Problem 1 : CalculatorApp
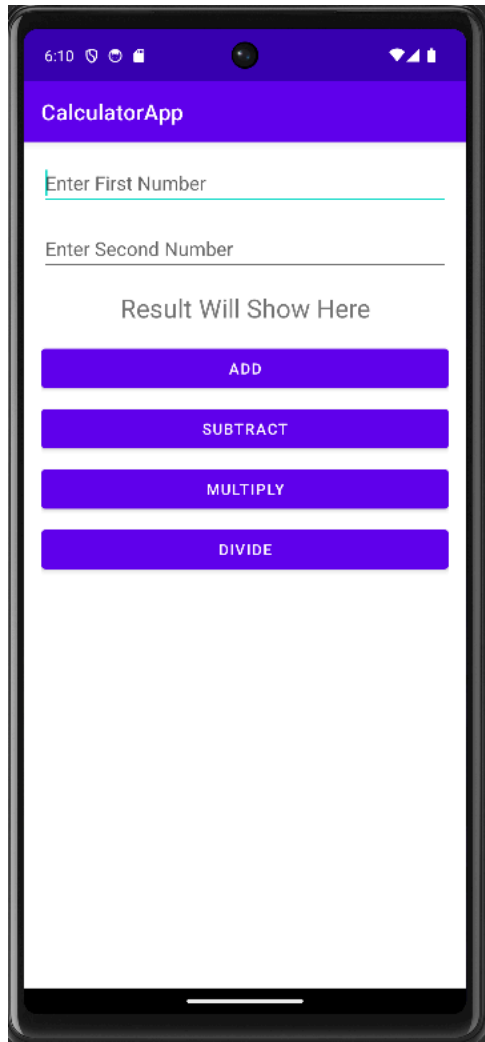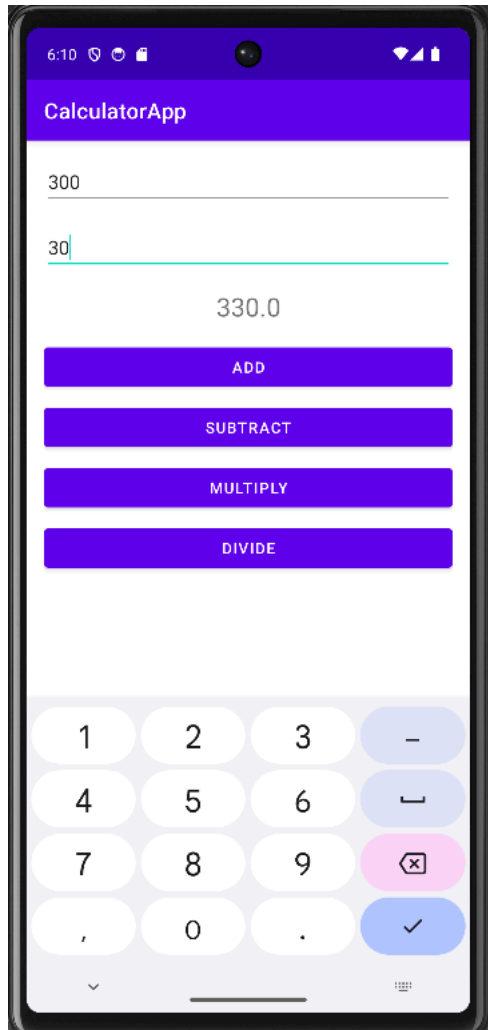
** Used Fragement **
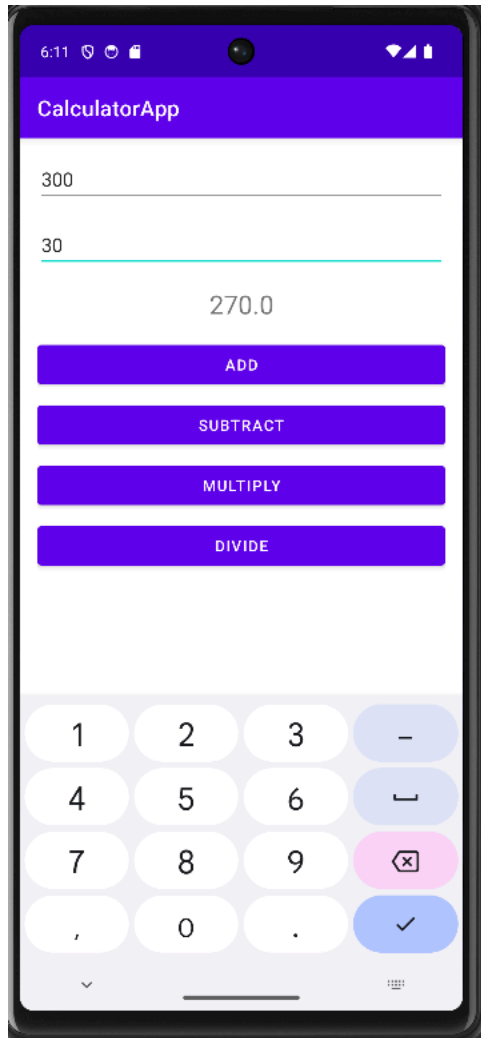
Home Page

