

Mid term

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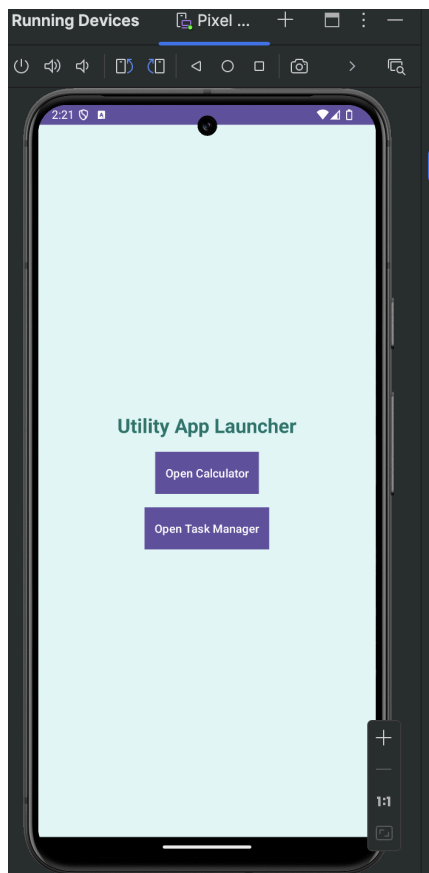
ID: 1227980

Subject: (2024A) COMP-5450-AA - Mobile Programming

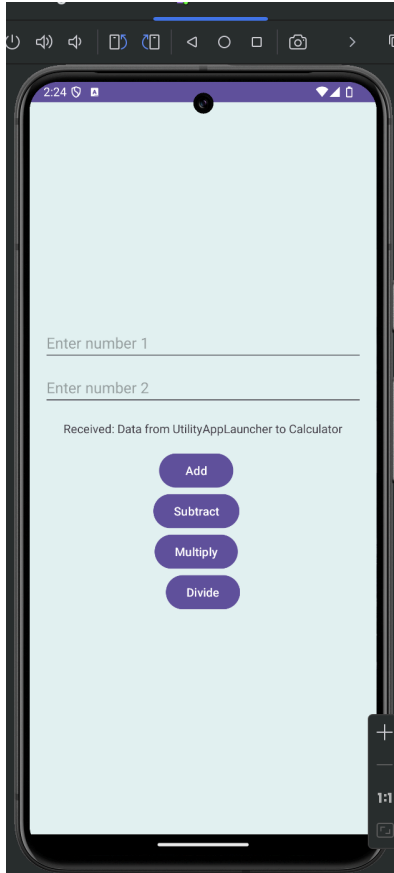
Ques3:

App name: Utility App launcher

Home Page:



On clicking Open Calculator button, below is the opened app view output:

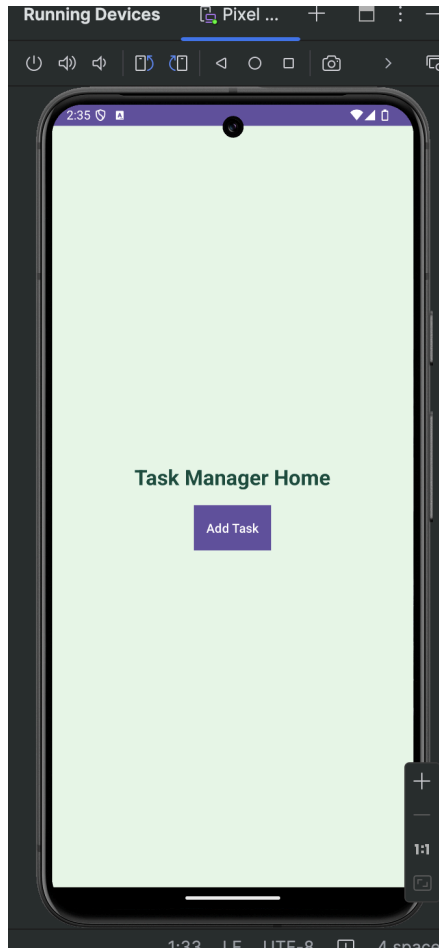


And App1 (calculator works):

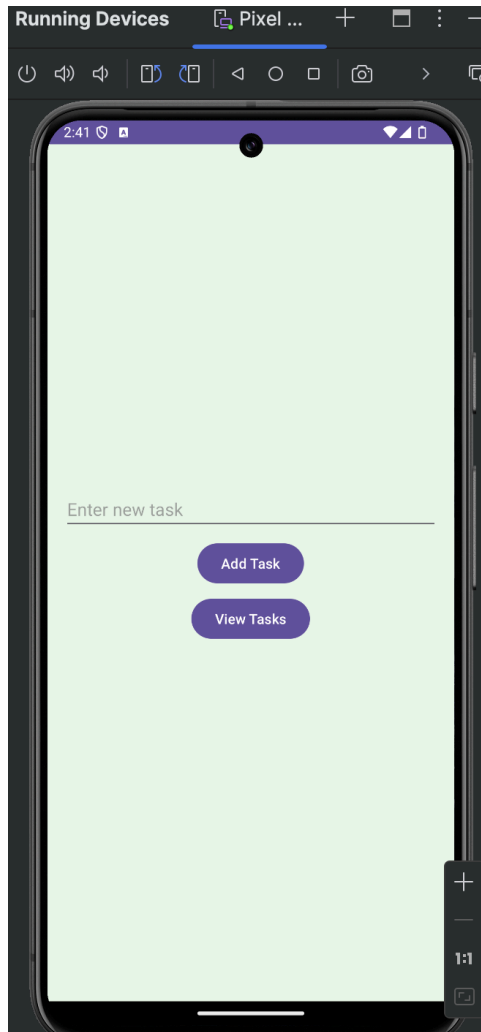


App: 2 (task Manager)

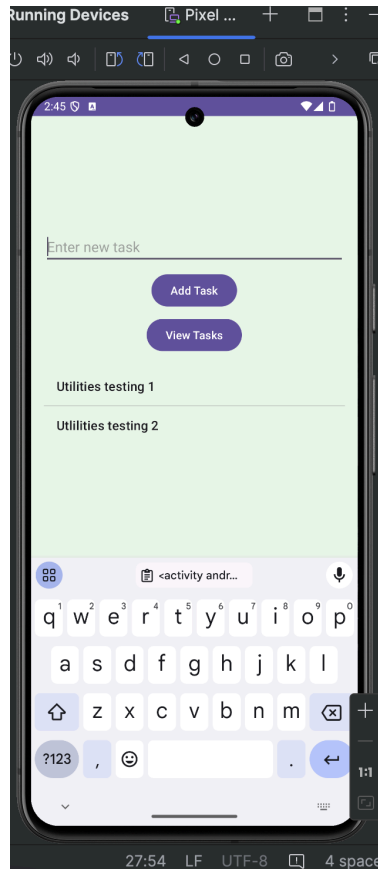
When selecting 2nd app:



On clicking Add Task button, it gives option to add task name and add it to the list, as below:



On adding task and clicking View Tasks button:



Code:

Activity_calculator.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"
    android:gravity="center"
    android:background="#E0F2F1">

    <EditText
        android:id="@+id/input1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter number 1"
        android:inputType="numberDecimal"
        android:layout_marginBottom="8dp"/>

    <EditText
        android:id="@+id/input2"
        android:layout_width="match_parent"
```

```

        android:layout_height="wrap_content"
        android:hint="Enter number 2"
        android:inputType="numberDecimal"
        android:layout_marginBottom="16dp"/>

<TextView
    android:id="@+id/resultTextView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Result will be shown here"
    android:layout_marginBottom="16dp"/>

<Button
    android:id="@+id/addButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Add"
    android:layout_marginEnd="8dp"/>

<Button
    android:id="@+id/subtractButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Subtract"
    android:layout_marginEnd="8dp"/>

<Button
    android:id="@+id/multiplyButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Multiply"
    android:layout_marginEnd="8dp"/>

<Button
    android:id="@+id/divideButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Divide"/>
</LinearLayout>

```

Activity_main.xml

```

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

```

```

        android:background="#E0F7FA">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Utility App Launcher"
            android:textSize="24sp"
            android:textStyle="bold"
            android:layout_marginBottom="16dp"
            android:textColor="#00796B" />

        <Button
            android:id="@+id/calculatorButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Open Calculator"
            android:padding="12dp"
            android:background="#00796B"
            android:textColor="#FFFFFF"
            android:layout_marginBottom="16dp"/>

        <Button
            android:id="@+id/taskManagerButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Open Task Manager"
            android:padding="12dp"
            android:background="#00796B"
            android:textColor="#FFFFFF"/>
    </LinearLayout>

```

Activity_task_manager.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"
    android:gravity="center"
    android:background="#E8F5E9">

    <EditText
        android:id="@+id/taskInput"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter new task"
        android:layout_marginBottom="8dp"/>

```



```

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

<Button
    android:id="@+id/viewTasksButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="View Tasks"
    android:layout_marginBottom="16dp"/>

<ListView
    android:id="@+id/taskListView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"/>
</LinearLayout>

```

AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Midterm_Que3"
        tools:targetApi="31">
        <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=".TaskManagerHomeActivity" />
        <activity android:name=".TaskManagerActivity" />
        <activity android:name=".TaskListActivity" />
    </application>
</manifest>

```

```
    </application>

</manifest>
```

MainActivity.kt

```
package com.example.midterm_que3

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

class MainActivity : AppCompatActivity() {

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

        val calculatorButton: Button = findViewById(R.id.calculatorButton)
        val taskManagerButton: Button = findViewById(R.id.taskManagerButton)

        calculatorButton.setOnClickListener {
            val intent = Intent(this, CalculatorActivity::class.java).apply {
                putExtra("launch_message", "Data from UtilityAppLauncher to
Calculator")
            }
            startActivity(intent)
        }

        taskManagerButton.setOnClickListener {
            val intent = Intent(this, TaskManagerHomeActivity::class.java)
            startActivity(intent)
        }
    }
}
```

CalculatorActivity.kt

