Mobile Computing

Assignment 01

Aim: 40 Programs in C, C++ and Java.

1. Write a C program to display "This is my first C Program".
2. Write a C program to add two numbers (2 and 6) and display its sum.
3. Write a C program to multiply two numbers (4 and 5) and display its product.
4. Write a C program to calculate area and circumference of a circle.
5. Write a C program to perform addition, subtraction, division, and multiplication of two numbers.
6. Write a C program to evaluate each of the following equations:
   (a) $V = u + at$
   (b) $S = ut + \frac{1}{2}at^2$
   (c) $T = 2a + \sqrt{b + 9c}$
   (d) $H = \sqrt{b^2 + p^2}$
7. Write a program to calculate simple and compound interest.
8. Write a program to swap values of two variables with and without using a third variable.
9. Write a program to display the size of every data type using the "sizeof" operator.
10. Write a program to illustrate the use of unary prefix and postfix increment and decrement operators.
11. Write a program to input two numbers and display the maximum number.
12. Write a program to find the largest of three numbers using ternary operators.
13. Write a program to find the roots of quadratic equation.
14. Write a program to input the name, marks of 5 subjects of a student and display the name of the student, total marks scored, percentage scored, and the class of result.
15. Write a Program to Check Whether a Number is Prime or not.
16. Write a program to find the largest and smallest among three entered numbers and also display whether the identified largest/smallest number is even or odd.
17. Write a program to compute grade of students using if-else adder. The grades are assigned as followed:
    - Marks ¡ 50: Grade F
    - 50 Marks ¡ 60: Grade C
    - 60 Marks ¡ 70: Grade B
    - 70 Marks ¡ 80: Grade B+
    - 80 Marks ¡ 90: Grade A
    - 90 Marks 100: Grade A+
18. Write a program to check whether the entered year is a leap year or not (a year is leap if it is divisible by 4 and divisible by 100 or 400).
19. Write a program to find the factorial of a number.
20. Write a program to check if a number is Armstrong or not. (Hint: A number is Armstrong if the sum of cubes of individual digits of a number is equal to the number itself).

21. Write a program to count the number of digits in a given integer.
22. Write a program to reverse a given integer.
23. Write a program to print numbers in reverse order with a difference of 2.
24. Write a program to print the sum of digits of a number using a for loop.
25. Write a program to check whether a number is Palindrome or not.
26. Write a program to generate Fibonacci series.
27. If a four-digit number is input through the keyboard, write a program to obtain the sum of the first and last digit of this number.
28. Write a program to find GCD (greatest common divisor or HCF) and LCM (least common multiple) of two numbers.
29. Write a Program to Search an element in an array.
30. Write a Program to perform addition of all elements in an Array.
31. Write a Program to find the largest and smallest element in an Array.
32. Write a Program to reverse the array elements in C Programming.
33. Write a Program for deletion of an element from the specified location from an Array.
34. Write a Program to access an element in a 2-D Array.
35. Write a program for addition of two matrices of any order in C.
36. Write a Program to multiply two 3×3 Matrices.
37. Write a program to read a string and check for palindrome without using string related functions (a string is palindrome if its half is mirrored by itself, e.g., abcdcba).
38. Write a program to accept a string and count the number of vowels present in this string.
39. Write a program to display the following pattern:

* * * * * * * * * * * * * * *

Code and Output:

1.1) Program to Count Number of Digits in a Given Integer

main.c

```c
// Name:- Shekhar Garud
// Roll No:- 16

#include <stdio.h>
int main() {
    int num, count = 0;
    printf("Enter an integer: ");
    scanf("%d", &num);

    // Handle negative numbers
    if (num < 0)
        num = -num;

    do {
        count++;
        num /= 10;
    } while (num != 0);

    printf("Number of digits: %d\n", count);
    return 0;
}
```

Output

```
Enter an integer: 4545
Number of digits: 4


=== Code Execution Successful ===
```

main.cpp

```cpp
// Name:- Shekhar Garud
// Roll No:- 16

#include <iostream>
using namespace std;
int main() {
    int num, count = 0;
    cout << "Enter an integer: ";
    cin >> num;
    if (num < 0)
        num = -num;
    do {
        count++;
        num /= 10;
    } while (num != 0);
    cout << "Number of digits: " << count << endl;
    return 0;
}
```

Output

```
Enter an integer: 4545
Number of digits: 4


=== Code Execution Successful ===
```

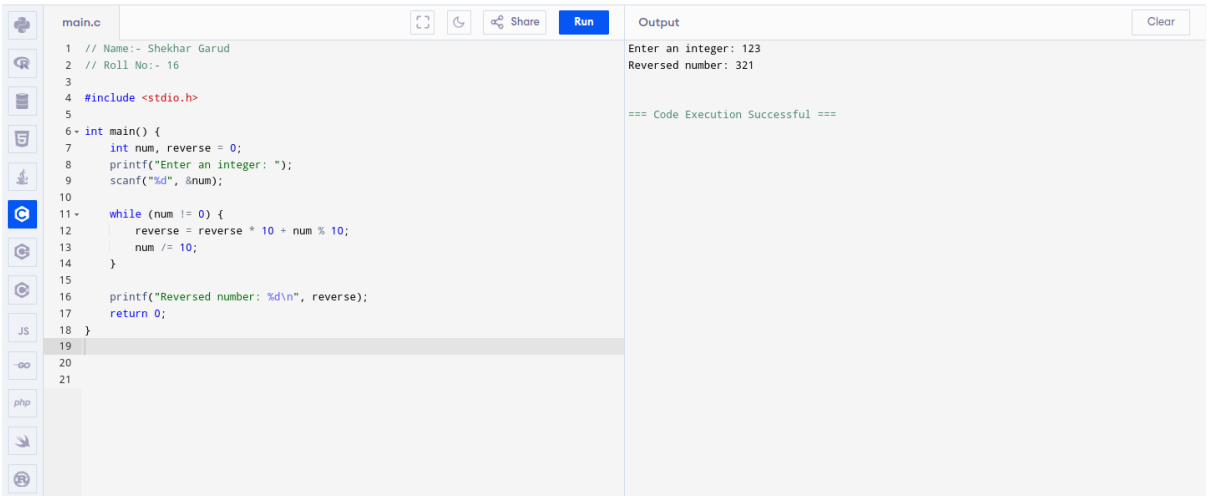
Main.java

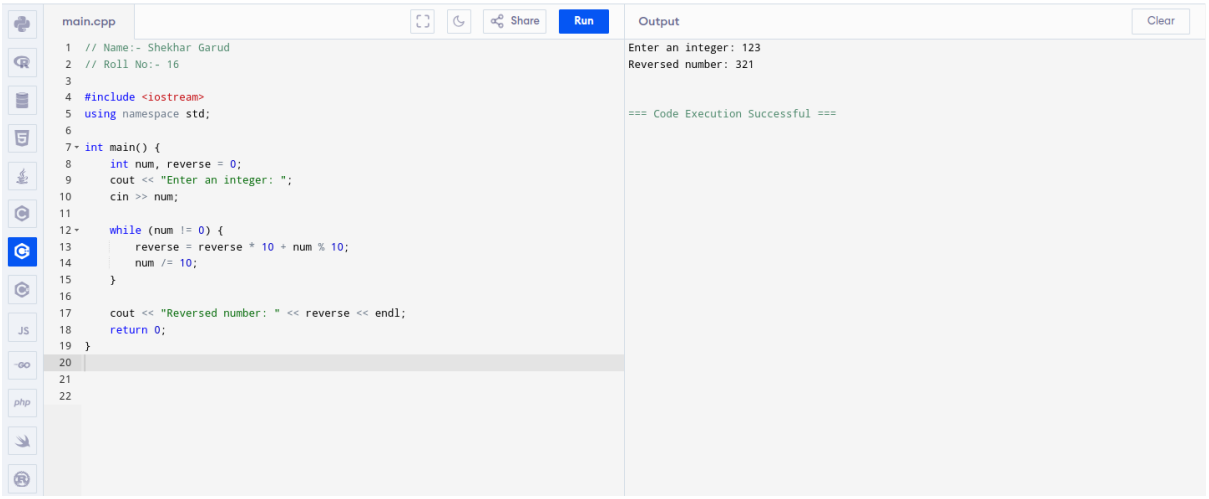
```java
// Name:- Shekhar Garud
// Roll No:- 16

import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter an integer: ");
        int num = scanner.nextInt();
        int count = 0;
        num = Math.abs(num);
        do {
            count++;
            num /= 10;
        } while (num != 0);

        System.out.println("Number of digits: " + count);
        scanner.close();
    }
}
```