Sum

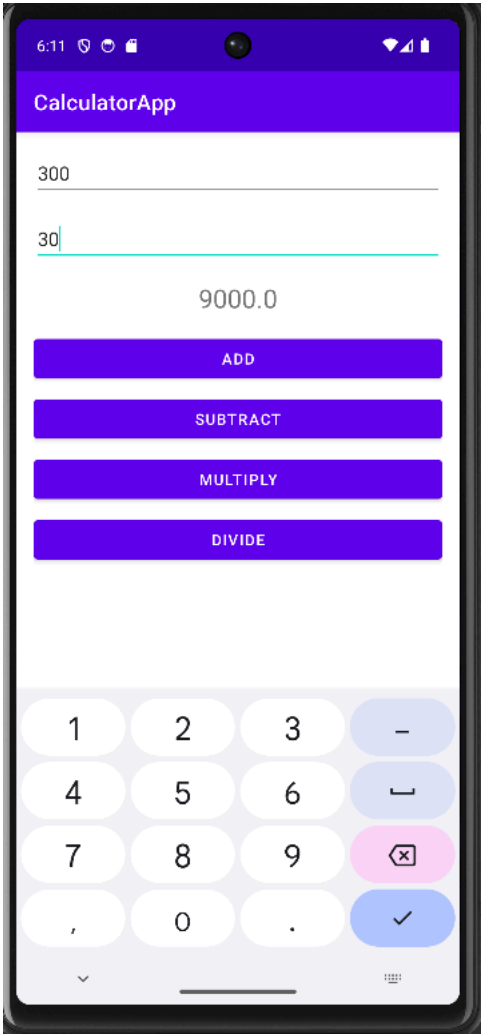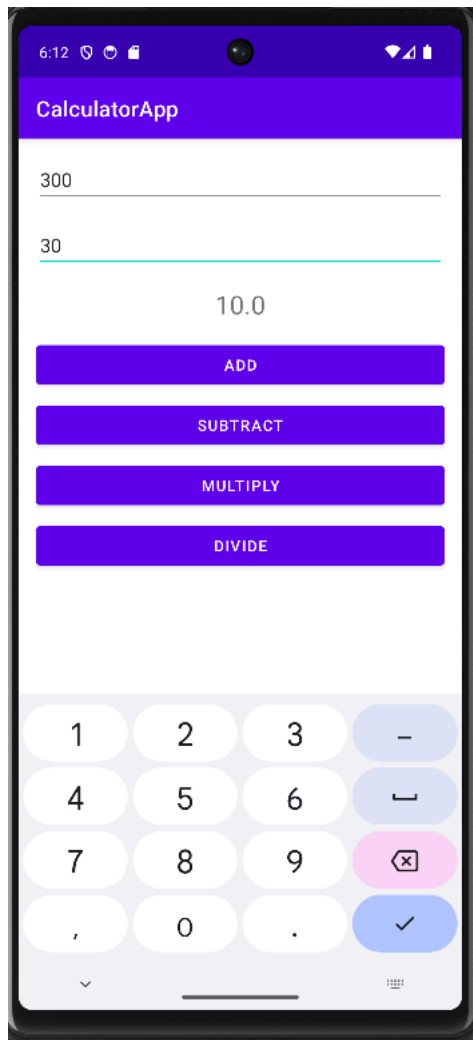# Subtract

Multiply

Division

Code:

fragment_calculator.xml

```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"
```

```xml
    tools:context=".CalculatorFragment">

<EditText
    android:id="@+id/etNum1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter First Number"
    android:inputType="numberDecimal"
    android:layout_marginBottom="16dp"/>

<EditText
    android:id="@+id/etNum2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter Second Number"
    android:inputType="numberDecimal"
    android:layout_marginBottom="16dp"/>

<TextView
    android:id="@+id/tvResult"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Result Will Show Here"
    android:textSize="24sp"
    android:gravity="center"
    android:layout_marginBottom="16dp" />

<Button
    android:id="@+id/btnAdd"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Add"
    android:layout_marginBottom="8dp" />

<Button
    android:id="@+id/btnSubtract"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Subtract"
    android:layout_marginBottom="8dp" />

<Button
    android:id="@+id/btnMultiply"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Multiply"
    android:layout_marginBottom="8dp" />
```

```xml
    <Button
        android:id="@+id/btnDivide"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Divide"
        android:layout_marginBottom="8dp" />
</LinearLayout>
```

