CALCULATOR XML AND JAVA

JAVA

```java
package com.example.simplecalculator;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import androidx.activity.EdgeToEdge;
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 {

    private EditText num1, num2;
    private Button add, subtract, divide, multiply;
    private TextView result;

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

        num1 = findViewById(R.id.editNum1);
        num2 = findViewById(R.id.editNum2);
        add = findViewById(R.id.buttonAdd);
        subtract = findViewById(R.id.buttonSubtract);
        divide = findViewById(R.id.buttonDivide);
        multiply = findViewById(R.id.buttonMultiply);
        result = findViewById(R.id.textResult);

        add.setOnClickListener(new View.OnClickListener() {
            @Override
```

```java
                public void onClick(View view) {
                    calculate("Add");
                }
            });

            subtract.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View view) {
                    calculate("Subtract");
                }
            });

            divide.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View view) {
                    calculate("Divide");
                }
            });

            multiply.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View view) {
                    calculate("Multiply");
                }
            });

    }

    private void calculate(String operation) {
        String input1 = num1.getText().toString();
        String input2 = num2.getText().toString();

        if(input1.isEmpty() || input2.isEmpty()){
            Toast.makeText(this, "Please enter an number",
Toast.LENGTH_SHORT).show();
        }

        double digit1 = Double.parseDouble(input1);
        double digit2 = Double.parseDouble(input2);
        double res = 0;
```

```java
        if(operation == "Add"){
            res = digit1 + digit2;
        } else if (operation == "Subtract") {
            res = digit1 - digit2;
        } else if (operation == "Divide") {
            if(digit2 == 0){
                Toast.makeText(this, "Invalid input in number 2",
Toast.LENGTH_SHORT).show();
                return;
            }
            res = digit1/digit2;
        } else if (operation == "Multiply") {
            res = digit1*digit2;
        }

        result.setText("Result is: " + res);
    }
}
```

TEMPERATURE CONVERTER XML (CAN DO) AND JAVA

```java
package com.example.temperatureconverter;

import android.os.Bundle;
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;

import androidx.activity.EdgeToEdge;
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 {

    private Spinner spinner1;
    private Spinner spinner2;
    private EditText temp1;
    private TextView res;
    private Button button;
```

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

    spinner1 = findViewById(R.id.spinnerTemp1);
    spinner2 = findViewById((R.id.spinnerTemp2));
    temp1 = findViewById(R.id.editTemp1);
    res = findViewById(R.id.textResult);
    button = findViewById(R.id.buttonConvert);

    String[] temperatureUnits = {"Celcius", "Fahrenheit", "Kelvin"};
    ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_spinner_item, temperatureUnits);

adapter.setDropDownViewResource(android.R.layout.simple_spinner
_dropdown_item);
    spinner1.setAdapter(adapter);
    spinner2.setAdapter(adapter);

    button.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            convertTemperature();
        }
    });

}

private void convertTemperature() {
    String temp1Unit = spinner1.getSelectedItem().toString();
    String temp2Unit = spinner2.getSelectedItem().toString();
    String temp1Value = temp1.getText().toString();

    if(temp1Unit.isEmpty()){
        Toast.makeText(this, "Please select the temperature in spinner",
Toast.LENGTH_SHORT).show();
        return;
    }
```

```java
    if(temp1Value.isEmpty()){
        Toast.makeText(this, "Please enter temperature",
Toast.LENGTH_SHORT).show();
        return;
    }

    double temp1 = Double.parseDouble(temp1Value);
    double result = 0;

    if(temp1Unit.equals("Celcius")){
        result = temp1;
    } else if (temp1Unit.equals("Fahrenheit")) {
        result = (temp1-32) * 5.0 / 9.0;
    } else if (temp1Unit.equals("Kelvin")) {
        result = temp1 - 273.15;
    }

    if(temp2Unit.equals("Celcius")){
        //no change needed
    } else if (temp2Unit.equals("Fahrenheit")) {
        result = (result * 9.0 / 5.0) + 32;
    } else if (temp2Unit.equals("Kelvin")){
        result = result + 273.15;
    }

    res.setText("Result: " + String.format("%.2f", result) + " " + temp2Unit);
  }

}
```

(USING RADIO BUTTON TEMPERATURE CONVERTER)

```xml
<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">
```

```xml
<!-- Input Temperature -->
<EditText
    android:id="@+id/input_temperature"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter temperature"
    android:inputType="numberDecimal" />

<!-- Conversion Options -->
<RadioGroup
    android:id="@+id/conversion_options"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginTop="16dp">

    <RadioButton
        android:id="@+id/to_celsius"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="To Celsius" />

    <RadioButton
        android:id="@+id/to_fahrenheit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="To Fahrenheit" />
</RadioGroup>

<!-- Convert Button -->
<Button
    android:id="@+id/convert_button"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Convert"
    android:layout_marginTop="16dp" />

<!-- Display Result -->
<TextView
```

```xml
        android:id="@+id/conversion_result"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:text="Result will appear here"
        android:textSize="18sp"
        android:textStyle="bold" />
</LinearLayout>
```

JAVA

```java
package com.example.temperatureconverterradiogroup;

import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioGroup;
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);

        EditText inputTemperature = findViewById(R.id.input_temperature);
        RadioGroup conversionOptions = findViewById(R.id.conversion_options);
        Button convertButton = findViewById(R.id.convert_button);
        TextView conversionResult = findViewById(R.id.conversion_result);

        convertButton.setOnClickListener(v -> {
            String inputText = inputTemperature.getText().toString();
            if (inputText.isEmpty()) {
                conversionResult.setText("Please enter a temperature");
                return;
            }

            double temperature = Double.parseDouble(inputText);
```

```java
        int selectedOption = conversionOptions.getCheckedRadioButtonId();

        if (selectedOption == R.id.to_celsius) {
            // Fahrenheit to Celsius
            double result = (temperature - 32) * 5 / 9;
            conversionResult.setText(String.format("%.2f °C", result));
        } else if (selectedOption == R.id.to_fahrenheit) {
            // Celsius to Fahrenheit
            double result = (temperature * 9 / 5) + 32;
            conversionResult.setText(String.format("%.2f °F", result));
        } else {
            conversionResult.setText("Please select a conversion option");
        }
    });
  }
}
```

CALENDAR XML AND JAVA

To mark Saturdays and Sundays in red directly in the `CalendarView`, Android's default `CalendarView` does not support custom styling for individual dates. You will need to use a `GridView` or `RecyclerView` with a custom adapter to create a fully customizable calendar.

XML - CAN DO

JAVA

```java
package com.example.calendar;

import android.os.Bundle;
import android.widget.CalendarView;
import android.widget.Toast;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
```

```java
public class MainActivity extends AppCompatActivity {

    private CalendarView calendarView;

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

        // Initialize CalendarView
        calendarView = findViewById(R.id.calendarView);

        // Set listener for date change
        calendarView.setOnDateChangeListener((view, year, month, dayOfMonth) -> {
            // Show the selected date
            String selectedDate = dayOfMonth + "/" + (month + 1) + "/" + year;
            Toast.makeText(MainActivity.this, "Selected Date: " + selectedDate,
Toast.LENGTH_SHORT).show();
        });
    }
}
```

To do list

XML and Java

```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" />
```

```xml
    <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>
```

JAVA

```java
package com.example.todolist;

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 androidx.appcompat.app.AppCompatActivity;

import java.util.ArrayList;

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);
```

```java
        editTextTask = findViewById(R.id.editTextTask);
        buttonAdd = findViewById(R.id.buttonAdd);
        listViewTasks = findViewById(R.id.listViewTasks);

        tasks = new ArrayList<>();
        adapter = new ArrayAdapter<>(this,
android.R.layout.simple_list_item_1, tasks);
        listViewTasks.setAdapter(adapter);

        buttonAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String task = editTextTask.getText().toString().trim();
                if (!task.isEmpty()) {
                    tasks.add(task);
                    adapter.notifyDataSetChanged();
                    editTextTask.setText(""); // Clear input field
                }
            }
        });
    }
}
```

SIMPLE QUIZ

XML and Java

```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">
```

```xml
<TextView
    android:id="@+id/questionTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Question will appear here"
    android:textSize="18sp"
    android:textStyle="bold"
    android:padding="16dp" />

<RadioGroup
    android:id="@+id/answersRadioGroup"
    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"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Option 4" />
</RadioGroup>
```

```xml
    <Button
        android:id="@+id/nextButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Next"
        android:layout_gravity="center"
        android:layout_marginTop="16dp" />

    <TextView
        android:id="@+id/scoreTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text=""
        android:visibility="gone"
        android:textSize="16sp"
        android:gravity="center"
        android:padding="16dp" />
</LinearLayout>
```

JAVA

```java
package com.example.simplequiz;

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, scoreTextView;
    private RadioGroup answersRadioGroup;
    private Button nextButton;
```

```java
private String[] questions = {
    "What is the capital of France?",
    "Which planet is known as the Red Planet?",
    "Who wrote 'Hamlet'?"
};

private String[][] options = {
    {"Paris", "Berlin", "Madrid", "Rome"},
    {"Earth", "Mars", "Jupiter", "Saturn"},
    {"Shakespeare", "Dickens", "Hemingway", "Austen"}
};

private String[] correctAnswers = {"Paris", "Mars", "Shakespeare"};

private int currentQuestionIndex = 0;
private int score = 0;

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

    // Bind Views
    questionTextView = findViewById(R.id.questionTextView);
    answersRadioGroup = findViewById(R.id.answersRadioGroup);
    nextButton = findViewById(R.id.nextButton);
    scoreTextView = findViewById(R.id.scoreTextView);

    // Load the first question
    loadQuestion();

    nextButton.setOnClickListener(v -> {
        // Check if an answer is selected
        int selectedId = answersRadioGroup.getCheckedRadioButtonId();

        //Check if the answer is not selected and button is pressed
        if(selectedId == -1){
            Toast.makeText(this, "Please select an answer!",
Toast.LENGTH_SHORT).show();
            return;
```

```java
        }

        if (selectedId != -1) {
            RadioButton selectedAnswer = findViewById(selectedId);
            String answerText = selectedAnswer.getText().toString();

            // Check if the answer is correct
            if (answerText.equals(correctAnswers[currentQuestionIndex])) {
                score++;
            }

            // Move to the next question or show score
            currentQuestionIndex++;
            if (currentQuestionIndex < questions.length) {
                loadQuestion();
            } else {
                showScore();
            }
        }
    });
}

private void loadQuestion() {
    // Load the current question and options
    questionTextView.setText(questions[currentQuestionIndex]);
    answersRadioGroup.clearCheck();

    ((RadioButton)
findViewById(R.id.option1)).setText(options[currentQuestionIndex][0]);
    ((RadioButton)
findViewById(R.id.option2)).setText(options[currentQuestionIndex][1]);
    ((RadioButton)
findViewById(R.id.option3)).setText(options[currentQuestionIndex][2]);
    ((RadioButton)
findViewById(R.id.option4)).setText(options[currentQuestionIndex][3]);
}

private void showScore() {
    // Hide the quiz elements and display the score
    questionTextView.setVisibility(View.GONE);
```

```java
        answersRadioGroup.setVisibility(View.GONE);
        nextButton.setVisibility(View.GONE);

        scoreTextView.setText("Your Score: " + score + "/" + questions.length);
        scoreTextView.setVisibility(View.VISIBLE);
    }
}
```

ANIMATION XML AND JAVA
XML

```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">

    <TextView
        android:id="@+id/animatedTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello, Shubhanshu!"
        android:textSize="24sp"
        android:textColor="#000000"
        android:layout_centerInParent="true"/>

</RelativeLayout>
```

Java

```java
package com.example.simpleanimation;

import android.animation.ObjectAnimator;
import android.animation.ValueAnimator;
import android.os.Bundle;
import android.view.View;
import android.view.animation.Animation;
import android.view.animation.LinearInterpolator;

import androidx.activity.EdgeToEdge;
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);
        setContentView(R.layout.activity_main);
        // Find the TextView
        View animatedTextView = findViewById(R.id.animatedTextView);

        // Create an ObjectAnimator to animate the TextView
        ObjectAnimator animator = ObjectAnimator.ofFloat(animatedTextView,
"translationX", 0f, 1000f);
        animator.setDuration(2000);  // 2 seconds for the animation
        animator.setRepeatCount(Animation.INFINITE);  // Repeat forever
        animator.setRepeatMode(ValueAnimator.RESTART);  // Restart the animation after
each cycle
        animator.setInterpolator(new LinearInterpolator()); // Smooth continuous animation
        animator.start(); // Start the animation
    }
}
```