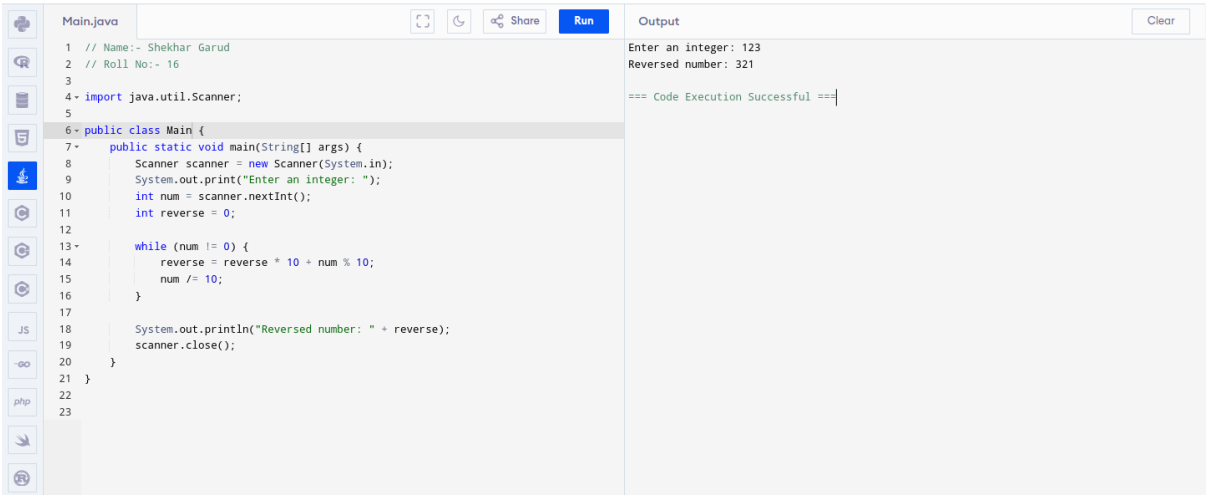
Output

```
Enter an integer: 4545
Number of digits: 4


=== Code Execution Successful ===
```

1.2) Program to Reverse a Given Integer







Mobile Computing

Assignment 04

Aim: Use various controls like Edit View, buttons, radio buttons, checkboxes, AutoCompleteTextView, Image Button, and Toggle Button on Mobile to develop UI using Android /other.

Code:

MainActivity.java:

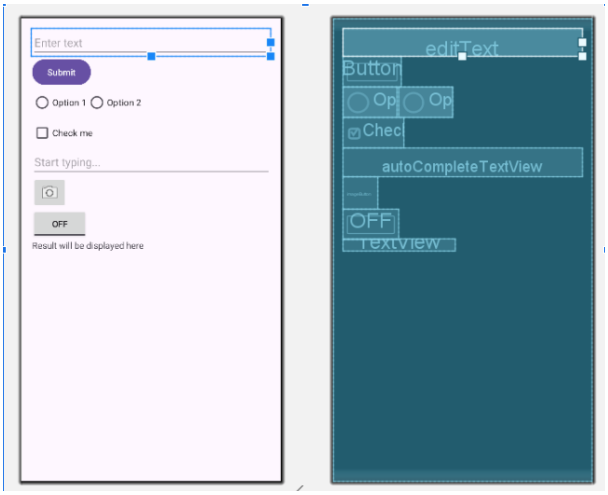
```
package com.example.usevariouscontrols;

import android.os.Bundle;
import android.view.View;
import android.widget.*;
import androidx.activity.EdgeToEdge; // Ensure this is defined in your project
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);

        // Setting up views
        EditText editText = findViewById(R.id.editText);
        Button submitButton = findViewById(R.id.submitButton);
        RadioGroup radioGroup = findViewById(R.id.radioGroup);
        CheckBox checkBox = findViewById(R.id.checkBox);
        AutoCompleteTextView autoCompleteTextView = findViewById(R.id.
            autoCompleteTextView);
        ImageButton imageButton = findViewById(R.id.imageButton);
        ToggleButton toggleButton = findViewById(R.id.toggleButton);
        TextView resultTextView = findViewById(R.id.resultTextView);

        // Setup AutoCompleteTextView
        String[] suggestions = {"Apple", "Banana", "Cherry", "Date", "
            Elderberry"};
        ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.
            layout.simple_dropdown_item_1line, suggestions);
        autoCompleteTextView.setAdapter(adapter);

        submitButton.setOnClickListener(v -> {
            String enteredText = editText.getText().toString();
            String selectedOption = radioGroup.getCheckedRadioButtonId() != -1
                ?
                    ((RadioButton) findViewById(radioGroup.
                        getCheckedRadioButtonId())).getText().toString() : "None
                        ";
            String checkBoxStatus = checkBox.isChecked() ? "Checked" : "
                Unchecked";
            String toggleStatus = toggleButton.isChecked() ? "Toggle ON" : "
                Toggle OFF";
            String result = "You entered: " + enteredText + "\n" +
                    "Selected: " + selectedOption + "\n" +
                    "CheckBox: " + checkBoxStatus + "\n" +
```

```
                    toggleStatus;

            resultTextView.setText(result);
        });

        // ImageButton click event
        imageButton.setOnClickListener(v -> Toast.makeText(MainActivity.this, "Image Button Clicked!", Toast.LENGTH_SHORT).show());

        // ToggleButton change event
        toggleButton.setOnCheckedChangeListener((buttonView, isChecked) -> {
            Toast.makeText(MainActivity.this, isChecked ? "Toggle ON" : "Toggle OFF", Toast.LENGTH_SHORT).show();
        });

        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
    }
}
```

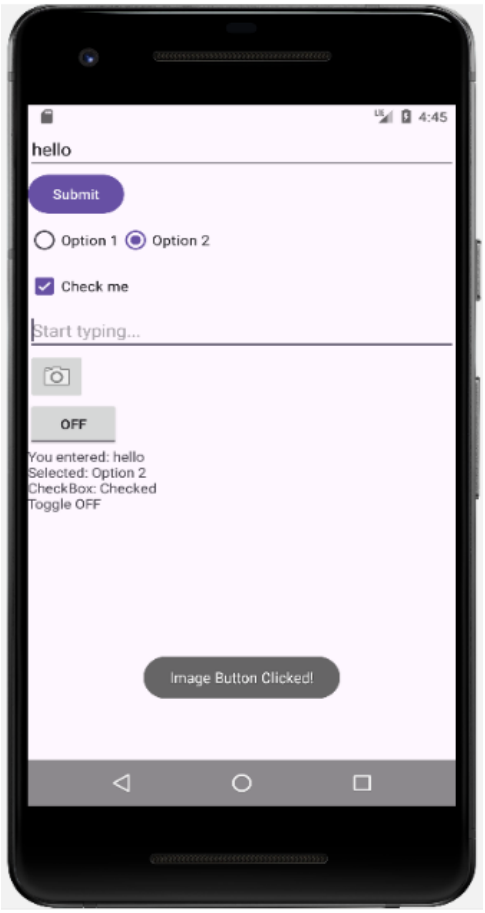
activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <!-- EditText View -->
    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter text"/>

    <!-- Button -->
    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit" />

    <!-- RadioGroup with RadioButtons -->
    <RadioGroup
        android:id="@+id/radioGroup"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <RadioButton
            android:id="@+id/radioButton1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Option 1" />

```

```
        <RadioButton
            android:id="@+id/radioButton2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Option 2" />
    </RadioGroup>

    <!-- CheckBox -->
    <CheckBox
        android:id="@+id/checkBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Check me"/>

    <!-- AutoCompleteTextView -->
    <AutoCompleteTextView
        android:id="@+id/autoCompleteTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Start typing..."/>

    <!-- ImageButton -->
    <ImageButton
        android:id="@+id/imageButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:src="@android:drawable/ic_menu_camera"
        android:contentDescription="Image Button" />

    <!-- ToggleButton -->
    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textOn="ON"
        android:textOff="OFF" />

    <!-- Result TextView -->
    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Result will be displayed here"/>
</LinearLayout>
```



Output:


4:45
hello
Submit
Option 1
Option 2
Check me
Start typing...
OFF
You entered: hello
Selected: Option 2
CheckBox: Checked
Toggle OFF
Image Button Clicked!

Mobile Computing

Assignment 05

Aim: Design a simple calculator using Android/ other as a separate module of previous.

Code:

MainActivity.java:

```
1
2  package com.example.simple_addition_subtraction;
3  import android.os.Bundle;
4  import android.view.View;
5  import android.widget.Switch;
6  import android.widget.Toast;
7  //import androidx.activity.EdgeToEdge;
8  import androidx.appcompat.app.AppCompatActivity;
9  //import androidx.core.graphics.Insets;
10 //import androidx.core.view.ViewCompat;
11 //import androidx.core.view.WindowInsetsCompat;
12 import android.widget.Button;
13 import android.widget.EditText;
14 import android.widget.TextView;
15 public class MainActivity extends AppCompatActivity {
16  private EditText firstNumber;
17  private EditText secondNumber;
18  private TextView resultText;
19  private Switch onoffSwitch;
20  private Button addButton;
21  private Button subtractButton;
22  private Button multiplyButton;
23  private Button divideButton;
24  private Button moduleButton;
25  private Button exponentButton;
26  private Button clearButton;
27  private enum Check {
28  ADD, SUBTRACT, MULTIPLY, DIVIDE, MODULE, EXPONENT
29  }
30  (Check check){
31  if(!onoffSwitch.isChecked()) {
32  Toast.makeText(MainActivity.this,"Please␣turn␣on␣the␣switch␣to␣perform␣␣
        calculations",Toast.LENGTH_SHORT).show();
33  return;
34  };
35  if(firstNumber.getText().toString().isEmpty() ||
36 secondNumber.getText().toString().isEmpty()) {
37  Toast.makeText(MainActivity.this, "Please␣enter␣both␣numbers",  Toast.
        LENGTH_SHORT).show();
38  return;
39  };
40  double n1 = Double.parseDouble (firstNumber.getText().toString());  double n2
        = Double.parseDouble(secondNumber.getText().toString());  double result=0;
41  switch (check) {
42  case ADD:
43  result = n1 + n2;
44  break;
45  case SUBTRACT:
46  result = n1 - n2;
47  break;
48  case MULTIPLY:
49  result = n1 * n2;
```

