACTION SENDTO);
                                          android:layout height="match pare
intent.setData(Uri.parse("mailto:"));
                                          nt"
                                            tools:context=".MainActivity">
intent.putExtra(Intent.EXTRA EMAIL
, recipients);
                                            <Button
intent.putExtra(Intent.EXTRA SUBJE
CT, "Subject of the Email");
                                          android:id="@+id/sendEmailButton
intent.putExtra(Intent.EXTRA_TEXT,
"Body of the Email");
                                          android:layout_width="wrap_conte
                                          nt"
    if
(intent.resolveActivity(getPackageM
anager()) != null) {
                                          android:layout_height="wrap_conte
                                          nt"
      startActivity(intent);
                                              android:text="Send Email"
    }
  }
                                          android:layout centerInParent="tru
}
                                          e"/>
activity_main.xml:
<!-- activity_main.xml -->
                                          </RelativeLayout>
<?xml version="1.0" encoding="utf-
                                          AndroidManifest.xml:
8"?>
```

```
<manifest
                                                 <category
xmlns:android="http://schemas.and
                                         android:name="android.intent.cate
roid.com/apk/res/android"
                                         gory.LAUNCHER" />
                                               </intent-filter>
package="com.example.sendemail"
                                             </activity>
>
                                           </application>
  <uses-permission
android:name="android.permission.
                                         </manifest>
INTERNET" />
                                         Slip15
  <application
                                         Q1.Create Hello_world application
                                         that will display Hello world in
    android:allowBackup="true"
                                         middle of the screen in blue color
android:icon="@mipmap/ic_launch
                                         with white background with border
er"
                                        //activity main.xml
                                         <?xml version="1.0" encoding="utf-
android:label="@string/app_name"
                                         8"?>
                                         <RelativeLayout
android:roundlcon="@mipmap/ic | 1
                                         xmlns:android="http://schemas.and
auncher round"
                                         roid.
    android:supportsRtl="true"
                                        com/apk/res/android"
android:theme="@style/AppTheme
">
                                         xmlns:app="http://schemas.android
                                         .com/
    <activity
android:name=".MainActivity">
                                         apk/res-auto"
      <intent-filter>
        <action
                                         xmlns:tools="http://schemas.androi
android:name="android.intent.actio
                                         d.co
n.MAIN" />
                                         m/tools"
```

android:layout_width="match_pare	android:background="#A00000FF"
nt"	android:textColor="#ffffff"
	android:textSize="40sp" />
android:layout_height="match_pare nt"	
android:background="#000000"	
android:padding="10dp"	//border.xml
tools:context=".MainActivity">	xml version="1.0" encoding="utf-8"?
<linearlayout< td=""><td><shape< td=""></shape<></td></linearlayout<>	<shape< td=""></shape<>
android:layout_width="match_pare	xmlns:android="http://schemas.android.
nt"	com/apk/res/android"
	By: Shivarkar S.Y. Page 42
android:layout_height="match_pare nt"	android:shape="rectangle">
	<stroke< td=""></stroke<>
android:orientation="horizontal"	android:width="20dp"
android:background="@drawable/b	android:color="#ffffff">
order">	
<textview< td=""><td></td></textview<>	
	slip15
android:layout_width="fill_parent"	Q2
	//ActivityMain.java
android:layout_height="fill_parent"	package com.example.slip3_2;
android:gravity="center_vertical ce	<pre>import androidx.appcompat.app.AppComp atActivity;</pre>
nte	import android.content.Intent;
r_horizontal"	import android.os.Bundle;
android:text="Hello World!"	

```
Bundle bundle = new Bundle();
import android.view.View;
                                          bundle.putString("value1",name);
import android.widget.Button;
                                          bundle.putString("value2",sname);
import android.widget.EditText;
                                          bundle.putString("value3",marks);
public class MainActivity extends
AppCompatActivity {
                                          Intent intent = new
@Override
                                          Intent(MainActivity.this,
protected void onCreate(Bundle
                                          SecondActivirt.class);
savedInstanceState) {
                                          intent.putExtras(bundle);
super.onCreate(savedInstanceState);
                                          startActivity(intent);
setContentView(R.layout.activity m
                                          }
ain);
                                          });
final EditText editText =
                                          }
findViewById(R.id.name);
final EditText
text2=findViewById(R.id.sname);
                                          //main_activity.xml
final EditText
                                          <?xml version="1.0" encoding="utf-
text3=findViewById(R.id.marks);
                                          8"?>
                                          <LinearLayout
Button button =
                                          xmlns:android="http://schemas.and
findViewById(R.id.button);
                                          roid.com/apk/res/android"
button.setOnClickListener(new
                                          xmlns:app="http://schemas.android
View.OnClickListener() {
                                          .com/apk/res-auto"
@Override
                                          xmlns:tools="http://schemas.androi
                                          d.com/tools"
public void onClick(View v) {
                                          android:layout width="match pare
String name =
                                          nt"
editText.getText().toString().trim();
                                          android:layout_height="match_pare"
String
                                          nt"
sname=text2.getText().toString().tri
                                          android:orientation="vertical"
m();
                                          tools:context=".MainActivity">
String marks =
                                          <EditText
text3.getText().toString().trim();
```

```
android:id = "@+id/name"
                                          android:layout height =
                                          "wrap content"
android:layout width =
"match parent"
                                          android:layout gravity = "center"
android:layout_height =
                                          android:layout marginTop = "16dp"
"wrap content"
                                          android:text = "Next" />
android:layout gravity = "center"
                                          </LinearLayout>
android:hint = "Enter name"
                                          //SecondActivity.java
android:inputType = "text" />
                                          package com.example.slip3 2;
<EditText
                                          import android.content.Intent;
android:id = "@+id/sname"
                                          import android.os.Bundle;
android:layout width =
                                          import android.widget.TextView;
"match parent"
                                          import
android:layout height =
                                          androidx.appcompat.app.AppComp
"wrap content"
                                          atActivity;
android:layout gravity = "center"
                                          public class SecondActivirt extends
android:hint = "Enter surname"
                                          AppCompatActivity {
android:inputType = "text" />
                                          @Override
<EditText
                                          protected void onCreate(Bundle
                                          savedInstanceState) {
android:id = "@+id/marks"
                                          super.onCreate(savedInstanceState);
android:layout width =
"match parent"
                                          setContentView(R.layout.activity se
                                          cond);
android:layout height =
"wrap content"
                                          Bundle bundle =
                                          getIntent().getExtras();
android:layout gravity = "center"
                                          if (bundle!= null) {
android:hint = "Enter marks"
                                          String value =
android:inputType = "text" />
                                          bundle.getString("value1");
<Button
                                          String value2 =
android:id = "@+id/button"
                                          bundle.getString("value2");
android:layout width =
                                          String value3 =
"wrap content"
                                          bundle.getString("value3");
```