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/fragment_container"
    android:layout_width="match_parent"
    android:layout_height="match_parent" />
```

colors.xml

```xml
<resources>
    <color name="purple_500">#6200EE</color>
    <color name="purple_700">#3700B3</color>
    <color name="teal_200">#03DAC5</color>
    <color name="teal_700">#018786</color>
    <color name="white">#FFFFFF</color>
    <color name="black">#000000</color>
</resources>
```

CalculatorFragment.kt
```kotlin
package com.example.calculatorapp

import android.os.Bundle
import android.text.TextUtils
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.Button
```

```kotlin
import android.widget.EditText
import android.widget.TextView
import androidx.fragment.app.Fragment

class CalculatorFragment : Fragment() {

    private lateinit var etNum1: EditText
    private lateinit var etNum2: EditText
    private lateinit var tvResult: TextView
    private lateinit var btnAdd: Button
    private lateinit var btnSubtract: Button
    private lateinit var btnMultiply: Button
    private lateinit var btnDivide: Button

    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        return inflater.inflate(R.layout.fragment_calculator, container,
false)
    }

    override fun onViewCreated(view: View, savedInstanceState: Bundle?) {
        super.onViewCreated(view, savedInstanceState)

        etNum1 = view.findViewById(R.id.etNum1)
        etNum2 = view.findViewById(R.id.etNum2)
        tvResult = view.findViewById(R.id.tvResult)
        btnAdd = view.findViewById(R.id.btnAdd)
        btnSubtract = view.findViewById(R.id.btnSubtract)
        btnMultiply = view.findViewById(R.id.btnMultiply)
        btnDivide = view.findViewById(R.id.btnDivide)

        btnAdd.setOnClickListener { calculate("add") }
        btnSubtract.setOnClickListener { calculate("subtract") }
        btnMultiply.setOnClickListener { calculate("multiply") }
        btnDivide.setOnClickListener { calculate("divide") }
    }

    private fun calculate(operation: String) {
        val num1Str = etNum1.text.toString()
        val num2Str = etNum2.text.toString()
```

```kotlin
        if (TextUtils.isEmpty(num1Str) || TextUtils.isEmpty(num2Str)) {
            tvResult.text = "Please enter valid numbers"
            return
        }

        val num1 = num1Str.toDouble()
        val num2 = num2Str.toDouble()
        var result: Double? = null

        when (operation) {
            "add" -> result = num1 + num2
            "subtract" -> result = num1 - num2
            "multiply" -> result = num1 * num2
            "divide" -> result = if (num2 != 0.0) num1 / num2 else null
        }

        if (result == null) {
            tvResult.text = "Cannot divide by zero"
        } else {
            tvResult.text = result.toString()
        }
    }

    companion object {
        fun newInstance() = CalculatorFragment()
    }
}
```

MainActivity.kt

```kotlin
package com.example.calculatorapp

import android.os.Bundle
import androidx.appcompat.app.AppCompatActivity

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

        if (savedInstanceState == null) {
```

```
            supportFragmentManager.beginTransaction()
                .replace(R.id.fragment_container, CalculatorFragment.newInstance())
                .commitNow()
        }
    }
}
```

Problem 2: Contact List App

Code:

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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"
    tools:context=".MainActivity">

    <View
        android:id="@+id/spaceTop"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="0.2"
        android:layout_alignParentTop="true"/>

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/spaceTop"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"/>

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/spinner"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"
        android:text="Show Contact List"/>

    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/button"
```

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

MainActivity.kt

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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"
    tools:context=".MainActivity">

    <View
        android:id="@+id/spaceTop"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="0.2"
        android:layout_alignParentTop="true"/>

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/spaceTop"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"/>

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/spinner"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"
        android:text="Show Contact List"/>

    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/button"
        android:layout_marginTop="16dp"/>
</RelativeLayout>
```

ContactDetailsActivity.kt

```kotlin
package com.example.contact_list


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

class ContactDetailsActivity : AppCompatActivity() {

    private lateinit var contactImage: ImageView
    private lateinit var contactName: TextView
    private lateinit var contactPhone: TextView
    private lateinit var contactEmail: TextView