```
 break;
 case DIVIDE:
 if (n2 == 0) {
 resultText.setText("Reached␣Infinity");
 return;
 } else {
 result = n1 / n2;
 }
 break;
 case MODULE:
 if (n2 == 0) {
 resultText.setText("Result␣is:␣0");
 return;
 } else {
 result = n1 % n2;
 }
 break;
 case EXPONENT:
// result = 1;
// for (int i = 0; i < n2; i++) {
// result *= n1;
// }
 result = Math.pow(n1, n2);
 break;
 }
 resultText.setText("Result␣is:␣" + result);
 }
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
// EdgeToEdge.enable(this);
 setContentView(R.layout.activity_main);
// ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v,
    insets) -> {
// Insets systemBars =
insets.getInsets(WindowInsetsCompat.Type.systemBars());
// v.setPadding(systemBars.left, systemBars.top, systemBars.right,  systemBars.
    bottom);
// return insets;
// });
 onoffSwitch= findViewById(R.id.switchOnOff);
 firstNumber = findViewById(R.id.editTextNumber1);
 secondNumber = findViewById(R.id.editTextNumber2);
 addButton = findViewById(R.id.buttonAdd);
 subtractButton = findViewById(R.id.buttonSubtract);
 multiplyButton=findViewById(R.id.buttonMultiply);
 divideButton=findViewById(R.id.buttonDivide);
moduleButton=findViewById(R.id.buttonModule);
 exponentButton=findViewById(R.id.buttonExponent);
 resultText = findViewById(R.id.textViewResult);
 clearButton = findViewById(R.id.buttonClear);
 addButton.setOnClickListener(new View.OnClickListener() {  @Override
 public void onClick(View v) {
 performOperation(Check.ADD);
 }
 });
 subtractButton.setOnClickListener(new View.OnClickListener() {  @Override
 public void onClick(View v) {
 performOperation(Check.SUBTRACT);
 }
 });
 multiplyButton.setOnClickListener(new View.OnClickListener() {  @Override
 public void onClick(View v) {
```

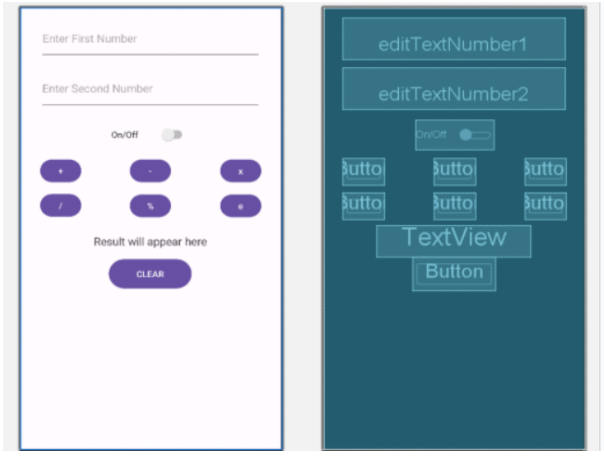
```
111   performOperation(Check.MULTIPLY);
112   }
113   });
114   divideButton.setOnClickListener(new View.OnClickListener() {  @Override
115   public void onClick(View v) {
116   performOperation(Check.DIVIDE);
117   }
118   });
119   moduleButton.setOnClickListener(new View.OnClickListener() {  @Override
120   public void onClick(View v) {
121   performOperation(Check.MODULE);
122   }
123   });
124   exponentButton.setOnClickListener(new View.OnClickListener() {  @Override
125   public void onClick(View v) {
126   performOperation(Check.EXPONENT);
127   }
128   });
129   clearButton.setOnClickListener(new View.OnClickListener() {  @Override
130   public void onClick(View v){
131   if(firstNumber.getText().toString().isEmpty() ||  secondNumber.getText().
          toString().isEmpty()){
132   Toast.makeText(MainActivity.this, "Field␣is␣already␣empty",  Toast.
          LENGTH_SHORT).show();
133   }
134   else{
135   firstNumber.setText("");
136   secondNumber.setText("");
137   resultText.setText("Result␣will␣appear␣here");
138   }
139   }
140   });
141   }
142 }
```

activity_main.xml:

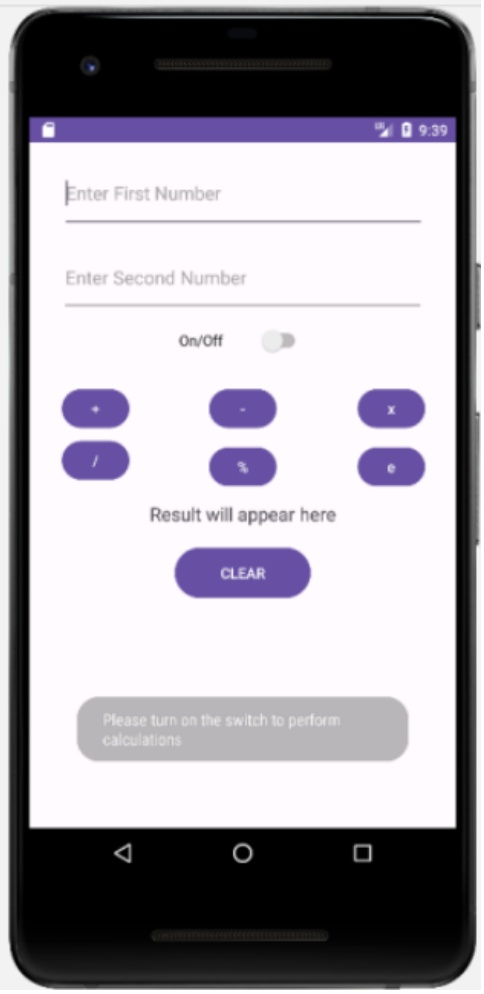
```
1
2  <?xml version="1.0" encoding="utf-8"?>
3  <androidx.constraintlayout.widget.ConstraintLayout  xmlns:android="http://
       schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/
       apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:id="@
       +id/main"
4   android:layout_width="match_parent"
5   android:layout_height="match_parent"
6   tools:context=".MainActivity">
7   <EditText
8   android:id="@+id/editTextNumber1"
9   android:layout_width="350dp"
10  android:layout_height="70dp"
11  android:hint="Enter␣First␣Number"
12  android:inputType="number"
13  app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
14  app:layout_constraintHorizontal_bias="0.508"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
15  app:layout_constraintVertical_bias="0.024" />
16  <EditText
17  android:id="@+id/editTextNumber2"
18  android:layout_width="350dp"
19  android:layout_height="70dp"
20  android:hint="Enter␣Second␣Number"
21  android:inputType="number"
```

```
22  app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
23  app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextNumber1"
        app:layout_constraintVertical_bias="0.022" />
24  <Button
25  android:id="@+id/buttonAdd"
26  android:layout_width="65dp"
27  android:layout_height="45dp"
28  android:text="+"
29  app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/buttonSubtract"
        app:layout_constraintHorizontal_bias="0.289"
30   app:layout_constraintStart_toStartOf="parent"
         app:layout_constraintTop_toBottomOf="@+id/editTextNumber2"
         app:layout_constraintVertical_bias="0.152" />
31  <Button
32  android:id="@+id/buttonDivide"
33  android:layout_width="65dp"
34  android:layout_height="45dp"
35  android:text="/"
36  app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/buttonModule"
        app:layout_constraintHorizontal_bias="0.289"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextNumber2"
        app:layout_constraintVertical_bias="0.263" />
37  <Button
38  android:id="@+id/buttonModule"
39  android:layout_width="65dp"
40  android:layout_height="45dp"
41  android:text="%"
42  app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
43  app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/buttonSubtract"
        app:layout_constraintVertical_bias="0.033" />
44  <Button
45  android:id="@+id/buttonClear"
46  android:layout_width="131dp"
47  android:layout_height="56dp"
48  android:text="CLEAR"
49  app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
50  app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/buttonModule"
        app:layout_constraintVertical_bias="0.191" />
51  <Button
52  android:id="@+id/buttonMultiply"
53  android:layout_width="65dp"
54  android:layout_height="45dp"
55  android:text="x"
56  app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
57  app:layout_constraintHorizontal_bias="0.724"
        app:layout_constraintStart_toEndOf="@+id/buttonSubtract"
        app:layout_constraintTop_toBottomOf="@+id/editTextNumber2"
        app:layout_constraintVertical_bias="0.152" />
58  <Switch
59  android:id="@+id/switchOnOff"
60  android:layout_width="123dp"
61  android:layout_height="48dp"
62  android:text="On/Off"
```