```
TextView textView =
                                          <TextView
findViewById(R.id.text view);
                                          android:id = "@+id/textryr"
TextView textView2 =
                                          android:layout width =
findViewById(R.id.textryr);
                                          "match parent"
TextView textView3 =
                                          android:layout height =
                                          "wrap content"
findViewById(R.id.textcollection);
textView.setText(value);
                                          android:layout gravity = "center" />
textView2.setText(value2);
                                          <TextView
textView3.setText(value3);
                                          android:id = "@+id/textcollection"
}
                                          android:layout width =
                                          "match parent"
}
                                          android:layout height =
}
                                          "wrap_content"
//activity second.xml
                                          android:layout gravity = "center" />
<?xml version="1.0" encoding="utf-
                                          </LinearLayout>
8"?>
<LinearLayout
                                          Slip 16
xmlns:android="http://schemas.and
roid.com/apk/res/android"
                                          Q1. Create an Android App, it reads
                                          the Students Details (Name,
android:orientation="vertical"
                                          Surname, Class, Gender, Hobbies,
android:layout width="match pare
                                          Marks) and
nt"
                                          display the all information in
android:layout_height="match_pare
                                          another activity in table format on
nt">
                                          click of Submit button.
<TextView
                                          Open your AndroidManifest.xml
                                          file and add the ResultActivity
android:id = "@+id/text view"
                                          declaration
android:layout_width =
                                          within code.
"match parent"
                                          <application
android:layout height =
"wrap content"
                                          <!-- Other application
                                          configurations -->
android:layout gravity = "center" />
```

activity_main.xml <i activity_main.xml=""> <relativelayout android:layout_below="@id/editTex tName" android:layout_height="match_pare nt" cl="" class="" edittext="" xmlns:android="http://schemas.and roid.com/apk/res/android" xmlns:tools="http://schemas.android d.com/tools"> android:layout_width="match_pare nt" tools:context=".MainActivity"> <!-- Name EditText--> <edittext android:layout_below="@id/editTex tSurname" android:layout_height="wrap_conte nt" android:layout_margin="16dp" android:layout_width="match_pare nt"></edittext> <!-- Gender EditText--> <edittext android:layout_margin="16dp"></edittext> <!-- Gender EditText--> <edittext android:layout_margin="16dp"></edittext> <!-- Gender EditText--> <edittext <="" android:lay="@id/editTextGender" th=""><th><activity android:name=".ResultActivity"></activity> </th><th>android:id="@+id/editTextSurname</th></edittext></relativelayout></i>	<activity android:name=".ResultActivity"></activity>	android:id="@+id/editTextSurname
<pre></pre>		
<pre></pre>	-	—·
xmlns:android="http://schemas.and roid.com/apk/res/android" xmlns:tools="http://schemas.android.com/tools" android:layout_below="@id/editTex tName" android:layout_margin="16dp" />		ΠL
xmlns:tools="http://schemas.androi d.com/tools" android:layout_below="@id/editTex tName" android:layout_margin="16dp" />	xmlns:android="http://schemas.and	
d.com/tools" android:layout_below="@id/editTex tName" android:layout_width="match_pare nt" android:layout_height="match_pare nt" tools:context=".MainActivity"> Class EditText android:id="@+id/editTextClass" **CeditText android:id="@+id/editTextName" android:id="@+id/editTextName" android:layout_width="match_pare nt" android:layout_width="match_pare nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_margin="16dp" / Gender EditText Surname EditText **EditText android:id="@+id/editTextGender" android:id="@+id/editTextGender"	vento ata ata da l'http://sabanaa an drai	android:hint="Surname"
android:layout_width="match_pare nt" android:layout_height="match_pare nt" android:layout_height="match_pare nt" tools:context=".MainActivity"> Class EditText android:layout_height="match_pare nt" android:layout_width="match_pare nt" android:layout_width="match_pare nt" android:layout_width="match_pare nt" android:layout_width="match_pare nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_margin="16dp" /> Gender EditText Surname EditText Surname EditText android:id="@+id/editTextGender"	•	
android:layout_height="match_pare nt" android:layout_height="match_pare nt" cl Name EditText> cEditText android:layout_width="match_pare nt" android:layout_width="match_pare nt" android:layout_width="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="android:layout_margin="16dp" /> c! Gender EditText> c! Surname EditText> c! Surname EditText> android:layout_margin="16dp" /> c! Gender EditText> c Surname EditText> android:layout_margin="16dper"		· —
android:layout_height="match_pare nt"		android:layout_margin="16dp" />
nt" tools:context=".MainActivity"> Name EditText <edittext @id="" android:id="@+id/editTextClass" android:layout_height="android:layout_below=" android:layout_margin="16dp" android:layout_width="match_pare nt" edittext="" tsurname"=""></edittext> Gender EditText Gender EditText Surname EditText Surname EditText android:id="@+id/editTextGender" android:id="@+id/editTextGender"		Class EditText
tools:context=".MainActivity"> Name EditText <edittext android:id="@+id/editTextClass" android:layout_below="@id/editText tSurname" android:layout_height="wrap_conte nt" android:layout_margin="16dp" android:layout_width="wrap_conte nt"></edittext> Gender EditText Gender EditText <edittext <="" android:id="@+id/editTextGender" td=""><td></td><td><edittext< td=""></edittext<></td></edittext>		<edittext< td=""></edittext<>
<pre><!-- Name EditText--></pre>		android:id="@+id/editTextClass"
<pre><edittext android:id="@+id/editTextName" android:layout_below="@id/editTex tSurname" android:layout_height="wrap_conte nt" android:layout_margin="16dp" android:layout_width="match_pare nt"></edittext> <!-- Gender EditText--> </pre> <pre><!-- Gender EditText--> android:id="@+id/editTextGender"</pre>	tools:context=".MainActivity">	
<pre>android:id="@+id/editTextName" android:layout_width="match_pare nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_below="@id/editTex tSurname" android:layout_margin="16dp" /> <!-- Gender EditText--> <!-- Gender EditText--> <!-- Gender EditText--> </pre> <pre> c! Gender EditText> android:id="@+id/editTextGender" android:id="@+id/editTextGender"</pre>	Name EditText	· —
android:layout_neight="wrap_conte nt" android:layout_width="match_pare nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte nt" android:layout_height="wrap_conte tSurname" android:layout_margin="16dp" /> Gender EditText Surname EditText android:id="@+id/editTextGender"	<edittext< td=""><td>IIL</td></edittext<>	IIL
android:layout_width="match_pare nt" android:layout_height="wrap_conte nt" android:hint="Name" android:layout_below="@id/editTex tSurname" android:layout_margin="16dp" /> Gender EditText Surname EditText android:id="@+id/editTextGender"	android:id="@+id/editTextName"	,
android:layout_neight= wrap_conte nt" android:layout_margin="16dp" /> android:layout_margin="16dp" /> Gender EditText Surname EditText android:id="@+id/editTextGender"	· — —	
android:layout_neight= wrap_conte nt" android:layout_margin="16dp" /> android:layout_margin="16dp" /> Gender EditText Surname EditText android:id="@+id/editTextGender"		android:layout helow="@id/editTey
android:nint= Name android:layout_margin="16dp" /> Gender EditText <edittext <="" android:id="@+id/editTextGender" td=""><td></td><td>tSurname"</td></edittext>		tSurname"
<pre>android:layout_margin="16dp" /> <!-- Surname EditText--></pre>	android:hint="Name"	android:layout_margin="16dp" />
Surname Edit lext android:id="@+id/editTextGender"	android:layout_margin="16dp" />	Gender EditText
<edittext <="" android:id="@+id/editTextGender" td=""><td><!-- Surname EditText--></td><td><edittext< td=""></edittext<></td></edittext>	Surname EditText	<edittext< td=""></edittext<>
	<edittext< td=""><td>android:id="@+id/editTextGender"</td></edittext<>	android:id="@+id/editTextGender"

android:layout_width="match_pare nt"	android:layout_height="wrap_conte nt"
android:layout_height="wrap_conte	android:hint="Marks"
nt" android:hint="Gender"	android:layout_below="@id/editTex tHobbies"
	android:layout_margin="16dp" />
android:layout_below="@id/editTex tClass"	Submit Button
android:layout_margin="16dp" />	<button< td=""></button<>
Hobbies EditText	android:id="@+id/buttonSubmit"
<edittext< td=""><td>android:layout width="wrap conte</td></edittext<>	android:layout width="wrap conte
android:id="@+id/editTextHobbies"	nt"
android:layout_width="match_pare nt"	android:layout_height="wrap_conte nt"
android:layout_height="wrap_conte nt"	android:layout_below="@id/editTex tMarks"
android:hint="Hobbies"	
	<pre>android:layout_alignParentEnd="tru e"</pre>
android:layout_below="@id/editTex tGender"	android:layout_marginTop="41dp"
android:layout_margin="16dp" />	android.iayodt_margimop= +1dp
Marks EditText	android:layout_marginEnd="162dp"
<edittext< td=""><td>android:text="Submit" /></td></edittext<>	android:text="Submit" />
android:id="@+id/editTextMarks"	
and ordina Gerra, carerexernance	MainActivity.java
android:layout_width="match_pare nt"	package com.example.activitylifecycle;
	import android.content.Intent;

```
import android.os.Bundle;
                                           editTextHobbies =
                                           findViewById(R.id.editTextHobbies);
import android.view.View;
                                           editTextMarks =
import android.widget.Button;
                                           findViewById(R.id.editTextMarks);
import android.widget.EditText;
                                           buttonSubmit =
                                           findViewById(R.id.buttonSubmit);
import
androidx.appcompat.app.AppComp
                                           // Set click listener for submit
atActivity;
                                           button
public class MainActivity extends
AppCompatActivity {
                                           buttonSubmit.setOnClickListener(ne
private EditText editTextName,
                                           w View.OnClickListener() {
editTextSurname, editTextClass,
                                           @Override
editTextGender,
                                           public void onClick(View v) {
editTextHobbies, editTextMarks;
                                           // Get student details
private Button buttonSubmit;
                                           String name =
@Override
                                           editTextName.getText().toString();
protected void onCreate(Bundle
                                           String surname =
savedInstanceState) {
                                           editTextSurname.getText().toString()
super.onCreate(savedInstanceState);
                                           String studentClass =
                                           editTextClass.getText().toString();
setContentView(R.layout.activity m
                                           String gender =
ain);
                                           editTextGender.getText().toString();
// Initialize views
                                           String hobbies =
editTextName =
                                           editTextHobbies.getText().toString();
findViewById(R.id.editTextName);
                                           String marks =
editTextSurname =
                                           editTextMarks.getText().toString();
findViewById(R.id.editTextSurname)
                                           // Start DisplayDetailsActivity and
                                           pass student details
editTextClass =
                                           Intent intent = new
findViewById(R.id.editTextClass);
                                           Intent(MainActivity.this,
editTextGender =
                                           ResultActivity.class);
findViewById(R.id.editTextGender);
                                           intent.putExtra("name", name);
```

```
intent.putExtra("surname",
surname);
                                          setContentView(R.layout.activity re
                                          sult);
intent.putExtra("class",
studentClass):
                                           // Retrieve student details from
                                          intent
intent.putExtra("gender", gender);
                                           String name =
intent.putExtra("hobbies",
                                          getIntent().getStringExtra("name");
hobbies);
                                           String surname =
intent.putExtra("marks", marks);
                                          getIntent().getStringExtra("surname
startActivity(intent);
                                          ");
}
                                           String studentClass =
                                          getIntent().getStringExtra("class");
});
                                           String gender =
}
                                          getIntent().getStringExtra("gender")
ResultActivity.java
                                           String hobbies =
                                          getIntent().getStringExtra("hobbies"
package
com.example.activitylifecycle;
                                           String marks =
import android.os.Bundle;
                                          getIntent().getStringExtra("marks");
import android.widget.TableLayout;
                                           // Find TableLayout in the layout
import android.widget.TableRow;
                                           TableLayout tableLayout =
import android.widget.TextView;
                                          findViewById(R.id.tableLayout);
import
                                           // Add rows to the TableLayout
androidx.appcompat.app.AppComp
                                          dynamically
atActivity;
                                           addRow(tableLayout, "Name: ",
public class ResultActivity extends
                                          name);
AppCompatActivity {
                                           addRow(tableLayout, "Surname: ",
@Override
                                          surname);
protected void onCreate(Bundle
                                           addRow(tableLayout, "Class: ",
savedInstanceState) {
                                          studentClass);
                                           addRow(tableLayout, "Gender: ",
super.onCreate(savedInstanceState);
                                          gender);
```

```
<ScrollView
addRow(tableLayout, "Hobbies: ",
                                         xmlns:android="http://schemas.and
hobbies);
                                         roid.com/apk/res/android"
addRow(tableLayout, "Marks:",
marks):
                                         android:layout_width="match_pare
}
                                         nt"
// Method to add a row to the
TableLayout
                                         android:layout height="match pare
private void addRow(TableLayout
                                         nt">
tableLayout, String label, String
                                          <TableLayout
value) {
                                          android:id="@+id/tableLayout"
// Create a new row
TableRow row = new
                                         android:layout width="match pare
TableRow(this);
                                         nt"
// Create text views for label and
value
                                         android:layout height="wrap conte
TextView labelTextView = new
                                         nt"
TextView(this);
                                          android:padding="16dp">
labelTextView.setText(label);
                                          <!-- Table rows will be added
TextView valueTextView = new
                                         dynamically -->
TextView(this);
                                          </TableLayout>
valueTextView.setText(value);
                                         </ScrollView>
// Add text views to the row
row.addView(labelTextView);
                                         Q2. Create an Android Application
row.addView(valueTextView);
                                         that Demonstrate TimePicker and
                                         display Selected Time on TextView.
// Add the row to the TableLayout
                                         MainActivity.java
tableLayout.addView(row);
                                         package com.example.timedemo;
}
                                         import
                                         androidx.appcompat.app.AppComp
activity_result.xml
                                         atActivity;
<!-- activity display details.xml -->
                                         import android.os.Bundle;
```

```
"/"+dp.getDayOfMonth()+
import android.view.View;
import android.widget.DatePicker;
                                         "/"+dp.getYear(),
import android.widget.TimePicker;
                                         Toast.LENGTH SHORT).show();
import android.widget.Toast;
                                         }
public class MainActivity extends
                                         }
AppCompatActivity {
                                         activity_main.xml
TimePicker tp;
                                         <?xml version="1.0" encoding="utf-
DatePicker dp;
                                         8"?>
@Override
                                         <LinearLayout
                                         xmlns:android="http://schemas.and
protected void onCreate(Bundle
savedInstanceState) {
                                         roid.com/apk/res/android"
                                         xmlns:app="http://schemas.android
super.onCreate(savedInstanceState);
                                         .com/apk/res-auto"
setContentView(R.layout.activity m
ain);
                                         xmlns:tools="http://schemas.androi
                                         d.com/tools"
tp=(TimePicker)findViewById(R.id.ti
mePicker);
                                         android:layout width="match pare
                                         nt"
// tp.setIs24HourView(true);
                                         android:layout height="match pare
dp=(DatePicker)findViewById(R.id.d
                                         nt"
atePicker);
                                         android:orientation="vertical"
}
                                         tools:context=".MainActivity">
public void onClick(View view) {
                                         <TimePicker
Toast.makeText(getBaseContext(),
                                         android:id="@+id/timePicker"
"Time
Selected"+tp.getHour()+":"+tp.getM
                                         android:layout width="wrap conte
                                         nt"
inute(),
Toast.LENGTH_SHORT).show();
                                         android:layout height="238dp" />
}
                                         <Button
public void showDate(View view) {
                                         android:id="@+id/btnSet"
Toast.makeText(getBaseContext(),
                                         android:layout width="70dp"
"date selected"+(dp.getMonth()+1)+
                                         android:layout height="31dp"
```

```
android:onClick="onClick"
tools:layout_editor_absoluteX="174
dp"
tools:layout_editor_absoluteY="193
dp"/>
<DatePicker
android:id="@+id/datePicker"
android:layout_width="wrap_conte
nt"
android:layout_height="238dp" />
<Button
android:id="@+id/btndt"
android:layout_width="70dp"
android:layout_height="31dp"
android:onClick="showDate"
tools:layout editor absoluteX="174
dp"
tools:layout editor absoluteY="193
dp"/>
</LinearLayout>
```

Slip17	Uri.parse("tel:+9860539978"));
Q1. Write an android code to make	startActivity(i);
phone call using Intent.	}
Phone Dialer	}) ;
//MainActivity.java	}
package com.example.intentdemo;	@Override
import androidx.appcompat.app.AppComp atActivity;	<pre>public void onBackPressed() { super.onBackPressed();</pre>
import android.content.Intent;	Intent i=new
import android.net.Uri;	Intent(this,SecondActivity.class);
import android.os.Bundle;	startActivity(i);
import android.view.View;	}
import android.widget.Button;	}
public class MainActivity extends AppCompatActivity {	//activity_main.xml xml version="1.0" encoding="utf-</td
Button b1;	8"?>
@Override	<linearlayout< td=""></linearlayout<>
protected void onCreate(Bundle savedInstanceState) {	xmlns:android="http://schemas.and roid.com/apk/res/android"
super.onCreate(savedInstanceState);	
setContentView(R.layout.activity_m ain);	xmlns:app="http://schemas.android .com/apk/res-auto"
b1=(Button)findViewById(R.id.butto n1);	xmlns:tools="http://schemas.android.com/tools"
b1.setOnClickListener(new View.OnClickListener() {	android:layout_width="match_pare nt"
@Override	android:layout_height="match_pare nt"
public void onClick(View v) {	tools:context=".MainActivity">
Intent i=new Intent(Intent.ACTION_DIAL,	<textview< td=""></textview<>

```
android:layout width="wrap conte
                                         protected void onCreate(Bundle
nt"
                                         savedInstanceState) {
android:layout height="wrap conte
                                         super.onCreate(savedInstanceState);
nt"
                                         setContentView(R.layout.activity se
android:text="Hello World!"
                                         cond);
app:layout constraintBottom toBot
                                         }
tomOf="parent"
                                         }
app:layout constraintLeft toLeftOf=
                                         //activity second.xml
"parent"
app:layout_constraintRight_toRight
Of="parent"
                                         <?xml version="1.0" encoding="utf-
                                         8"?>
app:layout_constraintTop_toTopOf=
"parent" />
                                         <LinearLayout
                                         xmlns:android="http://schemas.and
<Button
                                         roid.com/apk/res/android"
android:layout width="match pare
                                         xmlns:app="http://schemas.android
nt"
                                         .com/apk/res-auto"
android:layout_height="wrap_conte
nt"
                                         xmlns:tools="http://schemas.androi
                                         d.com/tools"
android:id="@+id/button1"
                                         android:layout width="match pare
android:text="Contact"
                                         nt"
/>
                                         android:layout height="match pare
                                         nt"
</LinearLayout>
//SecondActivity.java
                                         android:orientation="vertical"
                                         tools:context=".SecondActivity">
package com.example.intentdemo;
import
                                         <TextView
androidx.appcompat.app.AppComp
                                         android:layout_width="wrap_conte
atActivity;
                                         nt"
import android.os.Bundle;
                                         android:layout height="wrap conte
                                         nt"
public class SecondActivity extends
AppCompatActivity {
                                         android:id="@+id/text1"
@Override
                                         android:text="Second Activity">
```

By: Shivarkar S.Y. Page 83	android:id="@+id/numberEditText"
	android.id= @ rid/fidinberEditText
	android:layout_width="match_pare nt"
Q2. Construct an Android Application to accept a number and calculate Factorial and Sum of	android:layout_height="wrap_conte nt"
Digits of a given number using	android:hint="Enter a number"
Context Menu.	android:inputType="number"/>
Create a new Android project in Android Studio with an Empty Activity.	<button< td=""></button<>
activity_main.xml:	android:id="@+id/showContextMen uButton"
activity_main.xml	
xml version="1.0" encoding="utf-8"?	android:layout_width="wrap_conte nt"
<relativelayout xmlns:android="http://schemas.and roid.com/apk/res/android"</relativelayout 	android:layout_height="wrap_conte nt"
xmlns:tools="http://schemas.androi d.com/tools"	android:text="Show Context Menu"
android:layout_width="match_pare nt"	android:layout_below="@id/numbe rEditText"
android:layout_height="match_pare nt"	android:layout_centerHorizontal="tr ue"/>
tools:context=".MainActivity">	
	MainActivity.java:
<edittext< td=""><td>import android.os.Bundle;</td></edittext<>	import android.os.Bundle;

```
import android.view.ContextMenu;
                                        registerForContextMenu(showConte
import android.view.MenuItem;
                                        xtMenuButton);
import android.view.View;
import android.widget.Button;
                                        showContextMenuButton.setOnClic
                                        kListener(new
import android.widget.EditText;
                                        View.OnClickListener() {
import android.widget.Toast;
                                               @Override
import
                                              public void onClick(View v) {
androidx.appcompat.app.AppComp
atActivity;
                                                 openContextMenu(v);
                                              }
public class MainActivity extends
                                            });
AppCompatActivity {
                                          }
  EditText numberEditText;
                                          @Override
                                          public void
  @Override
                                        onCreateContextMenu(ContextMen
                                        u menu, View v,
  protected void onCreate(Bundle
                                        ContextMenu.ContextMenuInfo
savedInstanceState) {
                                        menuInfo) {
super.onCreate(savedInstanceState);
                                        super.onCreateContextMenu(menu,
                                        v, menuInfo);
setContentView(R.layout.activity_m
ain);
                                        getMenuInflater().inflate(R.menu.co
                                        ntext menu, menu);
    numberEditText =
                                          }
findViewById(R.id.numberEditText);
                                          @Override
    Button
                                          public boolean
showContextMenuButton =
                                        onContextItemSelected(MenuItem
findViewById(R.id.showContextMen
                                        item) {
uButton);
```

```
}
    int id = item.getItemId();
    if (id == R.id.menuFactorial) {
                                             }
      calculateFactorial();
                                             private void
      return true;
                                           calculateSumOfDigits() {
    } else if (id ==
R.id.menuSumOfDigits) {
                                               try {
      calculateSumOfDigits();
                                                 int number =
                                           Integer.parseInt(numberEditText.get
      return true;
                                           Text().toString());
    }
                                                 int sum = 0;
    return
                                                 while (number > 0) {
super.onContextItemSelected(item);
                                                    sum += number % 10;
  }
                                                    number = 10;
                                                 }
  private void calculateFactorial() {
                                                 Toast.makeText(this, "Sum of
    try {
                                           digits: " + sum,
                                           Toast.LENGTH SHORT).show();
      int number =
Integer.parseInt(numberEditText.get
                                               } catch
Text().toString());
                                           (NumberFormatException e) {
      int factorial = 1;
                                                 Toast.makeText(this, "Please
      for (int i = 1; i <= number; i++)
                                           enter a valid number",
{
                                           Toast.LENGTH_SHORT).show();
        factorial *= i;
                                               }
      }
                                             }
      Toast.makeText(this,
"Factorial: " + factorial,
                                           context_menu.xml:
Toast.LENGTH SHORT).show();
                                           <!-- context_menu.xml -->
    } catch
(NumberFormatException e) {
                                           <menu
                                           xmlns:android="http://schemas.and
      Toast.makeText(this, "Please
                                           roid.com/apk/res/android">
enter a valid number",
Toast.LENGTH SHORT).show();
                                             <item
```

android:id="@+id/menuFactorial"	android:layout_width="wrap_conte
android:title="Factorial" />	nt"
<item< td=""><td>android:layout_height="wrap_conte nt"</td></item<>	android:layout_height="wrap_conte nt"
android:id="@+id/menuSumOfDigit s"	android:text="Show Dialog"
android:title="Sum of Digits" />	android:layout_centerInParent="tru e" />
y mena	
Slip no – 18	MainActivity.java
Q1. Create an Android Application that Demonstrate Alert Dialog Box	package com.example.activitylifecycle;
activity_main.xml	import
<relativelayout <="" td="" xmlns:android="http://schemas.and</td><td>androidx.appcompat.app.AlertDialo g;</td></tr><tr><td>roid.com/apk/res/android"><td><pre>import androidx.appcompat.app.AppComp atActivity;</pre></td></relativelayout>	<pre>import androidx.appcompat.app.AppComp atActivity;</pre>
xmlns:tools="http://schemas.android.com/tools"	import android.content.DialogInterface;
android:layout_width="match_pare	import android.os.Bundle;
nt"	import android.view.View;
android:layout height="match pare	import android.widget.Button;
nt"	<pre>public class MainActivity extends AppCompatActivity {</pre>
tools:context=".MainActivity">	@Override
<button <="" android:id="@+id/showDialogButto n" td=""><td><pre>protected void onCreate(Bundle savedInstanceState) {</pre></td></button>	<pre>protected void onCreate(Bundle savedInstanceState) {</pre>
	super.onCreate(savedInstanceState);

```
});
setContentView(R.layout.activity_m
                                            builder.setNegativeButton("Cancel",
ain);
                                            new
Button showDialogButton =
                                            DialogInterface.OnClickListener() {
findViewById(R.id.showDialogButto
                                             @Override
n);
                                            public void onClick(DialogInterface
                                            dialog, int which) {
show Dialog Button. set On Click Listen \\
                                            // Do something when the Cancel
er(new View.OnClickListener() {
                                            button is clicked
@Override
                                            }
public void onClick(View v) {
                                            });
// Show the alert dialog
                                            AlertDialog dialog = builder
showAlert();
                                            .create();
}
                                            dialog
});
                                            .show();
}
private void showAlert() {
                                            }
AlertDialog.Builder builder = new
AlertDialog.Builder(this);
                                            }
builder.setTitle("Alert Dialog");
builder.setMessage("This is a demo
of Alert Dialog Box.");
builder.setPositiveButton("OK",
new
DialogInterface.OnClickListener() {
@Override
public void on Click (Dialog Interface
dialog, int which) {
// Do something when the OK
button is clicked
}
```

Q2Create an Android Application to
accept two numbers and find
power and Average. Display

the result on the next activity using Context Menu.

Create a new Android project in Android Studio with an Empty Activity.

android:layout_width="match_pare nt"

android:layout_height="wrap_content"

android:hint="Enter number 1"
android:inputType="number"/>

activity_main.xml:

<!-- activity_main.xml -->

<?xml version="1.0" encoding="utf8"?>

<RelativeLayout
xmlns:android="http://schemas.and
roid.com/apk/res/android"</pre>

xmlns:tools="http://schemas.android.com/tools"

android:layout_width="match_pare
nt"

android:layout_height="match_pare
nt"

tools:context=".MainActivity">

<EditText

android:id="@+id/number1EditText"

<EditText

android:id="@+id/number2EditText"

android:layout_width="match_pare nt"

android:layout_height="wrap_conte
nt"

android:layout_below="@id/number1EditText"

android:hint="Enter number 2"
android:inputType="number"/>

<Button

android:id="@+id/calculateButton"

android:layout_width="wrap_content"

```
android:layout height="wrap conte
                                         super.onCreate(savedInstanceState);
nt"
    android:text="Calculate"
                                         setContentView(R.layout.activity m
                                         ain);
android:layout_below="@id/numbe
r2EditText"
                                             number1EditText =
                                         findViewById(R.id.number1EditText)
android:layout centerHorizontal="tr
ue"/>
                                             number2EditText =
                                         findViewById(R.id.number2EditText)
</RelativeLayout>
MainActivity.java:
                                             Button calculateButton =
import android.content.Intent;
                                         findViewById(R.id.calculateButton);
import android.os.Bundle;
import android.view.View;
                                         calculateButton.setOnClickListener(
                                         new View.OnClickListener() {
import android.widget.Button;
                                               @Override
import android.widget.EditText;
                                               public void onClick(View v) {
import
androidx.appcompat.app.AppComp
                                                 double number1 =
atActivity;
                                         Double.parseDouble(number1EditTe
                                         xt.getText().toString());
                                                 double number2 =
public class MainActivity extends
                                         Double.parseDouble(number2EditTe
AppCompatActivity {
                                         xt.getText().toString());
                                                 double power =
  EditText number1EditText,
                                         Math.pow(number1, number2);
number2EditText;
                                                 double average = (number1
                                         + number2) / 2;
  @Override
  protected void onCreate(Bundle
```

savedInstanceState) {