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_contact_details)

        contactImage = findViewById(R.id.contactImage)
        contactName = findViewById(R.id.contactName)
        contactPhone = findViewById(R.id.contactPhone)
        contactEmail = findViewById(R.id.contactEmail)

        val name = intent.getStringExtra("name")
        val phone = intent.getStringExtra("phone")
        val email = intent.getStringExtra("email")

        contactName.text = name
        contactPhone.text = phone
        contactEmail.text = email
    }
}
```

ContactListAdapter.kt

```kotlin
package com.example.contact_list


import android.content.Context
```

```kotlin
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.ArrayAdapter
import android.widget.ImageView
import android.widget.TextView
import androidx.core.content.ContextCompat

class ContactListAdapter(context: Context, private val contacts: List<Contact>)
: ArrayAdapter<Contact>(context, 0, contacts) {

    override fun getView(position: Int, convertView: View?, parent: ViewGroup):
View {
        val contact = getItem(position)
        val view = convertView ?:
LayoutInflater.from(context).inflate(R.layout.contact_list_item, parent, false)

        val contactImage = view.findViewById<ImageView>(R.id.contactImage)
        val contactName = view.findViewById<TextView>(R.id.contactName)

        contactImage.setImageDrawable(ContextCompat.getDrawable(context,
R.drawable.default_contact_image))
        contactName.text = contact?.name

        return view
    }
}
```

Contact.kt

```kotlin
package com.example.contact_list


data class Contact(val name: String, val phone: String, val email: String, val
category: String)
```

Output:

Family ▼

Show Contact List

Family

Friends

Colleagues

Close Friends

List

Friends ▾

Show Contact List

👤 Akash Chopra

👤 Sumit Panchi

👤 Jui Jui

Problem 3: MainApp

activity_calculator.xml

```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/text_view_message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="18sp" />


    <!-- Include your CalculatorFragment or layout here -->
</LinearLayout>
```


activity_contacts.xml

```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/text_view_message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="18sp" />

    <!-- Include your ContactListFragment or layout here -->
</LinearLayout>
```

AndroidManiFest.xml

```xml
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.mainapp">
```

```xml
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MainApp">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name=".CalculatorActivity" />
        <activity android:name=".ContactsActivity" />
    </application>

</manifest>
```

MainActvity.kt

package com.example.mainapp

import android.content.Intent
import android.os.Bundle
import androidx.appcompat.app.AppCompatActivity
import com.example.mainapp.databinding.ActivityMainBinding

class MainActivity : AppCompatActivity() {

  private lateinit var binding: ActivityMainBinding

  override fun onCreate(savedInstanceState: Bundle?) {
    super.onCreate(savedInstanceState)
    binding = ActivityMainBinding.inflate(layoutInflater)
    setContentView(binding.root)

    binding.buttonCalculator.setOnClickListener {
      val intent = Intent(this, CalculatorActivity::class.java)
      intent.putExtra("message", "Hello from MainActivity")

```
        startActivity(intent)
    }

    binding.buttonContacts.setOnClickListener {
        val intent = Intent(this, ContactsActivity::class.java)
        intent.putExtra("message", "Hello from MainActivity")
        startActivity(intent)
    }
  }
}
```

colors.xml

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

    <color name="purple_500">#6200EE</color>
    <color name="purple_700">#3700B3</color>
    <color name="teal_200">#03DAC5</color>
    <color name="teal_700">#018786</color>
    <color name="white">#FFFFFF</color>
    <color name="black">#000000</color>
</resources>
```

strings.xml

```xml
<resources>
    <string name="app_name">MainApp</string>
    <string name="calculator">Calculator</string>
    <string name="contacts">Contacts</string>
</resources>
```

themes.xml

```xml
<resources xmlns:tools="http://schemas.android.com/tools">
    <style name="Theme.MainApp"
parent="Theme.MaterialComponents.DayNight.DarkActionBar">
        <!-- Primary brand color. -->
        <item name="colorPrimary">@color/purple_500</item>
        <item name="colorPrimaryVariant">@color/purple_700</item>
        <item name="colorOnPrimary">@color/white</item>
        <!-- Secondary brand color. -->
        <item name="colorSecondary">@color/teal_200</item>
        <item name="colorSecondaryVariant">@color/teal_700</item>
        <item name="colorOnSecondary">@color/black</item>
```

```xml
        <!-- Status bar color. -->
        <item name="android:statusBarColor"
tools:targetApi="l">@color/purple_700</item>
        <!-- Customize your theme here. -->
    </style>
</resources>
```

Output: