

5COSC023W - Tutorial 4 Exercises - Sample Solutions

1 The Lottery Program

Solution in the lecture slides

2 Extending the Lottery Program based on Jetpack Compose

```
package com.example.lotterycomposableextendedapp

import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.Row
import androidx.compose.foundation.layout.fillMaxSize
import androidx.compose.material3.Button
import androidx.compose.material3.Text
import androidx.compose.runtime.Composable
import androidx.compose.runtime.getValue
import androidx.compose.runtime.mutableStateOf
import androidx.compose.runtime.remember
import androidx.compose.runtime.setValue
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import kotlin.random.Random

class MainActivity : ComponentActivity() {
    var number_of_clicks = 0

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContent {
            displayNumbers()
        }
    }

    @Composable
    fun displayNumbers() {
        var results by remember{mutableStateOf("")}
    }
}
```

```

Column(Modifier.fillMaxSize(),
    horizontalAlignment = Alignment.CenterHorizontally) {
    Text("Results: " + results)
    Row {
        Button(onClick = { results = calculate() }) {
            Text(text = "Generate")
        }

        Button(onClick = {results = sortResults(results)}) {
            Text(text = "Sort")
        }
    }
}
}

fun sortResults(results : String): String {
    var numbers_str = results.split("\\s+".toRegex())
    ++number_of_clicks

    var list_int = mutableListOf<Int>()
    for (i in numbers_str) {
        if (i != "")
            list_int.add(i.toInt())
    }

    if (number_of_clicks % 2 == 1)
        list_int.sort()
    else {
        list_int.sort()
        list_int.reverse()
    }

    var new_results = ""
    for (i in list_int)
        new_results += " " + i

    return new_results
}

fun calculate(): String {
    val numbers = mutableListOf<Int>()

    while (numbers.size < 6) {
        val new_number = 1 + Random.nextInt(59)
        if (new_number !in numbers)
            numbers.add(new_number)
    }

    var results = ""

```

```

        for (i in numbers)
            results += "" + i + " "

        return results
    }
}

```

3 Creating User text input

```

import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.Row
import androidx.compose.material3.Text
import androidx.compose.material3.TextField
import androidx.compose.runtime.Composable
import androidx.compose.runtime.getValue
import androidx.compose.runtime.mutableStateOf
import androidx.compose.runtime.remember
import androidx.compose.runtime.setValue
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.tooling.preview.Preview

class MainActivity : ComponentActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContent {
            displayGUI()
        }
    }
}

@Preview
@Composable
fun displayGUI() {
    var name by remember{mutableStateOf("") }

    Column {
        Row (verticalAlignment = Alignment.CenterVertically){
            Text("Enter your name: ")
            TextField(value = name, onValueChange = {
                newText -> name = newText
            })
        }
    }
}

```

```
    Text("Hello $name, how are you doing?")
  }
}
```