```
double power =
        Intent intent = new
                                          getIntent().getDoubleExtra("power",
Intent(MainActivity.this,
ResultActivity.class);
                                          0);
        intent.putExtra("power",
                                              double average =
                                          getIntent().getDoubleExtra("average
power);
                                          ", 0);
        intent.putExtra("average",
average);
        startActivity(intent);
                                              TextView powerTextView =
                                          findViewById(R.id.powerTextView);
      }
                                              TextView averageTextView =
    });
                                          findViewById(R.id.averageTextView)
  }
}
ResultActivity.java:
                                              powerTextView.setText("Power:
                                          " + power);
import android.os.Bundle;
import android.widget.TextView;
                                          averageTextView.setText("Average: "
import
                                          + average);
androidx.appcompat.app.AppComp
                                            }
atActivity;
                                          }
                                          activity_result.xml:
public class ResultActivity extends
AppCompatActivity {
                                          <!-- activity result.xml -->
                                          <?xml version="1.0" encoding="utf-
                                          8"?>
  @Override
                                          <RelativeLayout
  protected void onCreate(Bundle
                                          xmlns:android="http://schemas.and
savedInstanceState) {
                                          roid.com/apk/res/android"
super.onCreate(savedInstanceState);
                                          xmlns:tools="http://schemas.androi
                                          d.com/tools"
setContentView(R.layout.activity_re
sult);
                                          android:layout_width="match_pare
                                          nt"
```

```
android:layout_height="match_pare
nt"
                                        android:layout_below="@id/power
 tools:context=".ResultActivity">
                                        TextView"
                                        android:layout marginTop="20dp"
  <TextView
                                        android:layout centerHorizontal="tr
android:id="@+id/powerTextView"
                                        ue"/>
android:layout_width="wrap_conte
nt"
                                        </RelativeLayout>
                                        AndroidManifest.xml:
android:layout height="wrap conte
                                        <manifest
nt"
                                        xmlns:android="http://schemas.and
    android:text="Power"
                                        roid.com/apk/res/android"
    android:textSize="20sp"
                                        package="com.example.calculator">
android:layout centerHorizontal="tr
ue"
                                          <application
                                            android:allowBackup="true"
android:layout marginTop="50dp"/
>
                                        android:icon="@mipmap/ic_launch
                                        er"
  <TextView
                                        android:label="@string/app name"
android:id="@+id/averageTextView"
                                        android:roundlcon="@mipmap/ic_l
                                        auncher round"
android:layout width="wrap conte
nt"
                                            android:supportsRtl="true"
android:layout height="wrap conte
                                        android:theme="@style/AppTheme
nt"
                                        ">
    android:text="Average"
```

android:textSize="20sp"

<activity< td=""><td>import android.widget.CheckBox;</td></activity<>	import android.widget.CheckBox;
android:name=".MainActivity">	import android.widget.RadioButton;
<intent-filter></intent-filter>	import android.widget.RadioGroup;
<action android:name="android.intent.actio</action 	import android.widget.Toast;
n.MAIN" />	import android.widget.ToggleButton;
<pre><category android:name="android.intent.cate</pre></td><td><pre>public class MainActivity extends AppCompatActivity {</pre></td></tr><tr><td>gory.LAUNCHER"></category></pre>	@Override
	<pre>protected void onCreate(Bundle savedInstanceState) {</pre>
	super.onCreate(savedInstanceState);
<activity android:name=".ResultActivity"></activity>	<pre>setContentView(R.layout.activity_m ain);</pre>
	Button btsave=(Button)findViewById(R.id.b utton1);
Slip19	<pre>btsave.setOnClickListener(new View.OnClickListener() {</pre>
Q1. Create an Android Application	@Override
that on/off the bulb using Toggle	<pre>public void onClick(View v) {</pre>
Button. BasicViews(Toggle Button)	Toast.makeText(getBaseContext(),"y ou clicked
//MainActivity.java	save
package com.example.basicviews;	<pre>button",Toast.LENGTH_SHORT).sho w();</pre>
<pre>import androidx.appcompat.app.AppComp atActivity;</pre>	<pre>} });</pre>
import android.os.Bundle;	Button
import android.view.View;	btopen=(Button)findViewById(R.id.b
import android.widget.Button;	utton2);

```
});
btopen.setOnClickListener(new
View.OnClickListener() {
                                          RadioGroup
                                          rgb=(RadioGroup)findViewById(R.id.
@Override
                                          rdgrp1);
public void onClick(View v) {
                                          rgb.setOnCheckedChangeListener(n
Toast.makeText(getBaseContext(),"y
                                          ew
ou clicked
                                          RadioGroup.OnCheckedChangeListe
open
                                          ner() {
button", Toast. LENGTH SHORT). sho
                                          @Override
w();
}
                                          public void
                                          onCheckedChanged(RadioGroup
});
                                          group, int
final CheckBox
                                          checkedId) {
chk=(CheckBox)findViewById(R.id.ch
                                          RadioButton rb1=
eckBox);
                                          (RadioButton)findViewById(R.id.rd1)
chk.setOnClickListener(new
View.OnClickListener() {
                                          if (rb1.isChecked())
@Override
                                          {
public void onClick(View v) {
                                         Toast.makeText(getBaseContext(),"y
if (((CheckBox)v).isChecked())
                                          ou checked
Toast.makeText(getBaseContext(),"y
                                          option1",Toast.LENGTH SHORT).sho
ou checked
                                          w();
check box1
                                          }
button", Toast. LENGTH SHORT). sho
w();
                                          else
else
                                          {
Toast.makeText(getBaseContext(),"y
                                         Toast.makeText(getBaseContext(),"y
                                          ou checked
ou
unchecked check box1
                                          option2",Toast.LENGTH SHORT).sho
button", Toast. LENGTH SHORT). sho
                                          w();
w();
                                          }
}
                                          }
```

```
});
                                         xmlns:tools="http://schemas.androi
                                         d.com/tools"
ToggleButton
                                         android:layout width="fill parent"
tb=(ToggleButton)findViewById(R.id.
toggle1);
                                         android:layout height="fill parent"
tb.setOnClickListener(new
                                         android:orientation="vertical"
View.OnClickListener() {
                                         tools:context=".MainActivity">
@Override
                                         <Button
public void onClick(View v) {
                                         android:id="@+id/button1"
if(((ToggleButton)v).isChecked())
                                         android:layout width="fill parent"
{Toast.makeText(getBaseContext(),"t
                                         android:layout_height="wrap_conte
oggle button
                                         nt"
is
                                         android:text="save" />
on",Toast.LENGTH SHORT).show();}
                                         <Button
else
                                         android:id="@+id/button2"
{Toast.makeText(getBaseContext(),"t
                                         android:layout width="fill parent"
oggle button
                                         android:layout_height="wrap_conte
is
                                         nt"
off",Toast.LENGTH SHORT).show();}
                                         android:text="open" />
});
                                         <ImageButton</pre>
}
                                         android:id="@+id/btnimg"
                                         android:layout width="fill parent"
//activity main.xml
                                         android:layout_height="wrap_conte
                                         nt"
<?xml version="1.0" encoding="utf-
8"?>
                                         android:src="@mipmap/pic3"/>
<LinearLayout
                                         <TextView
xmlns:android="http://schemas.and
                                         android:id="@+id/text1"
roid.com/apk/res/android"
                                         android:layout width="fill parent"
xmlns:app="http://schemas.android
                                         android:layout height="wrap conte
.com/apk/res-auto"
                                         nt"/>
```

android:layout height="wrap conte <EditText nt" android:id="@+id/editText" android:text="option1"/> android:layout width="wrap conte nt" <RadioButton android:layout height="wrap conte android:id="@+id/rd2" nt" android:layout width="fill parent" android:text="Name" /> android:layout height="wrap conte nt" <CheckBox android:id="@+id/checkBox" android:text="option2"/> android:layout width="fill parent" </RadioGroup> android:layout height="wrap conte <ToggleButton nt" android:id="@+id/toggle1" android:text="CheckBox" /> android:layout width="wrap conte <CheckBox nt" android:id="@+id/checkBox2" android:layout_height="wrap_conte nt" /> style="?android:attr/starStyle" </LinearLayout> android:layout width="wrap conte nt" android:layout height="wrap conte Q2. Create application to send SMS nt" message. After sending message display delivery report of message. android:text="CheckBox" /> Java file <RadioGroup package com.example.smsdemo; android:id="@+id/rdgrp1" import android:layout width="fill parent" androidx.appcompat.app.AppComp android:layout height="wrap conte atActivity; nt" import android.os.Bundle; android:orientation="vertical" > import <RadioButton android.telephony.SmsManager; android:id="@+id/rd1" import android.view.View; android:layout width="fill parent"

```
import android.widget.Button;
                                          private void sendSMS(String
import android.widget.EditText;
                                          s, String hello) {
import android.widget.Toast;
                                          try{
public class MainActivity extends
                                          SmsManager smgr =
AppCompatActivity {
                                          SmsManager.getDefault();
private EditText txtMobile;
                                          smgr.sendTextMessage(txtMobile.ge
private EditText txtMessage;
                                          tText().
private Button btnSms;
                                          toString(),null,txtMessage.getText().
@Override
                                          toSt
protected void onCreate(Bundle
                                          ring(),null,null);
savedInstanceState) {
                                          //
                                          smgr.sendTextMessage("986053997
super.onCreate(savedInstanceState);
                                          8",null,tx
                                          tMessage.getText().toString(),null,nu
                                          II);
setContentView(R.layout.activity m
ain);
txtMobile =
                                          Toast.makeText(MainActivity.this,
                                          "SMS
(EditText)findViewById(R.id.mblTxt);
                                          Sent Successfully",
txtMessage =
                                          Toast.LENGTH SHORT).show();
(EditText)findViewById(R.id.msgTxt);
                                          }
btnSms =
                                          catch (Exception e){
(Button)findViewById(R.id.btnSend);
btnSms.setOnClickListener(new
                                          Toast.makeText(MainActivity.this,
View.OnClickListener() {
                                          "SMS
@Override
                                          Failed to Send, Please try again",
public void onClick(View v) {
                                          Toast.LENGTH SHORT).show();
sendSMS("5556", "hello");
                                          }
}
                                          }
```

```
});
                                        android:layout height="wrap conte
                                        nt"
}
                                        android:layout marginLeft="100dp"
}
                                        android:layout marginTop="150dp"
//activity_main.xml
                                        android:text="Mobile No" />
<?xml version="1.0" encoding="utf-
8"?>
                                        <EditText
<LinearLayout
                                        android:id="@+id/mblTxt"
xmlns:android="http://schemas.and
roid.com
                                        android:layout width="wrap conte
/apk/res/android"
                                        nt"
xmlns:app="http://schemas.android
                                        android:layout height="wrap conte
                                        nt"
.com/apk
/res-auto"
                                        android:layout marginLeft="100dp"
                                        android:ems="10"/>
xmlns:tools="http://schemas.androi
                                        <TextView
d.com/t
                                        android:id="@+id/secTxt"
ools"
android:layout width="match pare
                                        android:layout width="wrap conte
nt"
                                        nt"
android:layout height="match pare
nt"
                                        android:layout height="wrap conte
android:orientation="vertical"
                                        nt"
tools:context=".MainActivity">
                                        android:text="Message"
<TextView
                                        android:layout marginLeft="100dp"
android:id="@+id/fstTxt"
                                        />
                                        <EditText
android:layout width="wrap conte
                                        android:id="@+id/msgTxt"
nt"
```

```
android:layout_width="wrap_conte nt"

android:layout_height="wrap_conte nt"

android:layout_marginLeft="100dp" android:ems="10" />
<Button
android:id="@+id/btnSend"

android:layout_width="wrap_conte nt"

android:layout_height="wrap_conte nt"

android:layout_marginLeft="100dp" android:text="Send SMS" />
</LinearLayout>
```

Slip20

Q1. Create Android Program to Change the Image on the Screen.

Create a new Android project in Android Studio with an Empty Activity.

Add Images:

Place some images (e.g., image1.png, image2.png, image3.png) in the drawable folder of your project. These images will be used to change the displayed image.

activity_main.xml:

Design the layout with an ImageView to display the image and a Button to change the image.

xml

Copy code

<!-- activity_main.xml -->

<?xml version="1.0" encoding="utf-8"?>

<RelativeLayout xmlns:android="http://schemas.and roid.com/apk/res/android"

xmlns:tools="http://schemas.android.com/tools"

android:layout_width="match_pare nt"

android:layout_height="match_pare nt"

tools:context=".MainActivity">

<ImageView

android:id="@+id/imageView"

android:layout_width="match_pare nt"

android:layout_height="match_pare
nt"

android:scaleType="centerCrop"

android:src="@drawable/image1"
/>

<Button

android:id="@+id/changeImageButt on"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Change Image"

```
android:layout centerInParent="tru
                                         super.onCreate(savedInstanceState);
e"/>
                                         setContentView(R.layout.activity m
                                         ain);
</RelativeLayout>
MainActivity.java:
                                             imageView =
Implement the logic to change the
                                         findViewById(R.id.imageView);
image when the button is clicked.
java
                                         imageView.setImageResource(imag
Copy code
                                         es[currentImageIndex]);
import android.os.Bundle;
import android.view.View;
                                             Button changeImageButton =
                                         findViewById(R.id.changeImageButt
import android.widget.Button;
                                         on);
import android.widget.ImageView;
import
                                         changeImageButton.setOnClickListe
androidx.appcompat.app.AppComp
                                         ner(new View.OnClickListener() {
atActivity;
                                                @Override
                                               public void onClick(View v) {
public class MainActivity extends
                                                  currentImageIndex =
AppCompatActivity {
                                         (currentImageIndex + 1) %
                                         images.length;
  private ImageView imageView;
                                         imageView.setImageResource(imag
  private int[] images =
                                         es[currentImageIndex]);
{R.drawable.image1,
R.drawable.image2,
                                               }
R.drawable.image3};
                                             });
  private int currentImageIndex = 0;
                                           }
                                         }
  @Override
                                         AndroidManifest.xml:
  protected void onCreate(Bundle
savedInstanceState) {
```

Ensure that MainActivity is declared in the AndroidManifest.xml file. xml Copy code <manifest xmlns:android="http://schemas.and roid.com/apk/res/android" package="com.example.imagechang er"> <application android:allowBackup="true" android:icon="@mipmap/ic_launch er" android:label="@string/app name" android:roundlcon="@mipmap/ic | 1 auncher round" android:supportsRtl="true" android:theme="@style/AppTheme "> <activity android:name=".MainActivity"> <intent-filter> <action android:name="android.intent.actio

n.MAIN" />

Q2. Demonstrate Array Adapter using List View to display list of Country.

Create a new Android project in Android Studio with an Empty Activity.

Create a layout file for the list item:

Create a layout file named list_item_country.xml in the res/layout directory. This layout will represent each item in the ListView.

xml

<!-- list_item_country.xml -->

<TextView xmlns:android="http://schemas.and roid.com/apk/res/android" android:id="@android:id/text1"

android:layout_width="match_pare nt"

android:layout_height="wrap_conte nt"	android:layout_height="match_pare nt"
android:textAppearance="?android: attr/textAppearanceListItemSmall"	tools:context=".MainActivity">
android:gravity="center_vertical"	<listview <="" android:id="@+id/listView" td=""></listview>
android:paddingStart="?android:attr/listPreferredItemPaddingStart"	android:layout_width="match_pare nt"
android:paddingEnd="?android:attr/ listPreferredItemPaddingEnd"	android:layout_height="match_pare nt" />
<pre>android:textColor="@android:color/ black"/></pre>	
activity_main.xml:	MainActivity.java:
Design the layout with a ListView to display the list of countries.	Create an array of country names and use an ArrayAdapter to bind
display the list of countries.	and use an ArrayAdapter to bind
display the list of countries.	and use an ArrayAdapter to bind the data to the ListView. import android.os.Bundle; import
display the list of countries. xml Copy code activity_main.xml xml version="1.0" encoding="utf-</td <td>and use an ArrayAdapter to bind the data to the ListView. import android.os.Bundle; import android.widget.ArrayAdapter;</td>	and use an ArrayAdapter to bind the data to the ListView. import android.os.Bundle; import android.widget.ArrayAdapter;
display the list of countries. xml Copy code activity_main.xml	and use an ArrayAdapter to bind the data to the ListView. import android.os.Bundle; import
display the list of countries. xml Copy code activity_main.xml xml version="1.0" encoding="utf-8"?	

private String[] countries =
{"Afghanistan", "Albania", "Algeria",
"Andorra", "Angola", "Antigua and
Barbuda",

"Argentina", "Armenia",
"Australia", "Austria", "Azerbaijan",
"Bahamas", "Bahrain",
"Bangladesh",

"Barbados", "Belarus",
"Belgium", "Belize", "Benin",
"Bhutan", "Bolivia", "Bosnia and
Herzegovina",

"Botswana", "Brazil",
"Brunei", "Bulgaria", "Burkina Faso",
"Burundi", "Cabo Verde",
"Cambodia",

"Cameroon", "Canada",
"Central African Republic", "Chad",
"Chile", "China", "Colombia",
"Comoros",

"Congo", "Costa Rica",
"Croatia", "Cuba", "Cyprus", "Czech
Republic", "Denmark", "Djibouti",

"Dominica", "Dominican Republic", "East Timor", "Ecuador", "Egypt", "El Salvador", "Equatorial Guinea",

"Eritrea", "Estonia",
"Eswatini", "Ethiopia", "Fiji",
"Finland", "France", "Gabon",
"Gambia", "Georgia",

"Germany", "Ghana",
"Greece", "Grenada", "Guatemala",
"Guinea", "Guinea-Bissau",
"Guyana", "Haiti",

"Honduras", "Hungary",
"Iceland", "India", "Indonesia",
"Iran", "Iraq", "Ireland", "Israel",
"Italy",

"Ivory Coast", "Jamaica",
"Japan", "Jordan", "Kazakhstan",
"Kenya", "Kiribati", "Korea, North",

"Korea, South", "Kosovo", "Kuwait", "Kyrgyzstan", "Laos", "Latvia", "Lebanon", "Lesotho", "Liberia",

"Libya", "Liechtenstein",
"Lithuania", "Luxembourg",
"Madagascar", "Malawi",
"Malaysia", "Maldives",

"Mali", "Malta", "Marshall Islands", "Mauritania", "Mauritius", "Mexico", "Micronesia", "Moldova",

"Monaco", "Mongolia", "Montenegro", "Morocco", "Mozambique", "Myanmar", "Namibia", "Nauru", "Nepal",

"Netherlands", "New Zealand", "Nicaragua", "Niger", "Nigeria", "North Macedonia", "Norway", "Oman",

"Pakistan", "Palau", "Palestinian Territories", "Panama", "Papua New Guinea", "Paraguay", "Peru",

"Philippines", "Poland",
"Portugal", "Qatar", "Romania",
"Russia", "Rwanda", "Saint Kitts and
Nevis",

```
and the Grenadines", "Samoa", "San
                                          findViewById(R.id.listView);
Marino", "Sao Tome and Principe",
      "Saudi Arabia", "Senegal",
                                              ArrayAdapter<String> adapter =
"Serbia", "Seychelles", "Sierra
                                          new ArrayAdapter<>(this,
Leone", "Singapore", "Slovakia",
                                          android.R.layout.simple list item 1
"Slovenia",
                                          , countries);
      "Solomon Islands",
                                              listView.setAdapter(adapter);
"Somalia", "South Africa", "South
Sudan", "Spain", "Sri Lanka",
                                            }
"Sudan", "Suriname",
                                          }
      "Sweden", "Switzerland",
                                          AndroidManifest.xml:
"Syria", "Taiwan", "Tajikistan",
                                          Ensure that MainActivity is declared
"Tanzania", "Thailand", "Togo",
                                          in the AndroidManifest.xml file.
"Tonga",
                                          <manifest
      "Trinidad and Tobago",
                                          xmlns:android="http://schemas.and
"Tunisia", "Turkey", "Turkmenistan",
                                          roid.com/apk/res/android"
"Tuvalu", "Uganda", "Ukraine",
      "United Arab Emirates",
"United Kingdom", "United States",
                                          package="com.example.countrylist"
"Uruguay", "Uzbekistan", "Vanuatu",
      "Vatican City", "Venezuela",
"Vietnam", "Yemen", "Zambia",
                                            <application
"Zimbabwe"};
                                              android:allowBackup="true"
  @Override
                                          android:icon="@mipmap/ic launch
                                          er"
  protected void onCreate(Bundle
savedInstanceState) {
                                          android:label="@string/app name"
super.onCreate(savedInstanceState);
                                          android:roundlcon="@mipmap/ic_l
                                          auncher_round"
setContentView(R.layout.activity m
ain);
                                              android:supportsRtl="true"
```

listView =

"Saint Lucia", "Saint Vincent