Mobile Programming MidTerm

Q1

Kotlin Code

```
package com.example.midtermq1

import android.os.Bundle
import android.view.View
import android.widget.AdapterView
import android.widget.ArrayAdapter
import android.widget.Button
import android.widget.EditText
import android.widget.Spinner
import android.widget.TextView
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import androidx.core.view.ViewCompat
import androidx.core.view.WindowInsetsCompat
import java.util.Locale

class MainActivity : AppCompatActivity() {
   override fun onCreate(savedInstanceState: Bundle?) {
       super.onCreate(savedInstanceState)
       enableEdgeToEdge()
       setContentView(R.layout.activity_main)

       val resBtn: Button = findViewById(R.id.resBtn)

       val resText: TextView = findViewById(R.id.resText)

       var flag: String = "Add";
       val spinnerVal: Spinner = findViewById(R.id.spinnerV)
       var options = arrayOf("Add", "Subtract", "Multiply", "Divide")

       spinnerVal.adapter =
           ArrayAdapter<String>(this,
android.R.layout.simple_list_item_1, options)

       resBtn.setOnClickListener{ view ->
```

```
            val num1Text: EditText = findViewById(R.id.num1Text)
            val num2Text: EditText = findViewById(R.id.num2Text)

            var num1: Double = num1Text.text.toString().toDouble();
            var num2:Double = num2Text.text.toString().toDouble();


            var temp: Double = num1;

            when(flag){
                "Add" -> temp += num2
                "Subtract" -> temp -= num2
                "Multiply" -> temp *= num2
                "Divide" -> temp /= num2
            }

            resText.text = String.format(Locale.US,"%.4f", temp);
        }

        spinnerVal.onItemSelectedListener = object :
AdapterView.OnItemSelectedListener {
            override fun onItemSelected(p0: AdapterView<*>?, p1:
View?, p2: Int, p3: Long) {
                flag = options.get(p2)
            }

            override fun onNothingSelected(p0: AdapterView<*>?) {
                TODO("Not yet implemented")
            }
        }


    }
}
```

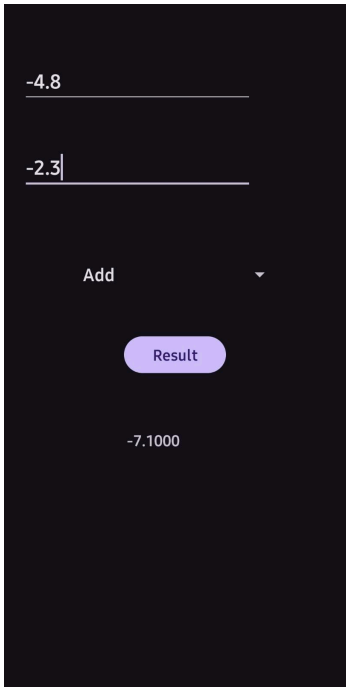
Activity Main

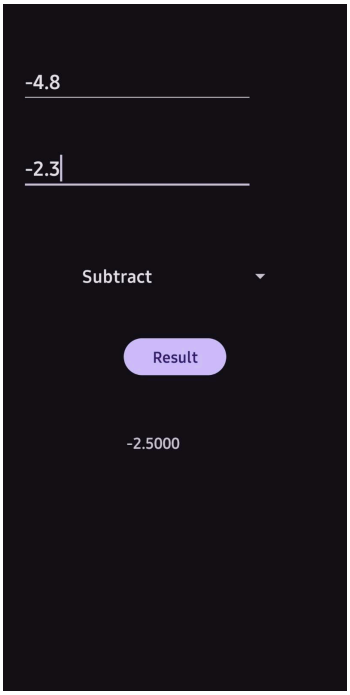
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
```

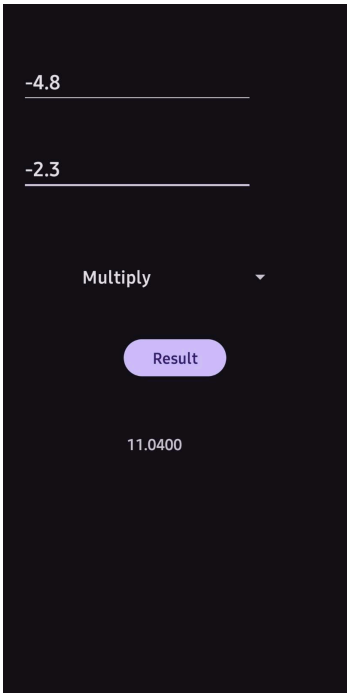
```
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/num1Text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="text"
        android:hint="Number 1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.164"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.116" />

    <EditText
        android:id="@+id/num2Text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="text"
        android:hint="Number 2"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.164"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.237" />


    <Button
        android:id="@+id/resBtn"
        android:layout_width="101dp"
        android:layout_height="44dp"
        android:text="Result"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.499" />

    <TextView
```

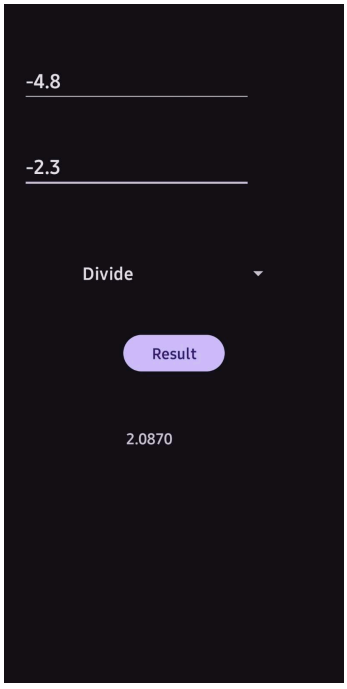
```
        android:id="@+id/resText"
        android:layout_width="94dp"
        android:layout_height="36dp"
        android:hint="Result"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.628" />

    <Spinner
        android:id="@+id/spinnerV"
        android:layout_width="215dp"
        android:layout_height="45dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.387" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Screenshots









Q2

Kotlin Code

```
package com.example.midtermq2

import android.os.Bundle
import android.view.View
import android.widget.AdapterView
import android.widget.ArrayAdapter
import android.widget.Button
import android.widget.EditText
import android.widget.Spinner
import android.widget.TextView
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import androidx.core.view.ViewCompat
import androidx.core.view.WindowInsetsCompat
import java.util.Locale

class MainActivity : AppCompatActivity() {
   override fun onCreate(savedInstanceState: Bundle?) {
       super.onCreate(savedInstanceState)
       enableEdgeToEdge()
       setContentView(R.layout.activity_main)

       val resBtn: Button = findViewById(R.id.resBtn)
       val resText: TextView = findViewById(R.id.resText)

       val compText: TextView = findViewById(R.id.compText)

       var flag: String = "Rock";
       val spinnerVal: Spinner = findViewById(R.id.spinnerV)
       var options = arrayOf("Rock", "Paper", "Scissor")

       spinnerVal.adapter =
           ArrayAdapter<String>(this,
android.R.layout.simple_list_item_1, options)

       resBtn.setOnClickListener{ view ->

           val rnds = (0..2).random();
           var compChoice: String;
           if(rnds == 0){
```

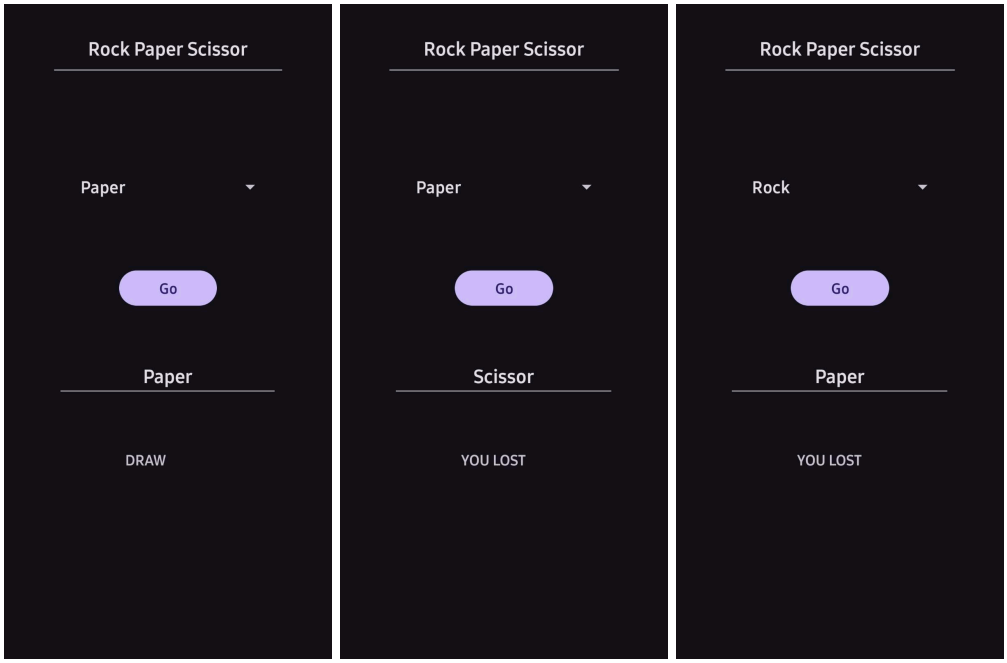
```
            compChoice = "Rock";
        }
        else if(rnds == 1){
            compChoice = "Paper";
        }
        else{
            compChoice = "Scissor";
        }

        compText.text = compChoice;

        if(flag == "Rock" && compChoice == "Scissor"){
            resText.text = "YOU WON";
        }
        else if(flag == "Paper" && compChoice == "Rock"){
            resText.text = "YOU WON";
        }
        else if(flag == "Scissor" && compChoice == "Paper"){
            resText.text = "YOU WON";
        }
        else if(flag == compChoice){
            resText.text = "DRAW";
        }
        else{
            resText.text = "YOU LOST";
        }
    }

    spinnerVal.onItemSelectedListener = object :
AdapterView.OnItemSelectedListener {
        override fun onItemSelected(p0: AdapterView<*>?, p1:
View?, p2: Int, p3: Long) {
            flag = options.get(p2)
        }

        override fun onNothingSelected(p0: AdapterView<*>?) {
            flag = "Rock";
        }
    }

}
}
```

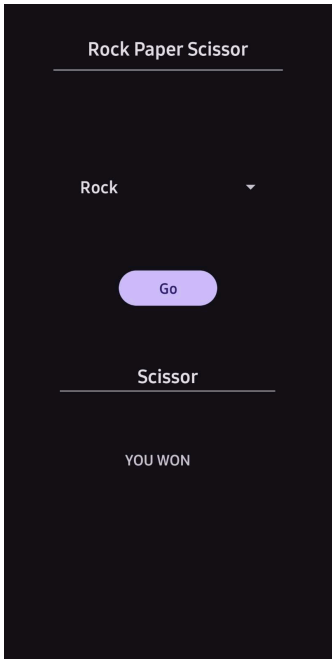
Activity Main

```
<?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/resBtn"
        android:layout_width="101dp"
        android:layout_height="44dp"
        android:text="Go"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.423" />

    <TextView
        android:id="@+id/resText"
        android:layout_width="94dp"
        android:layout_height="36dp"
        android:hint="Result"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.511"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.682" />

    <Spinner
        android:id="@+id/spinnerV"
        android:layout_width="215dp"
        android:layout_height="45dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.51"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
```

```
        app:layout_constraintVertical_bias="0.275" />

    <EditText
        android:id="@+id/editTextText"
        android:layout_width="243dp"
        android:layout_height="60dp"
        android:ems="10"
        android:inputType="text"
        android:gravity="center"
        android:text="Rock Paper Scissor"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.065" />

    <EditText
        android:id="@+id/compText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:gravity="center"
        android:inputType="text"
        android:text=""
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.552" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Screenshots





Q3

Kotlin File

```
package com.example.alarmintent
```

```
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.content.ActivityNotFoundException
import android.content.Intent
import android.net.Uri
import android.provider.AlarmClock
import androidx.core.content.ContextCompat
import androidx.core.content.ContextCompat.startActivity
import com.example.midtermq3.R

class MainActivity : AppCompatActivity() {
   override fun onCreate(savedInstanceState: Bundle?) {
       super.onCreate(savedInstanceState)
       setContentView(R.layout.activity_main)
       createAlarm("This is an alarm, wake up !!", 0, 1)


       val textMessage : String = "Hello World"
       val sendIntent = Intent().apply {
           action = Intent.ACTION_SEND
           putExtra(Intent.EXTRA_TEXT, textMessage)
           type = "text/plain"
       }

       try {
           startActivity(sendIntent)
       } catch (e: ActivityNotFoundException) {
           println("Can't handle this intent")
       }

       val mapIntent: Intent = Uri.parse(
           "geo:0,0?q=319+Arthur+Lane,+Kitchener,+Ontario"
       ).let { location ->
       // Or map point based on latitude/longitude
       // val location: Uri =
Uri.parse("geo:37.422219,-122.08364?z=14") // z param is zoom level
           Intent(Intent.ACTION_VIEW, location)
       }
       startActivity(mapIntent);

   }

   fun createAlarm(message: String, hour: Int, minutes: Int) {
       val intent = Intent(AlarmClock.ACTION_SET_ALARM).apply {
           putExtra(AlarmClock.EXTRA_MESSAGE, message)
```

```
            putExtra(AlarmClock.EXTRA_HOUR, hour)
            putExtra(AlarmClock.EXTRA_MINUTES, minutes)
        }
        if (intent.resolveActivity(packageManager) != null) {
            ContextCompat.startActivity(intent)
        }
    }
}
```

Activity Main