```
63   app:layout_constraintBottom_toBottomOf="parent"
         app:layout_constraintEnd_toEndOf="parent"
64   app:layout_constraintStart_toStartOf="parent"
         app:layout_constraintTop_toTopOf="parent"
65   app:layout_constraintVertical_bias="0.272" />  <TextView
66  android:id="@+id/textViewResult"
67   android:layout_width="243dp"
68   android:layout_height="53dp"
69   android:gravity="center"
70   android:text="Result␣will␣appear␣here"
71   android:textSize="18sp"
72   app:layout_constraintBottom_toBottomOf="parent"
         app:layout_constraintEnd_toEndOf="parent"
73   app:layout_constraintStart_toStartOf="parent"
         app:layout_constraintTop_toBottomOf="@+id/editTextNumber2"
         app:layout_constraintVertical_bias="0.375" />
74   <Button
75   android:id="@+id/buttonSubtract"
76   android:layout_width="65dp"
77   android:layout_height="45dp"
78   android:text="-"
79   app:layout_constraintBottom_toBottomOf="parent"
         app:layout_constraintEnd_toEndOf="parent"
80   app:layout_constraintStart_toStartOf="parent"
         app:layout_constraintTop_toBottomOf="@+id/editTextNumber2"
         app:layout_constraintVertical_bias="0.152" />
81   <Button
82   android:id="@+id/buttonExponent"
83   android:layout_width="65dp"
84   android:layout_height="45dp"
85   android:text="e"
86   app:layout_constraintBottom_toBottomOf="parent"
         app:layout_constraintEnd_toEndOf="parent"
87   app:layout_constraintHorizontal_bias="0.724"
         app:layout_constraintStart_toEndOf="@+id/buttonModule"
         app:layout_constraintTop_toBottomOf="@+id/buttonMultiply"
         app:layout_constraintVertical_bias="0.033" />
88  </androidx.constraintlayout.widget.ConstraintLayout>
```



Output:


9:39
Enter First Number
Enter Second Number
On/Off
+
-
x
/
%
e
Result will appear here
CLEAR
Please turn on the switch to perform calculations

Mobile Computing

Assignment 06

Aim: Create a simple temperature converter application using Android/other as a separate module of previous.

Code:

MainActivity.java:

```
package com.example.check_temperature;
import android.os.Bundle;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
 private Spinner spinnerTemperature;
 private Spinner spinnerTemperature2;
 private Button buttonConvert;
 private EditText textNumber;
 private TextView textResult;
 private Button buttonClear;
 private double performConversion(double n){
 String from=spinnerTemperature.getSelectedItem().toString();  String to=
     spinnerTemperature2.getSelectedItem().toString();
 if(from.equals(to)){
 return n;
 }
 switch(from){
 case "Celsius":
 if(to.equals("Fahrenheit")){
 return (n*9.0/5.0)+32;
 } else if (to.equals("Kelvin")) {
 return n+273.15;
 }
 break;
 case "Fahrenheit":
 if(to.equals("Celsius")){
 return 5.0/9.0*(n-32);
 } else if (to.equals("Kelvin")) {
 return 5.0/9.0*(n-32) + 273.15;
 }
 break;
 case "Kelvin":
 if(to.equals("Fahrenheit")){
 return 9.0/5.0*(n - 273.15) + 32;
 } else if (to.equals("Celsius")) {
 return n - 273.15;
 }
 break;
 }
 return n;
 }
```

```
 private String getSymbol(String unit) {
 switch (unit) {
 case "Celsius":
 return "C" ;
 case "Fahrenheit":
 return "F" ;
 case "Kelvin":
 return "K";
 default:
 return "";
 }
 }
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 EdgeToEdge.enable(this);
 setContentView(R.layout.activity_main);
 spinnerTemperature=findViewById(R.id.spinnerTemperature);
 spinnerTemperature2=findViewById(R.id.spinnerTemperature2);  buttonConvert=
     findViewById(R.id.buttonConvert);
 textNumber=findViewById(R.id.editTextNumber);
 textResult=findViewById(R.id.textViewResult);
 buttonClear=findViewById(R.id.buttonClear);

ArrayAdapter<CharSequence>adapter=ArrayAdapter.createFromResource(this,R.array.
    temperat ure, android.R.layout.simple_spinner_item);
 adapter.setDropDownViewResource(android.R.layout.simple_spinner_item);
ArrayAdapter<CharSequence>adapter2=ArrayAdapter.createFromResource(this,R.array
    .tempera ture2, android.R.layout.simple_spinner_item);
 adapter2.setDropDownViewResource(android.R.layout.simple_spinner_item);
 spinnerTemperature.setAdapter(adapter);
 spinnerTemperature2.setAdapter(adapter2);
 buttonConvert.setOnClickListener(new View.OnClickListener(){  @Override
 public void onClick(View v){
 if(textNumber.getText().toString().isEmpty()){
 Toast.makeText(MainActivity.this,"Please␣enter␣the␣␣number",Toast.LENGTH_SHORT
     ).show();
 return ;
 }
 double n=Double.parseDouble(textNumber.getText().toString());
 double result=performConversion(n);
// String to=spinnerTemperature2.getSelectedItem().toString();  String
symbol=getSymbol(spinnerTemperature2.getSelectedItem().toString());  textResult
    .setText("result␣is␣:-"+result +""+symbol);
 }
 });

 buttonClear.setOnClickListener(new View.OnClickListener() {  @Override
 public void onClick(View v) {
 if(textNumber.getText().toString().isEmpty()){  Toast.makeText(MainActivity.
     this, "Field␣is␣already␣empty",  Toast.LENGTH_SHORT).show();
 }
 else {
 textNumber.setText("");
 textResult.setText("Result␣will␣appear␣here");  }
 }
 });
 }
}
```

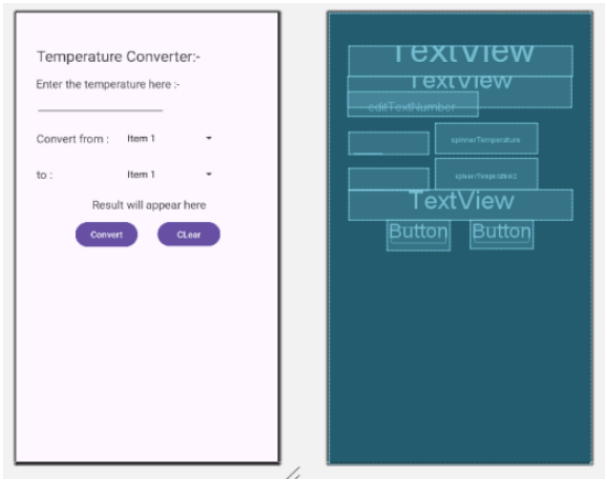
activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
```

