

# 5COSC023W - Tutorial 6 Exercises - Sample Solutions

## 1 Activities and Intents

You need to copy the relevant images in the drawable directory.

The first activity:

```
package uk.ac.westminster.activitiespassingdatacomposable

import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.background
import androidx.compose.foundation.clickable
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.Row
import androidx.compose.foundation.layout.fillMaxSize
import androidx.compose.foundation.layout.fillMaxWidth
import androidx.compose.foundation.layout.height
import androidx.compose.foundation.layout.padding
import androidx.compose.runtime.Composable
import androidx.compose.foundation.lazy.LazyColumn
import androidx.compose.material3.Button
import androidx.compose.material3.Text
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.graphics.Color
import androidx.compose.ui.platform.LocalContext
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.style.TextAlign
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp

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

```

        setContent {
            GUI()
        }
    }
}

@Composable
fun GUI() {
    var selected by remember { mutableStateOf("") }
    // Create an empty list
    var myList = mutableListOf<String>()
    // populate the list with some items
    myList.add("n02096585_1347")
    myList.add("n02108089_11687")
    myList.add("n02088364_10362")

    val context = LocalContext.current
    Column(
        modifier = Modifier.fillMaxSize(),
        horizontalAlignment = Alignment.CenterHorizontally
    ) {
        Text("Menu", fontSize = 36.sp, fontWeight = FontWeight.Bold)
        LazyColumn(Modifier.height(500.dp)) {
            for (i in myList)
                item {
                    Row(
                        modifier = Modifier
                            .fillMaxWidth()
                            .clickable(onClick = {
                                selected = i
                            })
                    )
                    {
                        Text(text = i, fontSize = 24.sp,
                            textAlign = TextAlign.Center,
                            modifier=Modifier.fillMaxWidth())
                    }
                }
        }
        Text(
            text = "This is what was just selected: $selected",
            modifier = Modifier.padding(top = 20.dp)
        )

        Button(onClick = {
            val intent = Intent(context, SecondActivity::class.java)
            intent.putExtra("name", selected)
            context.startActivity(intent)
        })
    }
}

```

```

        }) {Text("Start new Aactivity") }
    }
}

```

The second activity:

```

package uk.ac.westminster.activitiespassingdatacomposable

import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.layout.Arrangement
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.fillMaxSize
import androidx.compose.foundation.layout.size
import androidx.compose.runtime.Composable
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.unit.dp

class SecondActivity : ComponentActivity() {
    var image_name: String? = ""

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

        // Extract the data from the intent
        image_name = intent.getStringExtra("name")

        setContent {
            GUI2()
        }
    }

    @Composable
    fun GUI2() {
        var image_file = 0
        if (image_name == "n02096585_1347")
            image_file = R.drawable.n02096585_1347
        else if (image_name == "n02108089_11687" )
            image_file =R.drawable.n02108089_11687
        else image_file = R.drawable.n02088364_10362

        Column (Modifier.fillMaxSize(),
            horizontalAlignment = Alignment.CenterHorizontally,

```

```

        verticalArrangement = Arrangement.Center)
    {
        Image(
            painterResource(id = image_file),
            contentDescription = "an image of a dog",
            modifier = Modifier.size(300.dp)
        )
    }
}
}

```

## 1 3 Extending the App “Communication between Activities”

The first Activity:

```

package uk.ac.westminster.activitiesbidirectionalcommunicationcomposablesfullexample

import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.rememberLauncherForActivityResult
import androidx.activity.compose.setContent
import androidx.activity.result.contract.ActivityResultContracts
import androidx.compose.foundation.layout.Arrangement
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.Row
import androidx.compose.foundation.layout.Spacer
import androidx.compose.foundation.layout.fillMaxSize
import androidx.compose.foundation.layout.height
import androidx.compose.foundation.layout.padding
import androidx.compose.foundation.layout.width
import androidx.compose.material3.Button
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.Modifier
import androidx.compose.ui.platform.LocalContext
import androidx.compose.ui.unit.dp

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

```

```

        GUI()
    }
}

@Composable
fun GUI() {
    var sum_result: Int? by remember { mutableStateOf(0) }
    var number1: String by remember { mutableStateOf("0") }
    var number2: String by remember { mutableStateOf("0") }

    val startForResult =
        rememberLauncherForActivityResult(
            ActivityResultContracts.StartActivityForResult() { result ->
                if (result.resultCode == RESULT_OK) {
                    sum_result = result.data?.getIntExtra("sum", 0)
                }
            }
        )

    val context = LocalContext.current
    Column(
        Modifier.fillMaxSize(),
        verticalArrangement = Arrangement.Center
    ) {
        Row() {
            TextField(value = number1, onValueChange = {number1 = it},
                label = {Text("Enter number1")},
                modifier=Modifier.width(200.dp).padding(horizontal = 10.dp))
            TextField(value = number2, onValueChange = {number2 = it},
                label = {Text("Enter number2")},
                modifier=Modifier.width(200.dp))
        }

        Button(onClick = {
            val intent = Intent(context, SecondActivity::class.java)
            intent.putExtra("number1", number1.trim().toInt())
            intent.putExtra("number2", number2.trim().toInt())
            startForResult.launch(intent)
        }) {
            Text("Start second activity")
        }
        Spacer(modifier=Modifier.height(32.dp))
        Text("Received from second activity: $sum_result")
    }
}
}

```

The second Activity:

```

package uk.ac.westminster.activitiesbidirectionalcommunicationcomposablesfullexample

import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.layout.Arrangement
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.fillMaxSize
import androidx.compose.material3.Button
import androidx.compose.material3.Text
import androidx.compose.runtime.Composable
import androidx.compose.ui.Modifier
import androidx.compose.ui.unit.sp

class SecondActivity : ComponentActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)

        val number1 = intent.getIntExtra("number1", 0)
        val number2 = intent.getIntExtra("number2", 0)
        val sum = number1 + number2

        setContent {
            GUI2(sum)
        }
    }

    @Composable
    fun GUI2(sum: Int) {
        Column (Modifier.fillMaxSize(), verticalArrangement = Arrangement.Center){
            Text(
                "Second Activity, sum is $sum", fontSize = 24.sp
            )
            Button(onClick = {
                val resultIntent = Intent()
                resultIntent.putExtra("sum", sum)
                setResult(RESULT_OK, resultIntent)
                finish()
            }) {
                Text("Finish Activity")
            }
        }
    }
}

```