# Question 1

Design a Hospital Appointment Booking activity in Android

- **Code**

## Activity_main.xml

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

    <EditText
        android:id="@+id/et_patient_name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Patient Name"
        android:inputType="textPersonName"
        android:layout_marginTop="16dp" />

    <EditText
        android:id="@+id/et_patient_phone"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Phone Number"
        android:inputType="phone"
        android:layout_marginTop="16dp" />

    <EditText
        android:id="@+id/et_patient_email"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"
        android:inputType="textEmailAddress"
```

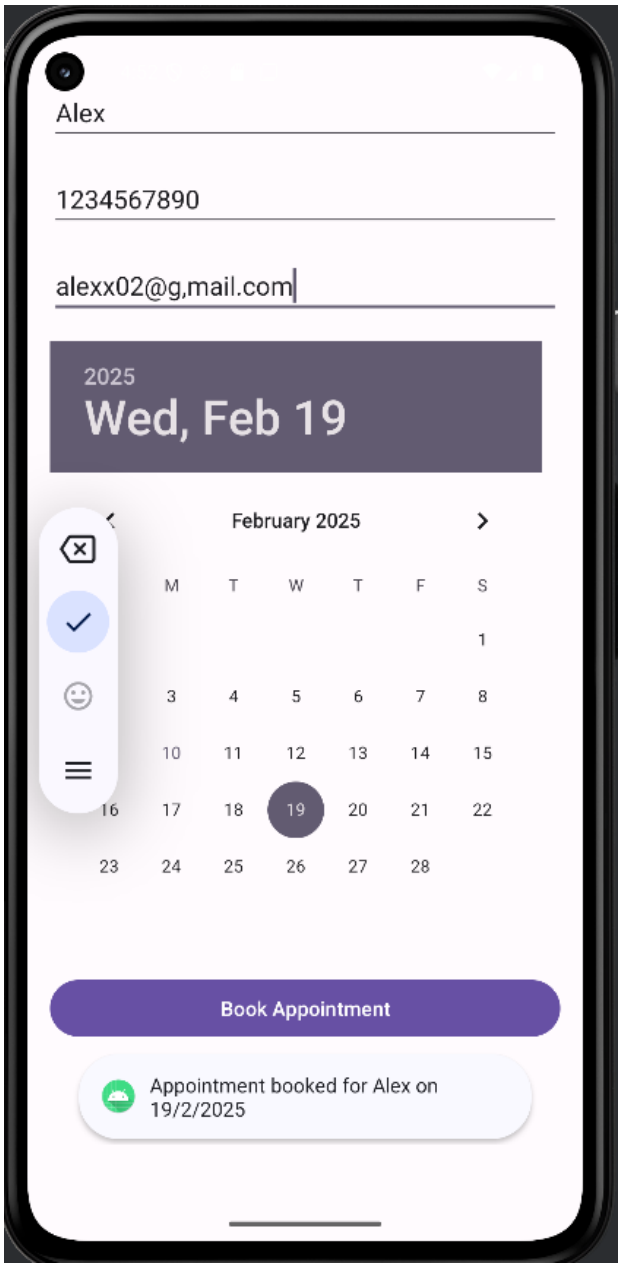
```
        android:layout_marginTop="16dp" />

    <DatePicker
        android:id="@+id/datePicker"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp" />

    <Button
        android:id="@+id/btn_book_appointment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Book Appointment"
        android:layout_marginTop="16dp" />

</LinearLayout>
```

## MainActivity.java

```
package com.example.question1;

import android.os.Bundle;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText etPatientName, etPatientPhone, etPatientEmail;
    private DatePicker datePicker;

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

```
        etPatientName = findViewById(R.id.et_patient_name);
        etPatientPhone = findViewById(R.id.et_patient_phone);
        etPatientEmail = findViewById(R.id.et_patient_email);
        datePicker = findViewById(R.id.datePicker);
        Button btnBookAppointment = findViewById(R.id.btn_book_appointment);

        btnBookAppointment.setOnClickListener(v -> bookAppointment());
    }

    private void bookAppointment() {
        String patientName = etPatientName.getText().toString().trim();
        String patientPhone = etPatientPhone.getText().toString().trim();
        String patientEmail = etPatientEmail.getText().toString().trim();

        int day = datePicker.getDayOfMonth();
        int month = datePicker.getMonth();
        int year = datePicker.getYear();

        if (patientName.isEmpty() || patientPhone.isEmpty() || patientEmail.isEmpty()) {
            Toast.makeText(this, "Please fill all fields", Toast.LENGTH_SHORT).show();
        } else {
            String appointmentDate = day + "/" + (month + 1) + "/" + year;
            Toast.makeText(this, "Appointment booked for " + patientName + " on " +
appointmentDate, Toast.LENGTH_SHORT).show();
        }
    }
}
```

- **Output**


Alex
1234567890
alexx02@g,mail.com
2025
Wed, Feb 19
February 2025
M T W T F S
1
3 4 5 6 7 8
10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28
Book Appointment
Appointment booked for Alex on 19/2/2025

# Question 2

Design a Quiz Result activity in Android.

- **Code**

## Activity_Main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    android:gravity="center"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/tv_result_title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Quiz Results"
        android:textSize="24sp"
        android:textStyle="bold"
        android:layout_gravity="center"
        android:layout_marginBottom="24dp" />

    <TextView
        android:id="@+id/tv_score"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Score: "
        android:textSize="18sp"
        android:layout_marginBottom="16dp" />

    <TextView
        android:id="@+id/tv_total_questions"
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:text="Total Questions: "
        android:textSize="18sp"
        android:layout_marginBottom="32dp" />

    <Button
        android:id="@+id/btn_retake_quiz"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Retake Quiz"
        android:layout_marginBottom="16dp" />

    <Button
        android:id="@+id/btn_main_menu"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Main Menu" />
</LinearLayout>
```

## MainActivity.java

```
package com.example.quiz;

import android.content.Intent;
import android.os.Bundle;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private TextView tvScore, tvTotalQuestions;
    private Button btnRetakeQuiz, btnMainMenu;

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

        tvScore = findViewById(R.id.tv_score);
```

```
        tvTotalQuestions = findViewById(R.id.tv_total_questions);
        btnRetakeQuiz = findViewById(R.id.btn_retake_quiz);
        btnMainMenu = findViewById(R.id.btn_main_menu);

        Intent intent = getIntent();
        int score = intent.getIntExtra("score", 0);
        int totalQuestions = intent.getIntExtra("total_questions", 0);

        tvScore.setText("Score: " + score);
        tvTotalQuestions.setText("Total Questions: " + totalQuestions);

    }
}
```

## Quiz_activity.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    android:gravity="center"
    tools:context=".QuizResultActivity">

    <TextView
        android:id="@+id/tv_result_title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Quiz Results"
        android:textSize="24sp"
        android:textStyle="bold"
        android:layout_gravity="center"
        android:layout_marginBottom="24dp" />

    <TextView
        android:id="@+id/tv_score"
        android:layout_width="wrap_content"
```