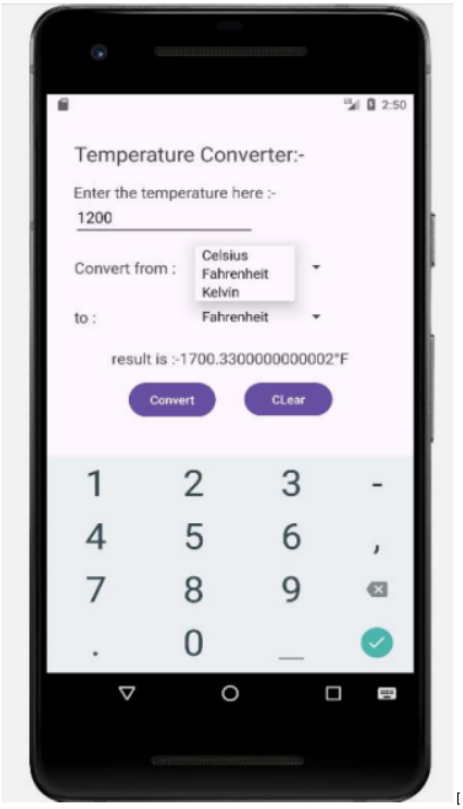
```
xmlns:android="http://schemas.android.com/apk/res/android"
 xmlns:app="http://schemas.android.com/apk/res-auto"
 xmlns:tools="http://schemas.android.com/tools"
 android:id="@+id/main"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 tools:context=".MainActivity">
 <Button
 android:id="@+id/buttonClear"
 android:layout_width="99dp"
 android:layout_height="47dp"
 android:text="CLear"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.708"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textViewResult"
     app:layout_constraintVertical_bias="0.0" />
 <EditText
 android:id="@+id/editTextNumber"
 android:layout_width="203dp"
 android:layout_height="40dp"
 android:layout_marginBottom="125dp"
 android:ems="10"
 android:inputType="number"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.144"
     app:layout_constraintStart_toStartOf="parent"
     app:layout_constraintTop_toTopOf="parent"
     app:layout_constraintVertical_bias="0.226" />
 <Spinner
 android:id="@+id/spinnerTemperature"
 android:layout_width="160dp"
 android:layout_height="50dp"
 android:layout_marginStart="1dp"
 android:layout_marginEnd="1dp"
 app:layout_constraintBottom_toBottomOf="parent"
     app:layout_constraintEnd_toEndOf="parent"
     app:layout_constraintHorizontal_bias="0.662"
     app:layout_constraintStart_toStartOf="parent"
     app:layout_constraintTop_toTopOf="parent"
     app:layout_constraintVertical_bias="0.262" />
 <Spinner
 android:id="@+id/spinnerTemperature2"
 android:layout_width="160dp"
 android:layout_height="50dp"
 android:layout_marginStart="1dp"
 android:layout_marginEnd="1dp"
 app:layout_constraintBottom_toBottomOf="parent"
     app:layout_constraintEnd_toEndOf="parent"
     app:layout_constraintHorizontal_bias="0.662"
     app:layout_constraintStart_toStartOf="parent"
     app:layout_constraintTop_toTopOf="parent"
     app:layout_constraintVertical_bias="0.348" />
 <TextView
 android:id="@+id/textView"
 android:layout_width="350dp"
 android:layout_height="50dp"
 android:layout_marginTop="54dp"
 android:layout_marginBottom="139dp"
 android:text="Temperature␣Converter:-"
 android:textSize="24sp"
```

```
52    app:layout_constraintBottom_toTopOf="@+id/button"
          app:layout_constraintEnd_toEndOf="parent"
          app:layout_constraintHorizontal_bias="0.5"
          app:layout_constraintStart_toStartOf="parent"
          app:layout_constraintTop_toTopOf="parent"
          app:layout_constraintVertical_bias="0.0" />
53    <Button
54    android:id="@+id/buttonConvert"
55    android:layout_width="wrap_content"
56    android:layout_height="wrap_content"
57    android:text="Convert"
58    app:layout_constraintBottom_toBottomOf="parent"
          app:layout_constraintEnd_toEndOf="parent"
          app:layout_constraintHorizontal_bias="0.293"
          app:layout_constraintStart_toStartOf="parent"
          app:layout_constraintTop_toBottomOf="@+id/textViewResult"
          app:layout_constraintVertical_bias="0.0" />
59    <TextView
60    android:id="@+id/textView2"
61    android:layout_width="350dp"
62    android:layout_height="50dp"
63    android:text="Enter␣the␣temperature␣here␣:-"  android:textSize="18sp"
64    app:layout_constraintBottom_toBottomOf="parent"
          app:layout_constraintEnd_toEndOf="parent"
          app:layout_constraintHorizontal_bias="0.491"
          app:layout_constraintStart_toStartOf="parent"
          app:layout_constraintTop_toTopOf="parent"
          app:layout_constraintVertical_bias="0.152" />
65    <TextView
66    android:id="@+id/textView3"
67    android:layout_width="125dp"
68    android:layout_height="36dp"
69    android:text="Convert␣from␣:"
70    android:textSize="18sp"
71    app:layout_constraintBottom_toBottomOf="parent"
          app:layout_constraintEnd_toEndOf="parent"
          app:layout_constraintHorizontal_bias="0.108"
          app:layout_constraintStart_toStartOf="parent"
          app:layout_constraintTop_toTopOf="parent"
          app:layout_constraintVertical_bias="0.277" />
72    <TextView
73    android:id="@+id/textView4"
74    android:layout_width="125dp"
75    android:layout_height="36dp"
76    android:text="to␣:"
77    android:textSize="18sp"
78    app:layout_constraintBottom_toBottomOf="parent"
          app:layout_constraintEnd_toEndOf="parent"
          app:layout_constraintHorizontal_bias="0.108"
          app:layout_constraintStart_toStartOf="parent"
          app:layout_constraintTop_toTopOf="parent"
          app:layout_constraintVertical_bias="0.361" />
79    <TextView
80    android:id="@+id/textViewResult"
81    android:layout_width="350dp"
82    android:layout_height="50dp"
83    android:gravity="center"
84    android:text="␣Result␣will␣appear␣here"  android:textSize="18sp"
85    app:layout_constraintBottom_toBottomOf="parent"
          app:layout_constraintEnd_toEndOf="parent"
          app:layout_constraintHorizontal_bias="0.5"
          app:layout_constraintStart_toStartOf="parent"
          app:layout_constraintTop_toTopOf="parent"
```

```
        app:layout_constraintVertical_bias="0.421" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



Output:



Mobile Computing

Assignment 07

Aim: Write a Program to generate Calendar using Android/other.

Code:

MainActivity.java:

```
package com.example.calender;
import android.graphics.Color;
import android.os.Bundle;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import com.prolificinteractive.materialcalendarview.CalendarDay; import com.
    prolificinteractive.materialcalendarview.MaterialCalendarView; import com.
    prolificinteractive.materialcalendarview.OnDateSelectedListener;
import java.util.Calendar;
import java.util.HashSet;
import java.util.Set;
public class MainActivity extends AppCompatActivity {
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
MaterialCalendarView calendarView = findViewById(R.id.calendarView);
calendarView.state().edit()
.setMinimumDate(CalendarDay.from(2024, 1, 1))
.setMaximumDate(CalendarDay.from(2024, 12, 31))
.commit();
Set<CalendarDay> weekendDays = new HashSet<>();
Calendar calendar = Calendar.getInstance();
for (int month = 0; month < 12; month++) {
for (int day = 1; day <=
calendar.getActualMaximum(Calendar.DAY_OF_MONTH); day++) { calendar.set(2024,
    month, day);
if (calendar.get(Calendar.DAY_OF_WEEK) == Calendar.SATURDAY || calendar.get(
    Calendar.DAY_OF_WEEK) == Calendar.SUNDAY)
{
weekendDays.add(CalendarDay.from(calendar));
}
}
}
calendarView.addDecorator(new WeekendDecorator(this, weekendDays));
    calendarView.addDecorator(new TodayDecorator(this));
calendarView.setOnDateChangedListener(new OnDateSelectedListener() { @Override
public void onDateSelected(@NonNull MaterialCalendarView widget, @NonNull
    CalendarDay date, boolean selected) {
Toast.makeText(getApplicationContext(), "Selected␣date:␣" + date.getDate(),
    Toast.LENGTH_SHORT).show();
}
});
}
}
```

TodayDecorator.java:

```
package com.example.calender;
import android.content.Context;
import androidx.annotation.NonNull;
import com.prolificinteractive.materialcalendarview.DayViewDecorator; import
    com.prolificinteractive.materialcalendarview.CalendarDay; import com.
    prolificinteractive.materialcalendarview.DayViewFacade;
```

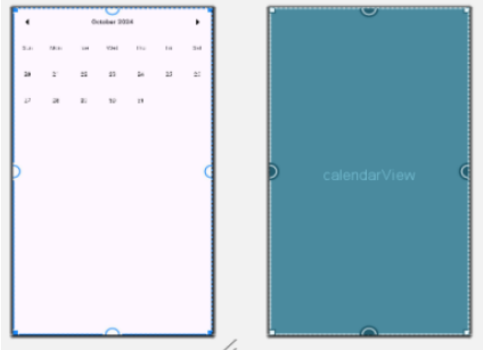
```
public class TodayDecorator implements DayViewDecorator {
private final Context context;
public TodayDecorator(Context context) {
this.context = context;
}
@Override
public boolean shouldDecorate(@NonNull CalendarDay day) { return day.equals(
    CalendarDay.today());
}
@Override
public void decorate(@NonNull DayViewFacade view) {
view.setBackgroundDrawable(context.getDrawable(R.drawable.red_bg)); view.
    addSpan(new
android.text.style.StyleSpan(android.graphics.Typeface.BOLD)); } }
```

WeekendDecorator.java:

```
package com.example.calender;
import android.content.Context;
import androidx.annotation.NonNull;
import com.prolificinteractive.materialcalendarview.DayViewDecorator; import
    com.prolificinteractive.materialcalendarview.CalendarDay; import com.
    prolificinteractive.materialcalendarview.DayViewFacade;
import java.util.Set;
public class WeekendDecorator implements DayViewDecorator {
private final Set<CalendarDay> dates;
private final Context context;
public WeekendDecorator(Context context, Set<CalendarDay> dates) { this.context
     = context;
this.dates = dates;
}
@Override
public boolean shouldDecorate(@NonNull CalendarDay day) { return dates.contains
    (day);
}
@Override
public void decorate(@NonNull DayViewFacade view) {
view.setBackgroundDrawable(context.getDrawable(R.drawable.red_bg)); }
}
```

activity_main.xml:

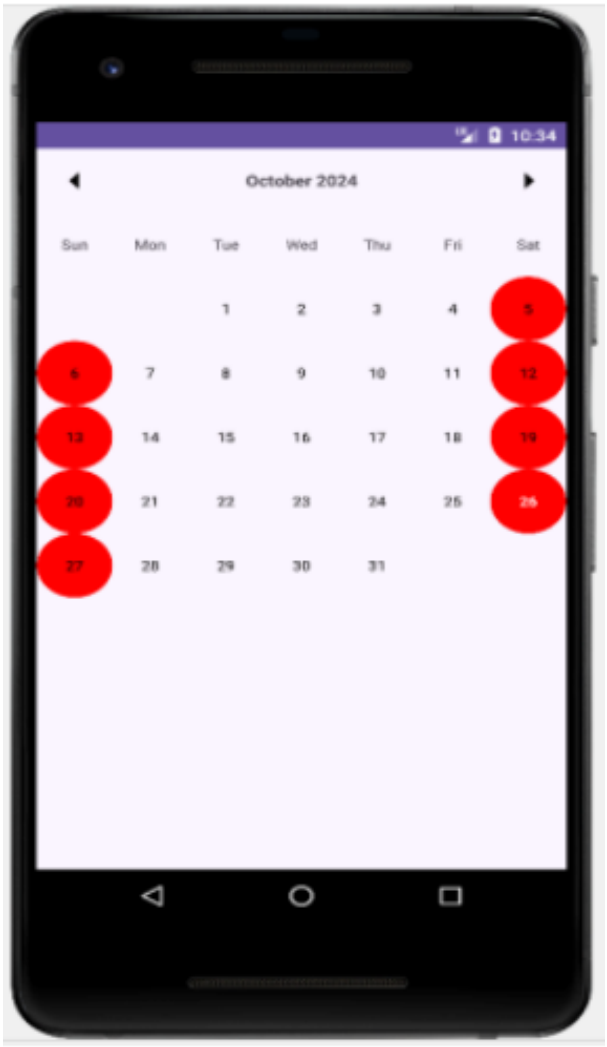
```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:mcv="http://schemas.android.com/apk/res-auto"
android:layout_width="match_parent"
android:layout_height="match_parent">
<com.prolificinteractive.materialcalendarview.MaterialCalendarView android:id="
    @+id/calendarView"
android:layout_width="match_parent"
android:layout_height="match_parent"/>
<!-- app:mcv_showOtherMonths="false" /> &lt;!&ndash; Hide days from other
    months &ndash;&gt;-->
</RelativeLayout>
```



redbg.xml:

```
<!-- res/drawable/red_bg.xml -->
<shape xmlns:android="http://schemas.android.com/apk/res/android"> <solid
    android:color="#FF0000"/>
<corners android:radius="300dp"/>
</shape>
```

Output:


10:34
October 2024
Sun
Mon
Tue
Wed
Thu
Fri
Sat
1
2
3
4
5
6
7
8
9
10
11
12
13
14
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Mobile Computing

Assignment 08

Aim: Design a simple to-do list using Android/other.

Code:

MainActivity.java:

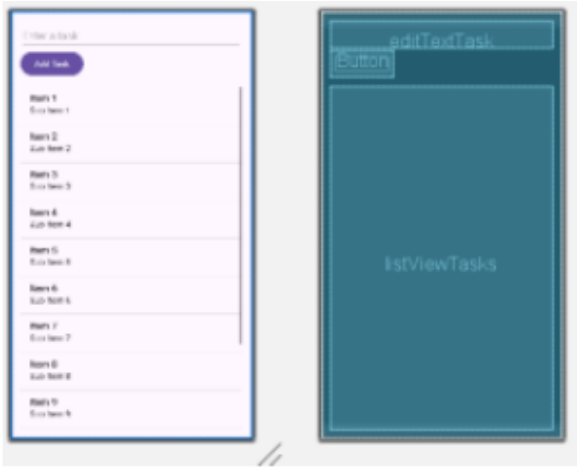
```
package com.example.todolist;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.CheckBox;
import android.widget.TextView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity; import android.widget.
    AdapterView;
import android.view.LayoutInflater;
import android.view.ViewGroup;
import android.graphics.Paint;
import com.example.todolist.R;
import java.util.ArrayList;
import java.util.HashSet;
import java.util.Set;
public class MainActivity extends AppCompatActivity {
private EditText editTextTask;
private Button buttonAdd;
private ListView listViewTasks;
private ArrayList<String> tasks;
private ArrayAdapter<String> adapter;
@Override
protected void onCreate(Bundle savedInstanceState) { super.onCreate(
    savedInstanceState);
setContentView(R.layout.activity_main);
editTextTask = findViewById(R.id.editTextTask);
buttonAdd = findViewById(R.id.buttonAdd);
listViewTasks = findViewById(R.id.listViewTasks);
tasks = loadTasks();
adapter = new TaskAdapter(this, tasks);
listViewTasks.setAdapter(adapter);
buttonAdd.setOnClickListener(v -> {
String task = editTextTask.getText().toString().trim();
if (!task.isEmpty()) {
tasks.add(task);
adapter.notifyDataSetChanged();
saveTasks();
editTextTask.setText(""); // Clear input field
} else {
Toast.makeText(MainActivity.this, "Please␣enter␣a␣task",
Toast.LENGTH_SHORT).show();
}
});
}
private void saveTasks() {
SharedPreferences sharedPreferences = getSharedPreferences("tasks",
    MODE_PRIVATE);
SharedPreferences.Editor editor = sharedPreferences.edit(); editor.putStringSet
    ("taskSet", new HashSet<>(tasks));
```

```
editor.apply();
}
private ArrayList<String> loadTasks() {
SharedPreferences sharedPreferences = getSharedPreferences("tasks",
    MODE_PRIVATE);
Set<String> taskSet = sharedPreferences.getStringSet("taskSet", new HashSet<>()
    );
return new ArrayList<>(taskSet);
}
private class TaskAdapter extends ArrayAdapter<String> {
public TaskAdapter(MainActivity context, ArrayList<String> tasks) { super(
    context, 0, tasks);
}
@Override
public View getView(int position, View convertView, ViewGroup parent) { // Get
    the data item for this position
String task = getItem(position);
if (convertView == null) {
convertView =
LayoutInflater.from(getContext()).inflate(R.layout.list_item, parent, false); }
// Lookup view for data population
CheckBox checkBoxTask =
convertView.findViewById(R.id.checkBoxTask);
TextView textViewTask =
convertView.findViewById(R.id.textViewTask);
textViewTask.setText(task);
checkBoxTask.setChecked(false);
checkBoxTask.setOnCheckedChangeListener((buttonView, isChecked) -> {
if (isChecked) {
textViewTask.setPaintFlags(textViewTask.getPaintFlags() |
Paint.STRIKE_THRU_TEXT_FLAG);
} else {
textViewTask.setPaintFlags(textViewTask.getPaintFlags() &
(~Paint.STRIKE_THRU_TEXT_FLAG));
}
});
return convertView;
}
}
}
```

activity_main.xml:

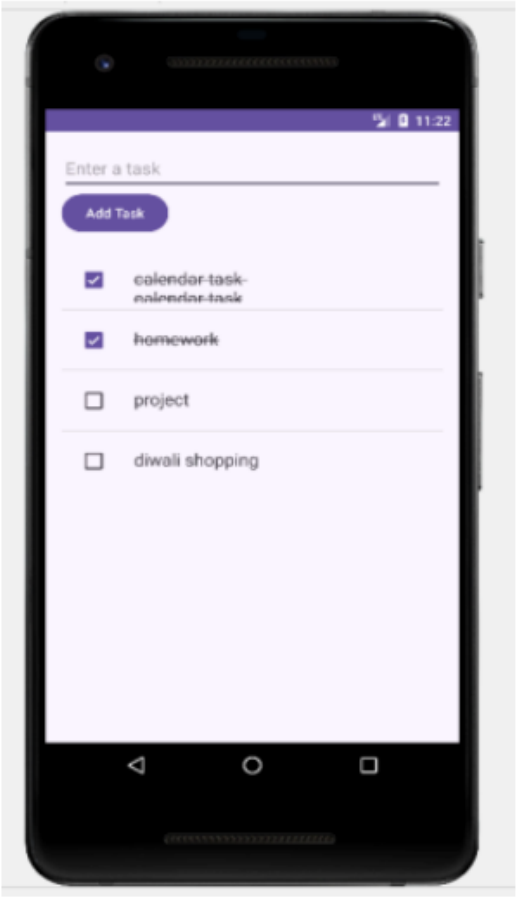
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:padding="16dp">
<EditText
android:id="@+id/editTextTask"
android:layout_width="match_parent"
android:layout_height="48dp"
android:hint="Enter␣a␣task" />
<Button
android:id="@+id/buttonAdd"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Add␣Task" />
<ListView
android:id="@+id/listViewTasks"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="16dp"/>
```

```
</LinearLayout>
```



list$_item.xml$:

Output:



Mobile Computing

Assignment 09

Aim: Demo of all lauouts and write a short note on each layout.a

Code:

MainActivity.java:

```
package com . example . layoutdemo ;
import android . content. Intent; import
android . os. Bundle ; import android . view .
View ; import android . widget. Button ;
import androidx. appcompat. app . App CompatActivity ; public class Main
Activity extends App CompatActivity {
@ Override
protected void on Create ( Bundle saved Instance State ) { super. on Create
( saved Instance State ); setContentView ( R. layout. activity_main );
Button linearButton = find View ById ( R. id. linearButton ); Button relative
    Button =
find View ById ( R. id. relative Button );
Button constraintButton = find View ById ( R. id. constraintButton ); Button
    table Button = find View ById ( R. id. table Button );
Button frame Button = find View ById ( R. id. frame Button ); Button
listButton = find View ById ( R. id. listButton ); Button grid Button = find
    View
ById ( R. id. grid Button ); Button web Button = find View ById ( R. id. web
Button ); Button scrollButton = find View ById ( R. id. scrollButton );
linearButton . setOn Click Listener ( v -> startActivity ( new Intent( this ,
    LayoutLinearActivity . class))); relative Button . setOn Click Listener ( v
    -> startActivity ( new Intent( this , LayoutRelative Activity . class)));
    constraintButton . setOn Click Listener ( v -> startActivity ( new Intent(
    this ,
LayoutConstraintActivity . class)));
table Button . setOn Click Listener ( v -> startActivity ( new Intent( this ,
    LayoutTable Activity . class))); frame Button . setOn Click Listener ( v ->
    startActivity ( new Intent( this , LayoutFrame Activity . class)));
    listButton . setOn Click Listener ( v -> startActivity ( new Intent( this ,
    LayoutListActivity . class))); grid Button . setOn Click Listener ( v ->
    startActivity ( new Intent( this , LayoutGrid Activity . class))); web
    Button . setOn Click Listener ( v -> startActivity ( new Intent( this ,
    LayoutWeb Activity . class))); scrollButton . setOn Click Listener ( v ->
    startActivity ( new Intent( this , LayoutScrollActivity . class))); }
}
```

activity_main.xml:

```
<? xml version ="␣1.0␣" encoding ="␣utf␣-8␣"? >
< LinearLayout xmlns:android ="␣http:␣//␣schemas.␣android␣.␣com␣/␣apk/␣res/␣
    android␣" android:layout_width ="␣match_parent" android:layout_height ="␣
    match_parent"
android:orientation ="␣vertical" android:padding ="␣16␣dp" >
<Button
android:id ="@␣+id/␣linearButton␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣Linear␣Layout" / >
<Button
android:id ="@␣+id/␣relative␣Button␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣Relative␣Layout" / >
<Button
android:id ="@␣+id/␣constraintButton␣" android:layout_width
="␣match_parent" android:layout_height ="␣wrap_content"
```

```
android:text ="␣Constraint␣Layout" / >
<Button
android:id ="@␣+id/␣table␣Button␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣Table␣Layout" / >
<Button
android:id ="@␣+id/␣frame␣Button␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣Frame␣Layout" / >
<Button
android:id ="@␣+id/␣listButton␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣List␣View␣" / >
<Button
android:id ="@␣+id/␣grid␣Button␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣Grid␣View␣" / >
<Button
android:id ="@␣+id/␣web␣Button␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣Web␣View␣" / >
<Button
android:id ="@␣+id/␣scrollButton␣" android:layout_width ="
match_parent" android:layout_height ="␣wrap_content"
android:text ="␣Scroll␣View␣" / >
</ Line
```

Output:

Figure 1: Home Page

Mobile Computing

Assignment 10

Aim: Write a Program for simple quiz competition Android/other.

Code:

MainActivity.java:

```
package com.example.simplequizcompetition;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
private TextView questionTextView;
private RadioGroup optionsGroup;
private Button submitButton;
private String[] questions = {
"What is the capital of India?",
"Which river is considered the holiest in India?",
"Who is known as the Father of the Nation in India?",
"What is the national animal of India?",
"Which is the largest state in India by area?"
};
private String[][] options = {
{"New Delhi", "Mumbai", "Kolkata", "Chennai"},
{"Ganga", "Yamuna", "Godavari", "Narmada"},
{"Mahatma Gandhi", "Jawaharlal Nehru", "Subhash Chandra Bose", "Sardar Patel"},
{"Tiger", "Elephant", "Lion", "Peacock"},
{"Rajasthan", "Madhya Pradesh", "Uttar Pradesh", "Maharashtra"} };
private int[] correctAnswers = {0, 0, 0, 0, 0}; // Indices of the correct
    answers
private int currentQuestionIndex = 0;
private int score = 0;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
questionTextView = findViewById(R.id.questionTextView);
optionsGroup = findViewById(R.id.optionsGroup);
submitButton = findViewById(R.id.submitButton);
loadQuestion();
submitButton.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
int selectedOptionId = optionsGroup.getCheckedRadioButtonId(); if (
    selectedOptionId == -1) {
Toast.makeText(MainActivity.this, "Please select an
answer!", Toast.LENGTH_SHORT).show();
return;
}
// Check if the selected answer is correct
int selectedAnswerIndex =
optionsGroup.indexOfChild(findViewById(selectedOptionId)); if (
    selectedAnswerIndex ==
correctAnswers[currentQuestionIndex]) {
score++;
}
```

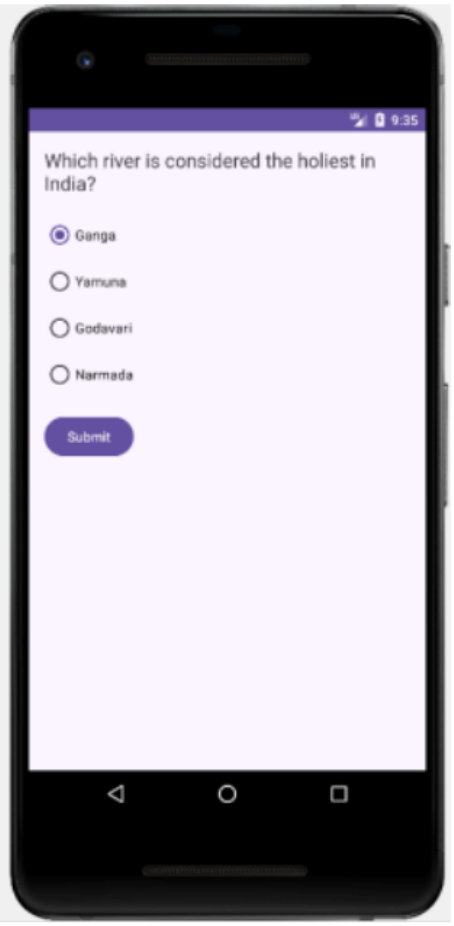
```
// Move to the next question or finish the quiz
currentQuestionIndex++;
if (currentQuestionIndex < questions.length) {
loadQuestion();
} else {
Toast.makeText(MainActivity.this, "Quiz finished! Your
score: " + score, Toast.LENGTH_LONG).show();
finish(); // Ends the activity
}
}
});
}
private void loadQuestion() {
// Set the current question and options
questionTextView.setText(questions[currentQuestionIndex]); ((RadioButton)
optionsGroup.getChildAt(0)).setText(options[currentQuestionIndex][0]); ((
    RadioButton)
optionsGroup.getChildAt(1)).setText(options[currentQuestionIndex][1]); ((
    RadioButton)
optionsGroup.getChildAt(2)).setText(options[currentQuestionIndex][2]); ((
    RadioButton)
optionsGroup.getChildAt(3)).setText(options[currentQuestionIndex][3]);
// Clear any previously selected option
optionsGroup.clearCheck();
}
}
```

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android" android:layout_width
    ="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:padding="16dp">
<TextView
android:id="@+id/questionTextView"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Question will appear here"
android:textSize="20sp"
android:layout_marginBottom="16dp"/>
<RadioGroup
android:id="@+id/optionsGroup"
android:layout_width="match_parent"
android:layout_height="wrap_content">
<RadioButton
android:id="@+id/option1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Option 1"/>
<RadioButton
android:id="@+id/option2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Option 2"/>
<RadioButton
android:id="@+id/option3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Option 3"/>
<RadioButton
android:id="@+id/option4"
```

```
35  android:layout_width="wrap_content"
36  android:layout_height="wrap_content"
37  android:text="Option␣4"/>
38  </RadioGroup>
39  <Button
40  android:id="@+id/submitButton"
41  android:layout_width="wrap_content"
42  android:layout_height="wrap_content"
43  android:text="Submit"
44  android:layout_marginTop="16dp"/>
45  </LinearLayout>
```

Output:



Mobile Computing

Assignment 11

Aim: Write a Program to demonstrate simple Animation Android/other.

Code:

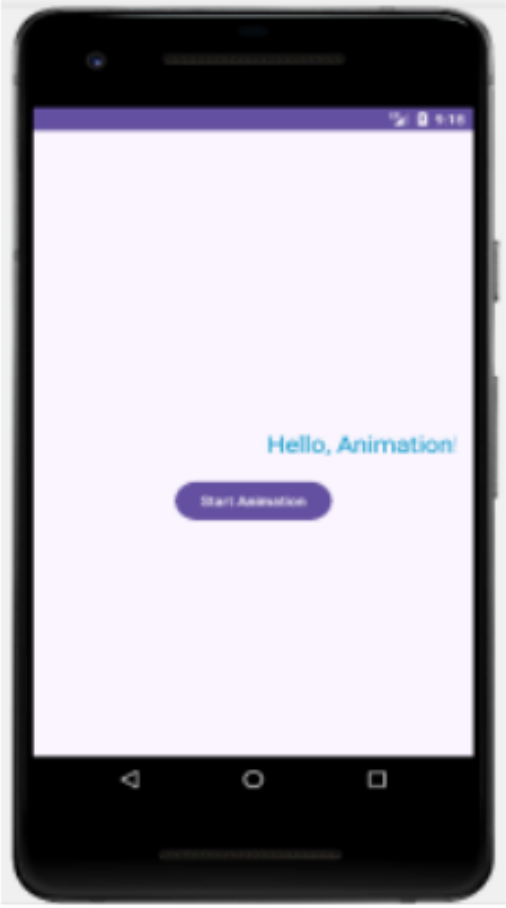
MainActivity.java:

```
package com.example.simpleanimationproject;
import android.animation.ObjectAnimator;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
TextView animatedText = findViewById(R.id.animatedText);
Button startAnimation = findViewById(R.id.startAnimation);
startAnimation.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
// Animate the TextView horizontally
ObjectAnimator animator = ObjectAnimator.ofFloat(
animatedText, "translationX", 0f, 500f);
animator.setDuration(2000); // Animation duration in
milliseconds
animator.start();
}
});
}
}
```

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android" android:layout_width
    ="match_parent"
android:layout_height="match_parent"
android:padding="16dp">
<TextView
android:id="@+id/animatedText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Hello, Animation!"
android:textSize="24sp"
android:layout_centerInParent="true"
android:textColor="@android:color/holo_blue_dark"/>
<Button
android:id="@+id/startAnimation"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Start Animation"
android:layout_below="@id/animatedText"
android:layout_centerHorizontal="true"
android:layout_marginTop="20dp"/>
</RelativeLayout>
```

Output:



Mobile Computing

Assignment 12

Aim: Write a Program to insert and display data from database using Android/other.

Code:

MainActivity.java:

```
package com . example . mongodbapp ;
import ...
public class MainActivity extends AppCompatActivity {
private EditText nameInput , emailInput , ageInput ;
private Button insertButton , updateButton , deleteButton , fetchButton ;
private final ExecutorService executorService = Executors .
,    newSingleThreadExecutor () ;
@Override
protected void onCreate ( Bundle savedInstanceState ) {
super . onCreate ( savedInstanceState ) ;
setContentView ( R . layout . activity_main ) ;
nameInput = findViewById ( R . id . nameInput ) ;
emailInput = findViewById ( R . id . emailInput ) ;
ageInput = findViewById ( R . id . ageInput ) ;
insertButton = findViewById ( R . id . insertButton ) ;
updateButton = findViewById ( R . id . updateButton ) ;
deleteButton = findViewById ( R . id . deleteButton ) ;
fetchButton = findViewById ( R . id . fetchButton ) ;
}}
protected void onCreate ( Bundle savedInstanceState ) {
insertButton . setOnClickListener ( v -> executorService . execute ( this ::
,    insertDocument ) ) ;
updateButton . setOnClickListener ( v -> executorService . execute ( this ::
,    updateDocument ) ) ;
deleteButton . setOnClickListener ( v -> executorService . execute ( this ::
,    deleteDocument ) ) ;
fetchButton . setOnClickListener ( v -> executorService . execute ( this ::
,    fetchDocument ) ) ;}
private void insertDocument () {
try ( MongoClient mongoClient = MongoDBConnection . getMongoClient () ) {
MongoDatabase database = mongoClient . getDatabase ("␣hospital_management
,   ␣") ;
MongoCollection < Document > collection = database . getCollection ("␣users␣")
,    ;
Document document = new Document ("␣name␣" , nameInput . getText () . toString
,    () )
. append ("␣email␣" , emailInput . getText () . toString () )
. append ("␣age␣" , Integer . parseInt ( ageInput . getText () . toString () )
,    ) ;
collection . insertOne ( document ) ;
runOnUiThread (() -> Toast . makeText ( this , "␣Document␣Inserted␣!" , Toast .
,    LENGTH_SHORT ) . show () ) ;
} catch ( Exception e ) {
runOnUiThread (() -> Toast . makeText ( this , "␣Error␣:␣" + e . getMessage ()
    ,
,    Toast . LENGTH_SHORT ) . show () ) ;
}}
3private void updateDocument () {
try ( MongoClient mongoClient = MongoDBConnection . getMongoClient () ) {
MongoDatabase database = mongoClient . getDatabase ("
,   ␣hospital_management␣") ;
MongoCollection < Document > collection = database . getCollection ("
```

```
, ␣users␣") ;
Document query = new Document ("␣name␣" , nameInput . getText () . toString
, () ) ;
Document update = new Document ("␣$set␣" , new Document ("␣email␣" ,
, emailInput . getText () . toString () )
. append ("␣age␣" , Integer . parseInt ( ageInput . getText () .
, toString () ) ) ) ;
collection . updateOne ( query , update ) ;
runOnUiThread (() -> Toast . makeText ( this , "␣Document␣Updated␣!" ,
, Toast . LENGTH_SHORT ) . show () ) ;
} catch ( Exception e ) {
runOnUiThread (() -> Toast . makeText ( this , "␣Error␣:␣" + e . getMessage
, () , Toast . LENGTH_SHORT ) . show () ) ;
}}
private void deleteDocument () {
try ( MongoClient mongoClient = MongoDBConnection . getMongoClient () ) {
MongoDatabase database = mongoClient . getDatabase ("
, ␣hospital_management") ;
MongoCollection < Document > collection = database . getCollection ("
, ␣users␣") ;
Document query = new Document ("␣name␣" , nameInput . getText () . toString
, () ) ;
collection . deleteOne ( query ) ;
}}
private void fetchDocument () {
try ( MongoClient mongoClient = MongoDBConnection . getMongoClient () ) {
MongoDatabase database = mongoClient . getDatabase ("
, ␣hospital_management␣") ;
MongoCollection < Document > collection = database . getCollection ("
, ␣users␣") ;
Document query = new Document ("␣name␣" , nameInput . getText () . toString
, () ) ;
Document document = collection . find ( query ) . first () ;
if ( document != null ) {
runOnUiThread (() -> {
emailInput . setText ( document . getString ("␣email␣") ) ;
ageInput . setText ( String . valueOf ( document . getInteger ("␣age␣")
, ) ) ;
Toast . makeText ( this , "␣Document␣Fetched␣!" , Toast .
, LENGTH_SHORT ) . show () ;
}) ;
} else {
runOnUiThread (() -> Toast . makeText ( this , "␣No␣Document␣Found␣!" ,
, Toast . LENGTH_SHORT ) . show () ) ;
}
} catch ( Exception e ) {
runOnUiThread (() -> Toast . makeText ( this , "␣Error␣:␣" + e . getMessage
, () , Toast . LENGTH_SHORT ) . show () ) ;
}
}}
```

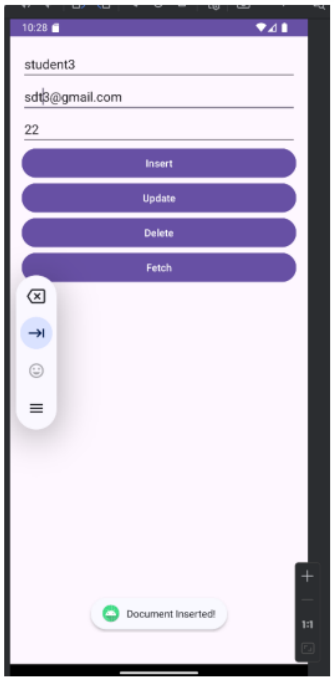
MongoDBConnecction.java:

```
package com . example . mongodbapp ;
import ...
public class MongoDBConnection {
private static final String CONNECTION_STRING = "␣mongodb
, ␣://10.0.2.2:27017";
public static MongoClient getMongoClient () {
return MongoClients . create ( CONNECTION_STRING ) ;
}
}
```

activity_main.xml:

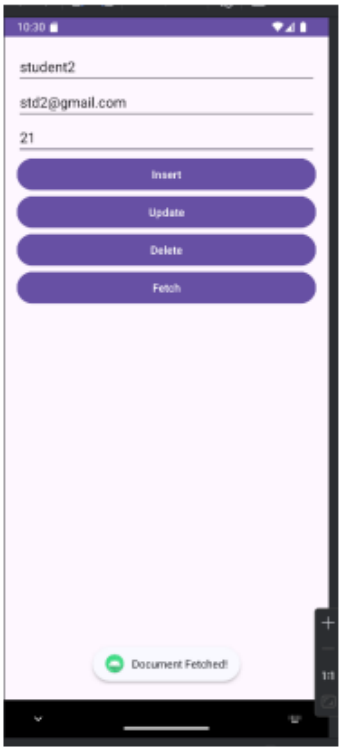
```
< LinearLayout
android : id ="␣@␣+␣id␣/␣linearLayout␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : orientation ="␣vertical␣" >
< Button
android : id ="␣@␣+␣id␣/␣insertButton␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : text ="␣Insert␣" / >
< Button
android : id ="␣@␣+␣id␣/␣updateButton␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : text ="␣Update␣" / >
< Button
android : id ="␣@␣+␣id␣/␣deleteButton␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : text ="␣Delete␣" / >
< Button
android : id ="␣@␣+␣id␣/␣fetchButton␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : text ="␣Fetch␣" / >
</ LinearLayout >
< LinearLayout
xmlns : android ="␣http␣://␣schemas␣.␣android␣.␣com␣/␣apk␣/␣res␣/␣android␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣match_parent␣"
android : orientation ="␣vertical␣"
android : padding ="16␣dp␣" >
< EditText
android : id ="␣@␣+␣id␣/␣nameInput␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : hint ="␣Name␣"
android : inputType ="␣text␣" / >
< EditText
android : id ="␣@␣+␣id␣/␣emailInput␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : hint ="␣Email␣"
android : inputType ="␣textEmailAddress␣" / >
< EditText
android : id ="␣@␣+␣id␣/␣ageInput␣"
android : layout_width ="␣match_parent␣"
android : layout_height ="␣wrap_content␣"
android : hint ="␣Age␣"
android : inputType ="␣number␣" / >
</ LinearLayout >
```

Output:


10:28
student3
sdt3@gmail.com
22
Insert
Update
Delete
Fetch
Document Inserted!


10:29
student3
sdt3@gmail.com
21
Insert
Update
Delete
Fetch
Document Updated!


10:30
student3
sdt3@gmail.com
21
Insert
Update
Delete
Fetch
Document Deleted!


10:30
student2
std2@gmail.com
21
Insert
Update
Delete
Fetch
Document Fetched!