```
package com.example.midterm_que3

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

class CalculatorActivity : AppCompatActivity() {
```

```

private lateinit var input1: EditText
private lateinit var input2: EditText
private lateinit var resultTextView: TextView

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

    input1 = findViewById(R.id.input1)
    input2 = findViewById(R.id.input2)
    resultTextView = findViewById(R.id.resultTextView)

    val addButton: Button = findViewById(R.id.addButton)
    val subtractButton: Button = findViewById(R.id.subtractButton)
    val multiplyButton: Button = findViewById(R.id.multiplyButton)
    val divideButton: Button = findViewById(R.id.divideButton)

    addButton.setOnClickListener { performOperation(Operation.ADD) }
    subtractButton.setOnClickListener { performOperation(Operation.SUBTRACT) }
}

    multiplyButton.setOnClickListener { performOperation(Operation.MULTIPLY) }
}

    divideButton.setOnClickListener { performOperation(Operation.DIVIDE) }

    // Retrieve data from Intent
    val launchMessage = intent.getStringExtra("launch_message")
    launchMessage?.let {
        resultTextView.text = "Received: $it"
    }
}

private fun performOperation(operation: Operation) {
    val num1 = input1.text.toString().toDoubleOrNull() ?: 0.0
    val num2 = input2.text.toString().toDoubleOrNull() ?: 0.0
    val result = when (operation) {
        Operation.ADD -> num1 + num2
        Operation.SUBTRACT -> num1 - num2
        Operation.MULTIPLY -> num1 * num2
        Operation.DIVIDE -> if (num2 != 0.0) num1 / num2 else "Cannot divide
by zero"
    }
    resultTextView.text = result.toString()
}

private enum class Operation {
    ADD, SUBTRACT, MULTIPLY, DIVIDE
}
}

```

TaskManagerHomeActivity.kt

```
package com.example.midterm_que3

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

class TaskManagerHomeActivity : AppCompatActivity() {

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

        val addTaskButton: Button = findViewById(R.id.addTaskButton)
        addTaskButton.setOnClickListener {
            // Launch TaskManagerActivity to add tasks
            val intent = Intent(this, TaskManagerActivity::class.java)
            startActivity(intent)
        }
    }
}
```

TaskManagerActivity.kt

```
package com.example.midterm_que3

import android.content.Intent
import android.os.Bundle
import android.widget.AdapterView
import android.widget.Button
import android.widget.EditText
import android.widget.ListView
import androidx.appcompat.app.AppCompatActivity

class TaskManagerActivity : AppCompatActivity() {

    private lateinit var taskInput: EditText
    private lateinit var addButton: Button
    private lateinit var viewTasksButton: Button
    private lateinit var taskListView: ListView
    private val taskList = mutableListOf<String>()
    private lateinit var taskAdapter: ArrayAdapter<String>

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_task_manager)
    }
}
```

```

        taskInput = findViewById(R.id.taskInput)
        addButton = findViewById(R.id.addButton)
        viewTasksButton = findViewById(R.id.viewTasksButton)
        taskListView = findViewById(R.id.taskListView)

        taskAdapter = ArrayAdapter(this, android.R.layout.simple_list_item_1,
taskList)
        taskListView.adapter = taskAdapter

        addButton.setOnClickListener {
            val task = taskInput.text.toString()
            if (task.isNotEmpty()) {
                taskList.add(task)
                taskAdapter.notifyDataSetChanged()
                taskInput.text.clear()
            }
        }

        viewTasksButton.setOnClickListener {
            // Pass the list of tasks to TaskListActivity
            val intent = Intent(this, TaskListActivity::class.java).apply {
                putStringArrayListExtra("task_list", ArrayList(taskList))
            }
            startActivity(intent)
        }
    }
}

```

TaskListActivity.kt

```

package com.example.midterm_que3

import android.os.Bundle
import android.widget.ArrayAdapter
import android.widget.ListView
import androidx.appcompat.app.AppCompatActivity

class TaskListActivity : AppCompatActivity() {

    private lateinit var taskListView: ListView

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

        taskListView = findViewById(R.id.taskListView)
    }
}

```

```

        // Retrieve the list of tasks from the Intent
        val taskList = intent.getStringArrayListExtra("task_list") ?:
ArrayList()

        val taskAdapter = ArrayAdapter(this,
android.R.layout.simple_list_item_1, taskList)
        taskListView.adapter = taskAdapter
    }
}

```

Activity_task_list.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"
    android:gravity="center"
    android:background="#E8F5E9">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Tasks"
        android:textSize="24sp"
        android:textStyle="bold"
        android:layout_marginBottom="16dp"
        android:textColor="#004D40"/>

    <ListView
        android:id="@+id/taskListView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>
</LinearLayout>

```