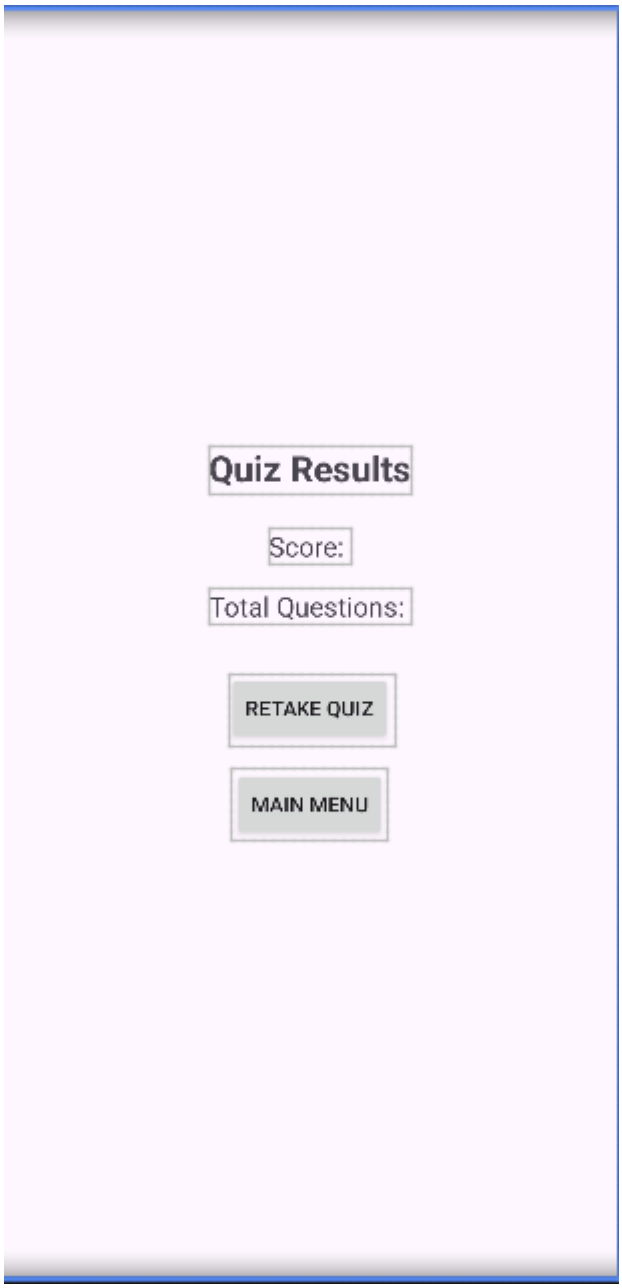
```
        android:layout_height="wrap_content"
        android:text="Score: "
        android:textSize="18sp"
        android:layout_marginBottom="16dp" />

    <TextView
        android:id="@+id/tv_total_questions"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Total Questions: "
        android:textSize="18sp"
        android:layout_marginBottom="32dp" />

    <Button
        android:id="@+id/btn_retake_quiz"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Retake Quiz"
        android:layout_marginBottom="16dp" />

    <Button
        android:id="@+id/btn_main_menu"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Main Menu" />
</LinearLayout>
```

## QuizActivity.java

```
package com.example.quiz;

import android.content.Intent;
import android.os.Bundle;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

import com.example.quiz.QuizActivity;
import com.example.quiz.R;
```

```
public class QuizResultActivity extends AppCompatActivity {

    private TextView tvScore, tvTotalQuestions;
    private Button btnRetakeQuiz, btnMainMenu;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_quiz_result);

        tvScore = findViewById(R.id.tv_score);
        tvTotalQuestions = findViewById(R.id.tv_total_questions);
        btnRetakeQuiz = findViewById(R.id.btn_retake_quiz);
        btnMainMenu = findViewById(R.id.btn_main_menu);

        Intent intent = getIntent();
        int score = intent.getIntExtra("score", 0);
        int totalQuestions = intent.getIntExtra("total_questions", 0);

        tvScore.setText("Score: " + score);
        tvTotalQuestions.setText("Total Questions: " + totalQuestions);

        btnMainMenu.setOnClickListener(v -> {
            Intent mainMenuIntent = new Intent(QuizResultActivity.this, MainActivity.class);
            startActivity(mainMenuIntent);
            finish();
        });
    }
}
```

- **Output Screen**



# Question 3

Design an Order Summary activity in Android.

- **Code**

## Activity_main.xml

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

    <TextView
        android:id="@+id/tv_order_summary"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Order Summary"
        android:textSize="24sp"
        android:textStyle="bold"
        android:layout_gravity="center"
        android:layout_marginBottom="24dp" />

    <TextView
        android:id="@+id/tv_item1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Item 1: Quantity 2"
        android:textSize="18sp"
        android:layout_marginBottom="8dp" />

    <TextView
        android:id="@+id/tv_item2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Item 2: Quantity 1"
```

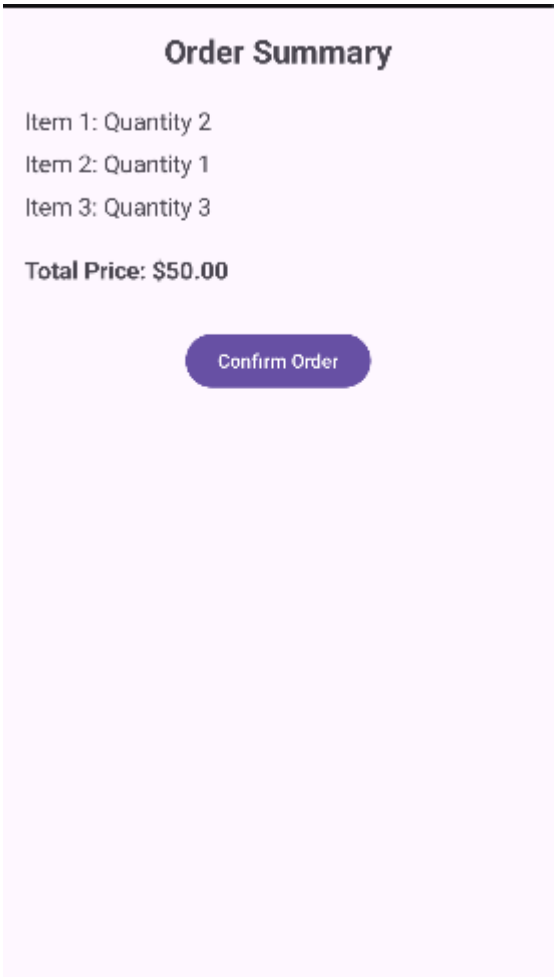
```
        android:textSize="18sp"
        android:layout_marginBottom="8dp" />

    <TextView
        android:id="@+id/tv_item3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Item 3: Quantity 3"
        android:textSize="18sp"
        android:layout_marginBottom="8dp" />

    <TextView
        android:id="@+id/tv_total_price"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Total Price: $50.00"
        android:textSize="18sp"
        android:textStyle="bold"
        android:layout_marginTop="16dp"
        android:layout_marginBottom="32dp"
        android:layout_gravity="center" />

    <Button
        android:id="@+id/btn_confirm_order"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Confirm Order"
        android:layout_gravity="center" />
</LinearLayout>
```

## MainActivity.java

```
package com.example.ordersummary;

import android.os.Bundle;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
```

```
public class MainActivity extends AppCompatActivity {

    private TextView tvItem1, tvItem2, tvItem3, tvTotalPrice;
    private Button btnConfirmOrder;

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

        tvItem1 = findViewById(R.id.tv_item1);
        tvItem2 = findViewById(R.id.tv_item2);
        tvItem3 = findViewById(R.id.tv_item3);
        tvTotalPrice = findViewById(R.id.tv_total_price);
        btnConfirmOrder = findViewById(R.id.btn_confirm_order);

        tvItem1.setText("Item 1: Quantity 2");
        tvItem2.setText("Item 2: Quantity 1");
        tvItem3.setText("Item 3: Quantity 3");
        tvTotalPrice.setText("Total Price: Rs50.00");

        btnConfirmOrder.setOnClickListener(v -> {
            // Handle order confirmation (e.g., save the order, send to server, etc.)
            Toast.makeText(MainActivity.this, "Order Confirmed!", Toast.LENGTH_SHORT).show();
        });
    }
}
```

- **Output**


Order Summary
Item 1: Quantity 2
Item 2: Quantity 1
Item 3: Quantity 3
Total Price: $50.00
Confirm Order

# Question 4

Design an Image Gallery Viewer activity to display event photos in Android.

- **Code**

## 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">

   <GridView
      android:id="@+id/gridView"
      android:numColumns="3"
      android:verticalSpacing="4dp"
      android:horizontalSpacing="4dp"
      android:stretchMode="columnWidth"
      android:layout_width="match_parent"
      android:layout_height="match_parent"/>


   <androidx.viewpager2.widget.ViewPager2
      android:id="@+id/viewPager"
      android:visibility="gone"
      android:layout_width="match_parent"
      android:layout_height="match_parent"/>
</LinearLayout>
```

## MainActivity.java

```
package com.example.que4;

import android.os.Bundle;
import android.view.View;
import android.widget.GridView;
```

```
import android.widget.ImageView;
import androidx.appcompat.app.AppCompatActivity;
import androidx.viewpager2.widget.ViewPager2;
import com.bumptech.glide.Glide;
import java.util.Arrays;
import java.util.List;
import androidx.recyclerview.widget.RecyclerView;


public class MainActivity extends AppCompatActivity {
    private GridView gridView;
    private ViewPager2 viewPager;
    private Integer[] imageIds = {
            R.drawable.image1, R.drawable.image2, R.drawable.image3,
            R.drawable.image4, R.drawable.image5, R.drawable.image6
    };

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

        gridView = findViewById(R.id.gridView);
        viewPager = findViewById(R.id.viewPager);

        gridView.setAdapter(new ImageAdapter(this, imageIds));
        gridView.setOnItemClickListener((parent, view, position, id) -> {
            viewPager.setAdapter(new FullScreenAdapter(imageIds));
            viewPager.setCurrentItem(position, false);
            gridView.setVisibility(View.GONE);
            viewPager.setVisibility(View.VISIBLE);
        });

        viewPager.setOnClickListener(v -> {
            gridView.setVisibility(View.VISIBLE);
            viewPager.setVisibility(View.GONE);
        });
    }

    class ImageAdapter extends android.widget.BaseAdapter {
        private final List<Integer> images;
```

```
    ImageAdapter(MainActivity context, Integer[] images) {
      this.images = Arrays.asList(images);
    }

    @Override
    public int getCount() { return images.size(); }

    @Override
    public Object getItem(int position) { return images.get(position); }

    @Override
    public long getItemId(int position) { return position; }

    @Override
    public View getView(int position, View convertView, android.view.ViewGroup parent) {
      ImageView imageView = new ImageView(MainActivity.this);
      imageView.setLayoutParams(new GridView.LayoutParams(250, 250));
      imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
      Glide.with(MainActivity.this).load(images.get(position)).into(imageView);
      return imageView;
    }
  }

  class FullScreenAdapter extends RecyclerView.Adapter<FullScreenAdapter.ViewHolder> {
    private final Integer[] images;

    FullScreenAdapter(Integer[] images) {
      this.images = images;
    }

    @Override
    public ViewHolder onCreateViewHolder(android.view.ViewGroup parent, int viewType) {
      ImageView imageView = new ImageView(MainActivity.this);
      imageView.setLayoutParams(new android.view.ViewGroup.LayoutParams(
          android.view.ViewGroup.LayoutParams.MATCH_PARENT,
android.view.ViewGroup.LayoutParams.MATCH_PARENT));
      imageView.setScaleType(ImageView.ScaleType.FIT_CENTER);
      return new ViewHolder(imageView);
    }
```

```
    @Override
    public void onBindViewHolder(ViewHolder holder, int position) {
      Glide.with(MainActivity.this).load(images[position]).into(holder.imageView);
    }

    @Override
    public int getItemCount() { return images.length; }

    class ViewHolder extends androidx.recyclerview.widget.RecyclerView.ViewHolder {
      ImageView imageView;

      ViewHolder(ImageView itemView) {
        super(itemView);
        imageView = itemView;
      }
    }
  }
}
```

- **Output**

# Question 5

Design a Library Membership Card activity in Android.

- **Code**

## Activity_main.xml

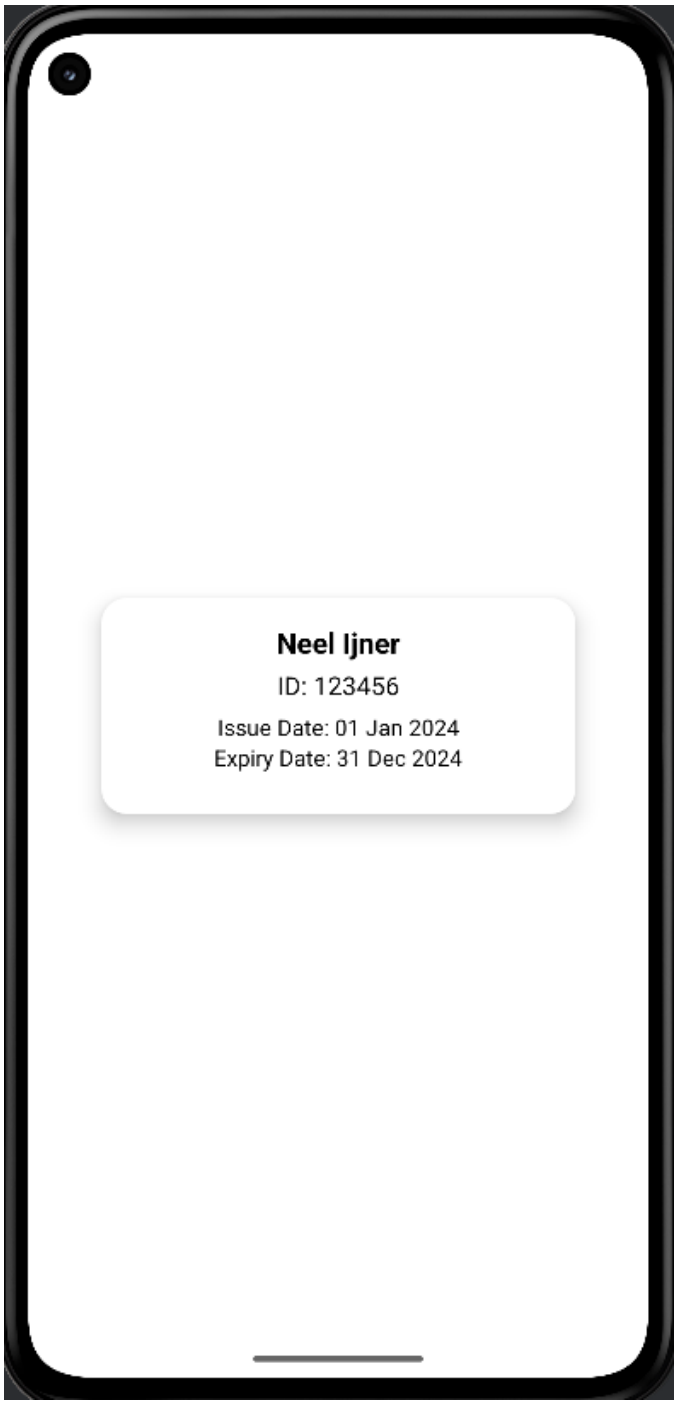
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"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

   <androidx.cardview.widget.CardView
      android:id="@+id/libraryCard"
      android:layout_width="300dp"
      android:layout_height="wrap_content"
      app:cardCornerRadius="16dp"
      app:cardElevation="8dp"
      android:layout_margin="20dp"
      app:cardBackgroundColor="@color/white"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintEnd_toEndOf="parent">

      <LinearLayout
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:orientation="vertical"
         android:padding="16dp"
         android:gravity="center_horizontal">


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

```
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="John Doe"
            android:textSize="18sp"
            android:textStyle="bold"
            android:textColor="@color/black"
            android:layout_marginBottom="4dp"/>


        <TextView
            android:id="@+id/memberId"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="ID: 123456"
            android:textSize="16sp"
            android:textColor="@color/black"
            android:layout_marginBottom="6dp"/>


        <TextView
            android:id="@+id/issueDate"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Issue Date: 01 Jan 2024"
            android:textSize="14sp"
            android:textColor="@color/black"/>

        <TextView
            android:id="@+id/expiryDate"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Expiry Date: 31 Dec 2024"
            android:textSize="14sp"
            android:textColor="@color/black"
            android:layout_marginBottom="10dp"/>

    </LinearLayout>
  </androidx.cardview.widget.CardView>

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

## MainActivity.java

```
package com.example.question5;

import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

   private TextView memberName, memberId, issueDate, expiryDate;

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

      memberName = findViewById(R.id.memberName);
      memberId = findViewById(R.id.memberId);
      issueDate = findViewById(R.id.issueDate);
      expiryDate = findViewById(R.id.expiryDate);

      memberName.setText("Neel Ijner");
      memberId.setText("ID: 123456");
      issueDate.setText("Issue Date: 01 Jan 2024");
      expiryDate.setText("Expiry Date: 31 Dec 2024");
   }
}
```

- **Output**


Neel Ijner
ID: 123456
Issue Date: 01 Jan 2024
Expiry Date: 31 Dec 2024

# Question 6

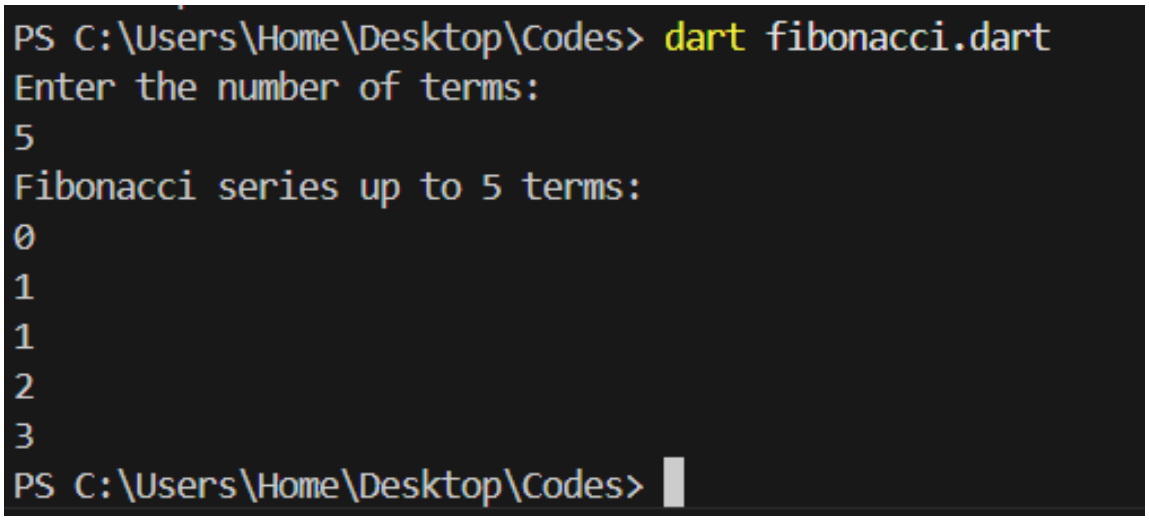
Write a Dart program to calculate the Fibonacci series up to N terms.

- **Code**

```
import 'dart:io';


void main() {
  print('Enter the number of terms:');
  int? n = int.parse(stdin.readLineSync()!);


  if (n <= 0) {
    print('Please enter a positive integer.');
  } else {
    print('Fibonacci series up to $n terms:');
    for (int i = 0; i < n; i++) {
      print(fibonacci(i));
    }
  }
}


int fibonacci(int n) {
  if (n == 0) {
    return 0;
  } else if (n == 1) {
    return 1;
  } else {
    return fibonacci(n - 1) + fibonacci(n - 2);
```

```
 }
}
```

- **Output**


PS C:\Users\Home\Desktop\Codes> dart fibonacci.dart
Enter the number of terms:
5
Fibonacci series up to 5 terms:
0
1
1
2
3
PS C:\Users\Home\Desktop\Codes>

# Question 7

Write a Dart program to check whether a given number is Prime or not.

- **Code**

```
import 'dart:io';
void main() {
  print('Enter a number:');
  int? number = int.parse(stdin.readLineSync()!);

  if (isPrime(number)) {
    print('$number is a prime number.');
  } else {
    print('$number is not a prime number.');
  }
}

bool isPrime(int number) {
  if (number <= 1) {
    return false;
  }
  for (int i = 2; i <= number ~/ 2; i++) {
    if (number % i == 0) {
      return false;
    }
  }
  return true; }
```

- **Output**

```
PS C:\Users\Home\Desktop\Codes> dart run prime.dart
Enter a number:
51
51 is not a prime number.
PS C:\Users\Home\Desktop\Codes> dart run prime.dart
Enter a number:
53
53 is a prime number.
PS C:\Users\Home\Desktop\Codes>
```

# Question 8

Write a Dart program to find a contact number from a given dictionary.

- **Code**

```
import 'dart:io';


void main() {
  Map<String, String> contacts = {
    'Neel': '1234567890',
    'Yash': '9876543210',
    'Ram': '5556667777',
  };

  print('Enter the name of the contact:');
  String? name = stdin.readLineSync();

  if (name != null && contacts.containsKey(name)) {
    print('Contact number for $name: ${contacts[name]}');
  } else {
    print('Contact not found.');
  }
}
```

- **Output**

```
PS C:\Users\Home\Desktop\Codes> dart contactno.dart
Enter the name of the contact:
Om
Contact not found.
PS C:\Users\Home\Desktop\Codes>
```

```
PS C:\Users\Home\Desktop\Codes> dart contactno.dart
Enter the name of the contact:
Ram
Contact number for Ram: 5556667777
PS C:\Users\Home\Desktop\Codes>
```

# Question 9

Design a User Login activity in Flutter.

- **Code**

## Main.dart

```
import 'package:flutter/material.dart';
import 'login_screen.dart';

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  const MyApp({super.key});

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Flutter Login Demo',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: LoginScreen(),
    );
  }
}
```

## Login_screen.dart

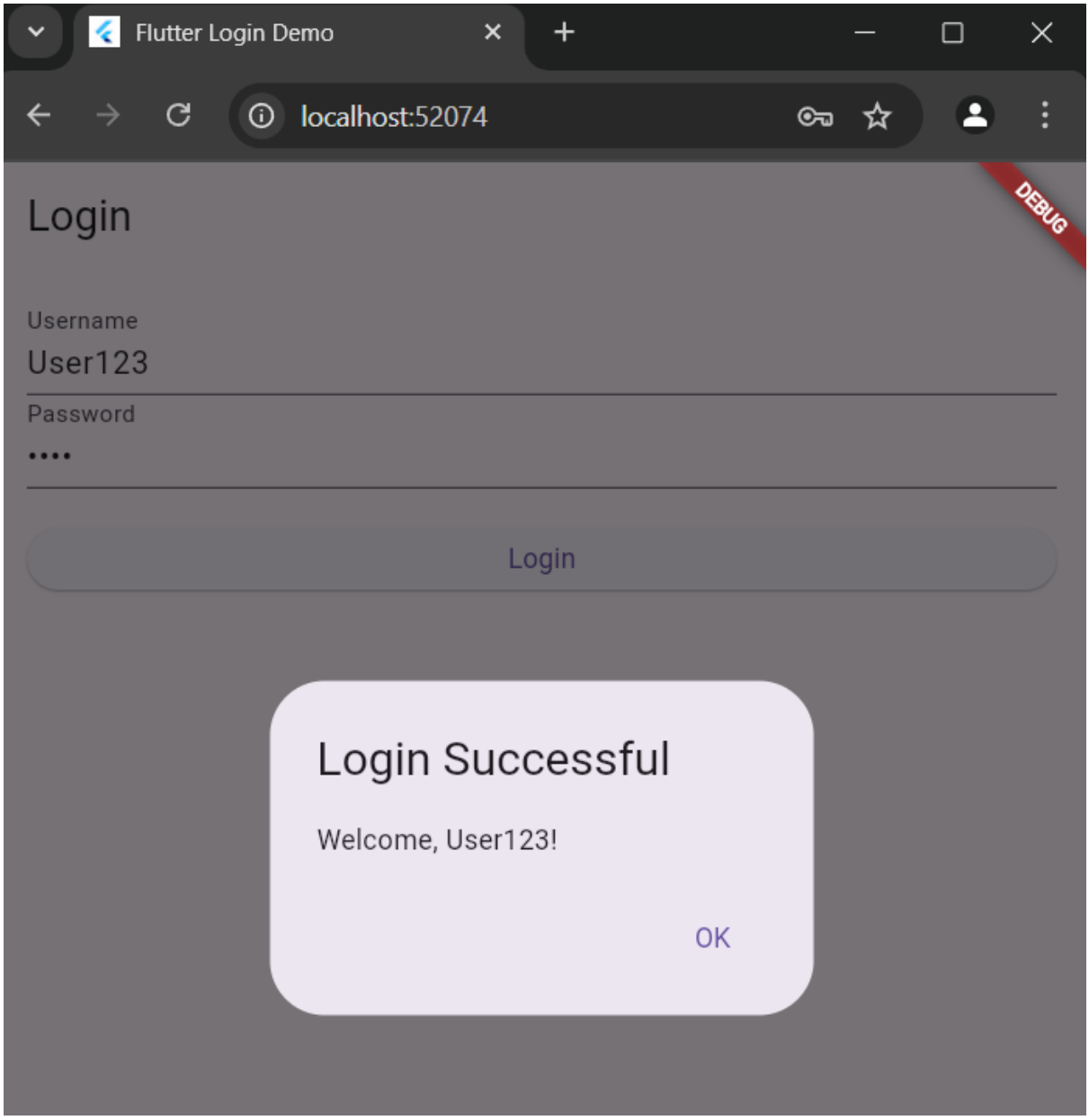
```
import 'package:flutter/material.dart';


class LoginScreen extends StatefulWidget {
  const LoginScreen({super.key});


  @override
  _LoginScreenState createState() => _LoginScreenState();
}


class _LoginScreenState extends State<LoginScreen> {
  final _formKey = GlobalKey<FormState>();
  final _usernameController = TextEditingController();
  final _passwordController = TextEditingController();


  void _login() {
    if (_formKey.currentState!.validate()) {
      // Perform login logic here
      // For demonstration, we just show a dialog
      showDialog(
        context: context,
        builder: (context) {
          return AlertDialog(
            title: Text('Login Successful'),
            content: Text('Welcome, ${_usernameController.text}!'),
            actions: [
              TextButton(
                onPressed: () {
```

```
              Navigator.of(context).pop();
            },
            child: Text('OK'),
          ),
        ],
      );
    },
  );
 }
}

@override
Widget build(BuildContext context) {
 return Scaffold(
  appBar: AppBar(
   title: Text('Login'),
  ),
  body: Padding(
   padding: const EdgeInsets.all(16.0),
   child: Form(
    key: _formKey,
    child: Column(
     crossAxisAlignment: CrossAxisAlignment.stretch,
     children: [
      TextFormField(
       controller: _usernameController,
       decoration: InputDecoration(labelText: 'Username'),
       validator: (value) {
```

```
            if (value == null || value.isEmpty) {
              return 'Please enter your username';
            }
            return null;
          },
        ),
        TextFormField(
          controller: _passwordController,
          decoration: InputDecoration(labelText: 'Password'),
          obscureText: true,
          validator: (value) {
            if (value == null || value.isEmpty) {
              return 'Please enter your password';
            }
            return null;
          },
        ),
        SizedBox(height: 20),
        ElevatedButton(
          onPressed: _login,
          child: Text('Login'),
        ),
      ],
    ),
  ),
 );
}
```

}

- **Output**


Flutter Login Demo
localhost:52074
Login
DEBUG
Username
User123
Password
••••
Login
Login Successful
Welcome, User123!
OK

# Question 10

Design a Teacher Registration activity in Flutter.

- **Code**

### Main.dart

```
import 'package:flutter/material.dart';
import 'teacher_registration_screen.dart';

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Teacher Registration Demo',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: TeacherRegistrationScreen(),
    );
  }
}
```

## Reg_screen.dart

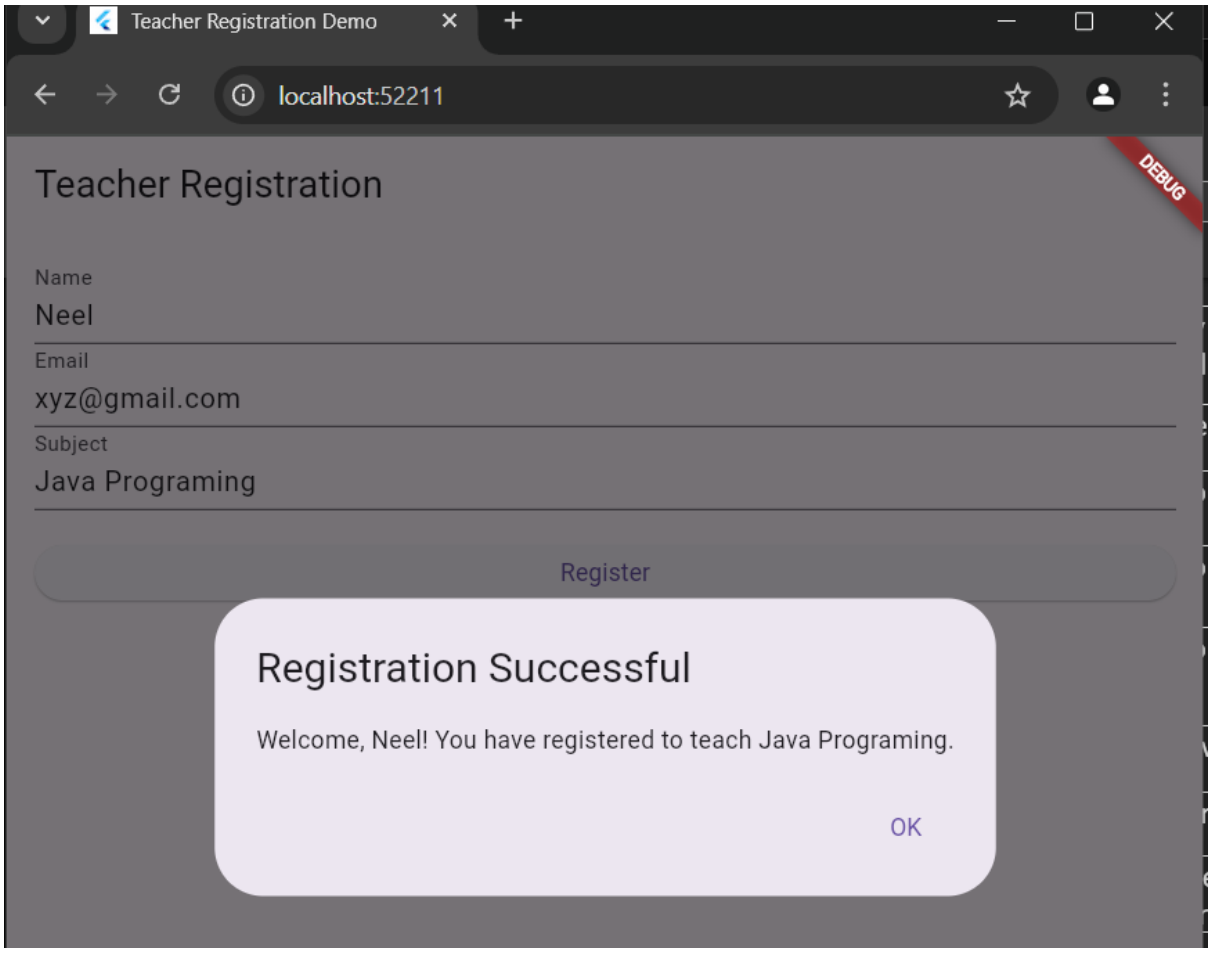
```
import 'package:flutter/material.dart';


class TeacherRegistrationScreen extends StatefulWidget {
  @override
  _TeacherRegistrationScreenState createState() =>
      _TeacherRegistrationScreenState();
}


class _TeacherRegistrationScreenState extends State<TeacherRegistrationScreen> {
  final _formKey = GlobalKey<FormState>();
  final _nameController = TextEditingController();
  final _emailController = TextEditingController();
  final _subjectController = TextEditingController();


  void _register() {
    if (_formKey.currentState!.validate()) {
      // Perform registration logic here
      // For demonstration, we just show a dialog
      showDialog(
        context: context,
        builder: (context) {
          return AlertDialog(
            title: Text('Registration Successful'),
            content: Text(
                'Welcome, ${_nameController.text}! You have registered to teach
${_subjectController.text}.'),
            actions: [
```

```
            TextButton(
              onPressed: () {
                Navigator.of(context).pop();
              },
              child: Text('OK'),
            ),
          ],
        );
      },
    );
  }
}

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text('Teacher Registration'),
    ),
    body: Padding(
      padding: const EdgeInsets.all(16.0),
      child: Form(
        key: _formKey,
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.stretch,
          children: [
            TextFormField(
              controller: _nameController,
```

```
          decoration: InputDecoration(labelText: 'Name'),
          validator: (value) {
            if (value == null || value.isEmpty) {
              return 'Please enter your name';
            }
            return null;
          },
        ),
        TextFormField(
          controller: _emailController,
          decoration: InputDecoration(labelText: 'Email'),
          keyboardType: TextInputType.emailAddress,
          validator: (value) {
            if (value == null || value.isEmpty) {
              return 'Please enter your email';
            }
            if (!RegExp(r'^[^@]+@[^@]+\.[^@]+').hasMatch(value)) {
              return 'Please enter a valid email address';
            }
            return null;
          },
        ),
        TextFormField(
          controller: _subjectController,
          decoration: InputDecoration(labelText: 'Subject'),
          validator: (value) {
            if (value == null || value.isEmpty) {
              return 'Please enter the subject you teach';
```

```
            }
            return null;
          },
        ),
        SizedBox(height: 20),
        ElevatedButton(
          onPressed: _register,
          child: Text('Register'),
        ),
      ],
    ),
  ),
 ),
 );
 }
}
```

- **Output**


Teacher Registration Demo
localhost:52211
Teacher Registration
DEBUG
Name
Neel
Email
xyz@gmail.com
Subject
Java Programing
Register
Registration Successful
Welcome, Neel! You have registered to teach Java Programing.
OK

# Question 11

Design an Employee Attendance activity and a Leave Application activity in Android.

- **Code**

## Activity_main.xml

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

    <TextView
        android:id="@+id/attendanceTitle"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Employee Attendance"
        android:textSize="24sp"
        android:textStyle="bold"
        android:textColor="@color/black"
        android:layout_marginTop="30dp"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"/>


    <TextView
        android:id="@+id/employeeName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Employee Name: Neel Ijner"
        android:textSize="18sp"
        android:textColor="@color/black"
```

```
    android:layout_marginTop="40dp"
    app:layout_constraintTop_toBottomOf="@id/attendanceTitle"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"/>

  <TextView
    android:id="@+id/attendanceStatus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Attendance Status: Present"
    android:textSize="16sp"
    android:textColor="@color/black"
    android:layout_marginTop="20dp"
    app:layout_constraintTop_toBottomOf="@id/employeeName"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"/>

  <Button
    android:id="@+id/leaveApplicationButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Apply for Leave"
    android:textSize="16sp"
    android:layout_marginTop="30dp"
    app:layout_constraintTop_toBottomOf="@id/attendanceStatus"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"/>

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

## MainActivity.java

```
package com.example.que11;

import android.content.Intent;
import android.os.Bundle;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
```

```
public class MainActivity extends AppCompatActivity {

   private TextView employeeName, attendanceStatus;
   private Button leaveApplicationButton;

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

      employeeName = findViewById(R.id.employeeName);
      attendanceStatus = findViewById(R.id.attendanceStatus);
      leaveApplicationButton = findViewById(R.id.leaveApplicationButton);

      employeeName.setText("Employee Name: Neel Ijner");
      attendanceStatus.setText("Attendance Status: Present");

      leaveApplicationButton.setOnClickListener(v -> {

         Intent intent = new Intent(MainActivity.this, LeaveApplicationActivity.class);
         startActivity(intent);
      });
   }
}
```

## ActivityLeave.xml

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

   <!-- Leave Application Title -->
   <TextView
      android:id="@+id/leaveTitle"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Leave Application"
    android:textSize="24sp"
    android:textStyle="bold"
    android:textColor="@color/black"
    android:layout_marginTop="30dp"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"/>

<!-- Leave Date -->
<TextView
    android:id="@+id/leaveDate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Leave Date: Select Date"
    android:textSize="18sp"
    android:textColor="@color/black"
    android:layout_marginTop="40dp"
    app:layout_constraintTop_toBottomOf="@id/leaveTitle"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"/>

<!-- Leave Reason -->
<TextView
    android:id="@+id/leaveReason"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Leave Reason: Sick Leave"
    android:textSize="16sp"
    android:textColor="@color/black"
    android:layout_marginTop="20dp"
    app:layout_constraintTop_toBottomOf="@id/leaveDate"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"/>

<!-- Submit Leave Button -->
<Button
    android:id="@+id/submitLeaveButton"
    android:layout_width="wrap_content"
```

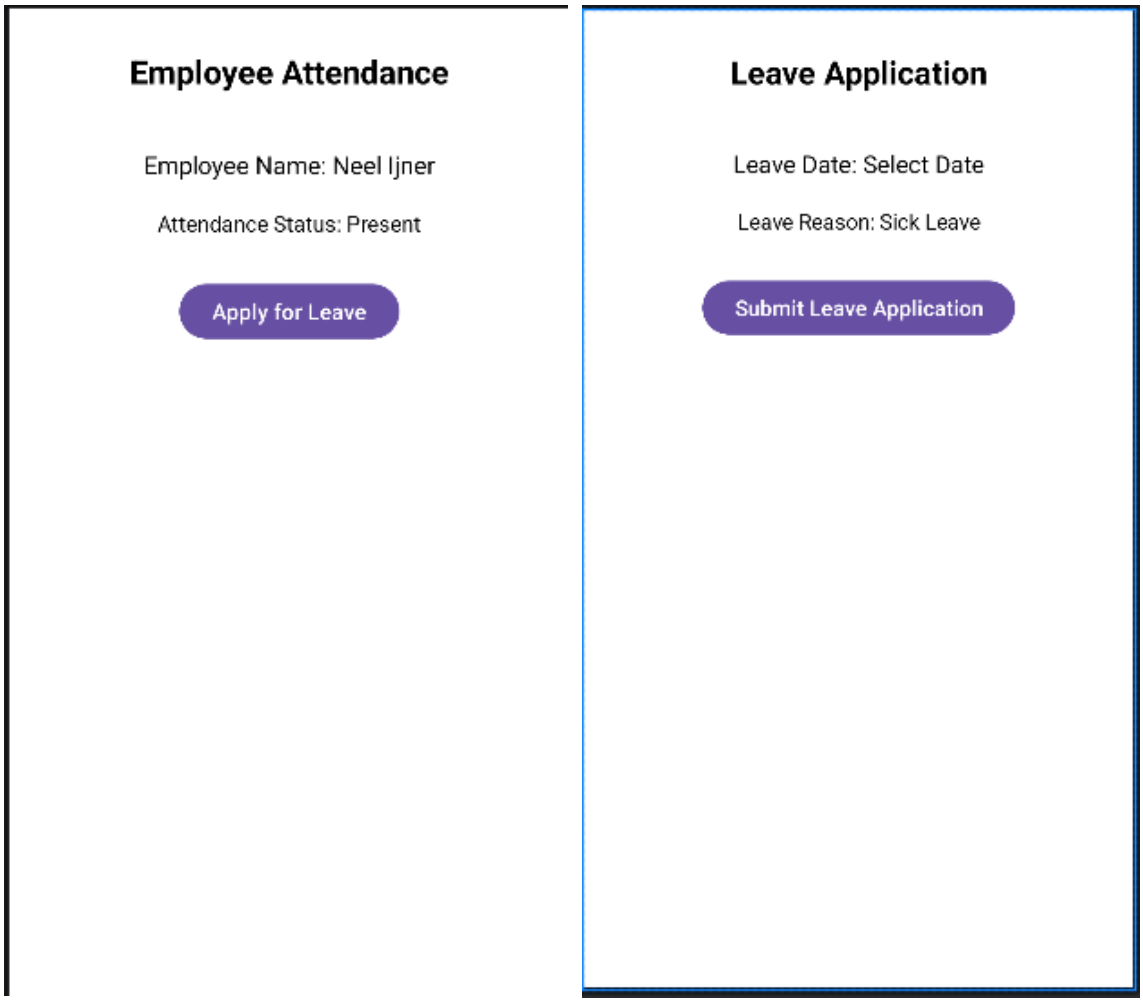
```
        android:layout_height="wrap_content"
        android:text="Submit Leave Application"
        android:textSize="16sp"
        android:layout_marginTop="30dp"
        app:layout_constraintTop_toBottomOf="@id/leaveReason"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"/>

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

## LeaveActivity.java

```
package com.example.que11;

import android.os.Bundle;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class LeaveApplicationActivity extends AppCompatActivity {

    private TextView leaveTitle, leaveDate, leaveReason;
    private Button submitLeaveButton;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_leave_application);

        // Initialize Views
        leaveTitle = findViewById(R.id.leaveTitle);
        leaveDate = findViewById(R.id.leaveDate);
        leaveReason = findViewById(R.id.leaveReason);
        submitLeaveButton = findViewById(R.id.submitLeaveButton);

        // Set Leave Application Info
        leaveTitle.setText("Leave Application");
        leaveDate.setText("Leave Date: 15 Feb 2024");
        leaveReason.setText("Leave Reason: Sick Leave");
```

```
        // Set Submit Button click listener
    }
}
```

- **Output**



# Question 12

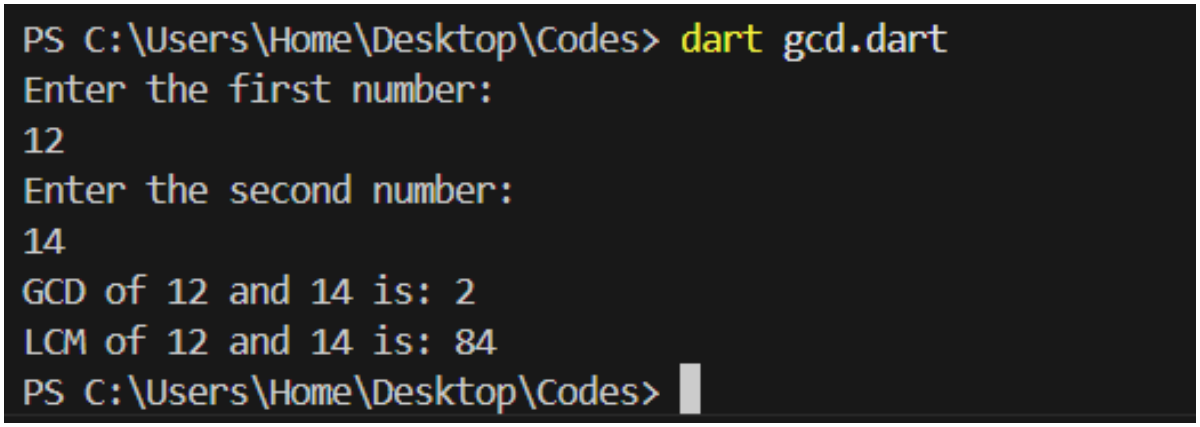
Write a Dart program to find the Greatest Common Divisor (GCD) of two numbers and to calculate their Least Common Multiple (LCM).

- **Code**

```
import 'dart:io';


void main() {
  print('Enter the first number:');
  int? num1 = int.parse(stdin.readLineSync()!);


  print('Enter the second number:');
  int? num2 = int.parse(stdin.readLineSync()!);


  int gcdResult = gcd(num1, num2);
  int lcmResult = lcm(num1, num2);


  print('GCD of $num1 and $num2 is: $gcdResult');
  print('LCM of $num1 and $num2 is: $lcmResult');
}


int gcd(int a, int b) {
  while (b != 0) {
    int t = b;
    b = a % b;
    a = t;
  }
```

```
  return a;
}

int lcm(int a, int b) {
  return (a * b) ~/ gcd(a, b);
}
```

- **Output**



# Question 13

Design a Student Fee Payment activity and a Receipt Generator activity in Flutter.

- **Code**

### Main.dart

```
import 'package:flutter/material.dart';
import 'student_fee_payment_screen.dart';
import 'receipt_screen.dart';

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Student Fee Payment',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      initialRoute: '/',
      routes: {
        '/': (context) => StudentFeePaymentScreen(),
        '/receipt': (context) => ReceiptScreen(),
      },
    );
```

```
 }
}
```

## Recipet_screen.dart

```
import 'package:flutter/material.dart';


class ReceiptScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    final Map<String, String> arguments =
        ModalRoute.of(context)!.settings.arguments as Map<String, String>;

    return Scaffold(
      appBar: AppBar(
        title: Text('Receipt'),
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.stretch,
          children: [
            Text(
              'Receipt',
              style: TextStyle(fontSize: 24, fontWeight: FontWeight.bold),
              textAlign: TextAlign.center,
            ),
            SizedBox(height: 20),
            Text('Student Name: ${arguments['name']}'),
```

```
          Text('Roll Number: ${arguments['rollNumber']}'),
          Text('Fee Amount: \RS${arguments['feeAmount']}'),
          SizedBox(height: 20),
          ElevatedButton(
            onPressed: () {
              Navigator.pop(context);
            },
            child: Text('Back to Payment'),
          ),
        ],
      ),
    ),
  );
 }
}
```

## Student_fee_payment_screen.dart

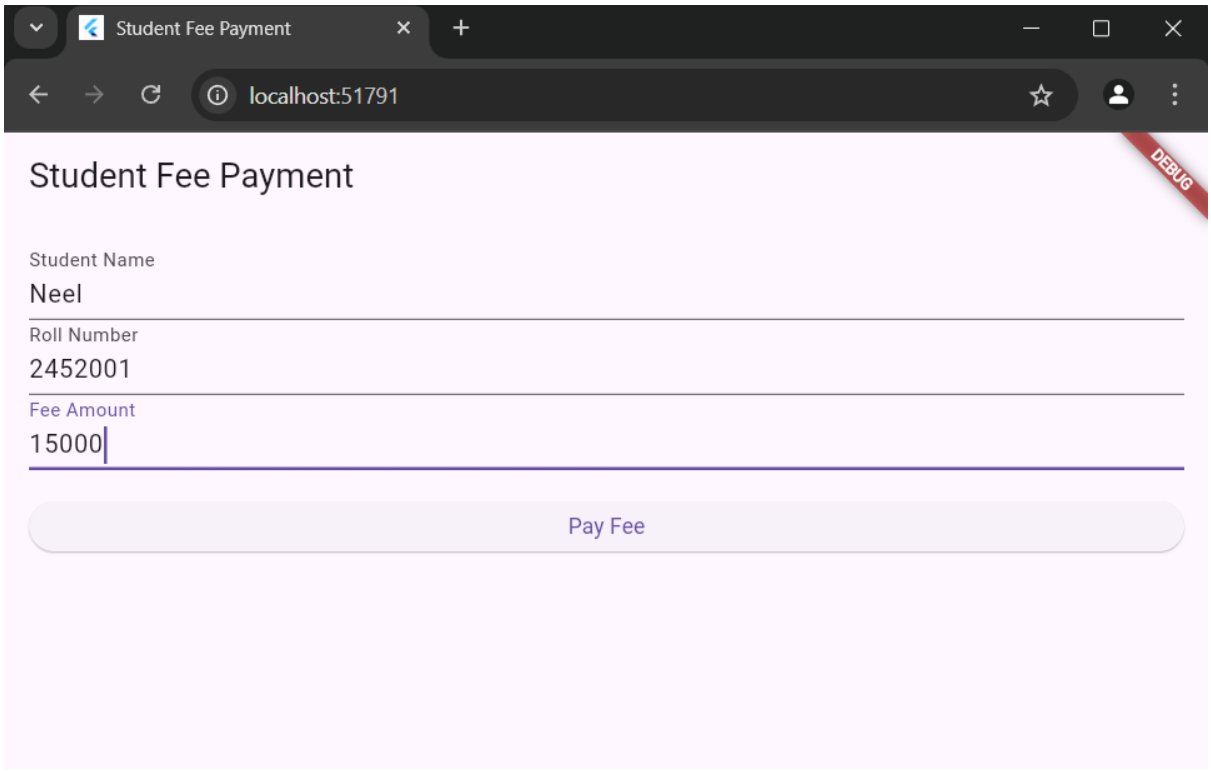
```
import 'package:flutter/material.dart';

class StudentFeePaymentScreen extends StatefulWidget {
  @override
  _StudentFeePaymentScreenState createState() =>
     _StudentFeePaymentScreenState();
}

class _StudentFeePaymentScreenState extends State<StudentFeePaymentScreen> {
  final _formKey = GlobalKey<FormState>();
  final _nameController = TextEditingController();
```

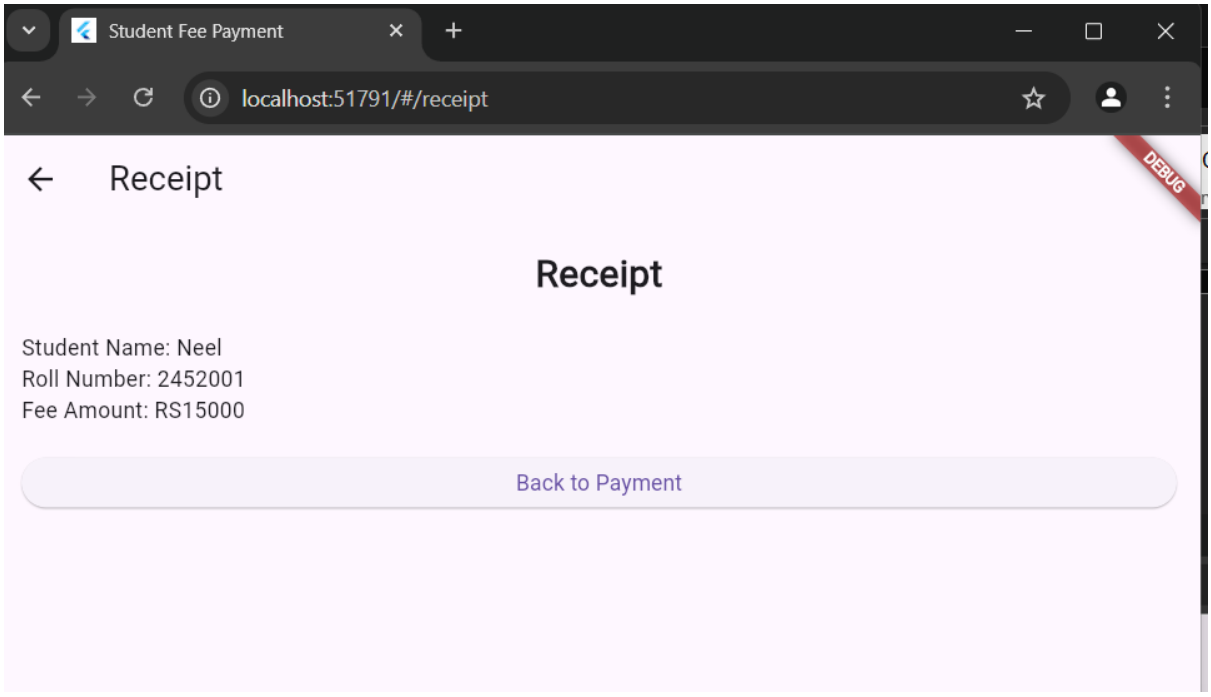
```
 final _rollNumberController = TextEditingController();
 final _feeAmountController = TextEditingController();

 void _payFee() {
  if (_formKey.currentState!.validate()) {
   Navigator.pushNamed(
    context,
    '/receipt',
    arguments: {
     'name': _nameController.text,
     'rollNumber': _rollNumberController.text,
     'feeAmount': _feeAmountController.text,
    },
   );
  }
 }

 @override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: AppBar(
    title: Text('Student Fee Payment'),
   ),
   body: Padding(
    padding: const EdgeInsets.all(16.0),
    child: Form(
     key: _formKey,
     child: Column(
```

```
crossAxisAlignment: CrossAxisAlignment.stretch,
children: [
 TextFormField(
  controller: _nameController,
  decoration: InputDecoration(labelText: 'Student Name'),
  validator: (value) {
   if (value == null || value.isEmpty) {
    return 'Please enter the student name';
   }
   return null;
  },
 ),
 TextFormField(
  controller: _rollNumberController,
  decoration: InputDecoration(labelText: 'Roll Number'),
  validator: (value) {
   if (value == null || value.isEmpty) {
    return 'Please enter the roll number';
   }
   return null;
  },
 ),
 TextFormField(
  controller: _feeAmountController,
  decoration: InputDecoration(labelText: 'Fee Amount'),
  keyboardType: TextInputType.number,
  validator: (value) {
   if (value == null || value.isEmpty) {
```

```
                return 'Please enter the fee amount';
              }
              return null;
            },
          ),
          SizedBox(height: 20),
          ElevatedButton(
            onPressed: _payFee,
            child: Text('Pay Fee'),
          ),
        ],
      ),
    ),
  ),
 );
 }
}
```

- **Output**


Student Fee Payment
localhost:51791
Student Fee Payment
DEBUG
Student Name
Neel
Roll Number
2452001
Fee Amount
15000
Pay Fee


Student Fee Payment
localhost:51791/#/receipt
Receipt
DEBUG
Receipt
Student Name: Neel
Roll Number: 2452001
Fee Amount: RS15000
Back to Payment