



College of Engineering, Construction and Living Sciences  
Bachelor of Information Technology  
IN721: Mobile Application Development  
Level 7, Credits 15  
**Practical 02: Android Overview**

## Assessment Overview

In this assessment, you will create a **Calculator** project & user-interface in preparation for the next assessment. This assessment is worth **1.5%** of the final mark in **IN721: Mobile Application Development**.

## Learning Outcomes

At the successful completion of this course, learners will be able to:

1. Implement & publish complete, non-trivial, industry-standard mobile applications following sound architectural & code-quality standards.
2. Identify relevant use cases for a mobile computing scenario & incorporate them into an effective user experience design.
3. Follow industry standard software engineering practice in the design of mobile applications.

## Assessment Table

Assessment Activity	Weighting	Learning Outcomes	Assessment Grading Scheme	Completion Requirements
Practical	20%	2, 3	CRA	Cumulative
Project	80%	1, 2, 3	CRA	Cumulative

## Conditions of Assessment

You will complete this assessment during your learner managed time, however, there will be availability during the teaching sessions to discuss the requirements & your progress of this assessment. This assessment will need to be completed by **Tuesday, 9 March 2021 at 5:00 PM**.

## Pass Criteria

This assessment is criterion-referenced (CRA) with a cumulative pass mark of **50%** over all assessments in **IN721: Mobile Application Development**.

## Authenticity

All parts of your submitted assessment must be completely your work & any references must be cited appropriately including, externally-sourced graphic elements. Provide your references in a **README.md** file. All media must be royalty free (or legally purchased) for educational use. Failure to do this will result in a mark of **zero** for this assessment.

## Policy on Submissions, Extensions, Resubmissions & Resits

The school's process concerning submissions, extensions, resubmissions & resits complies with **Otago Polytechnic** policies. Learners can view policies on the **Otago Polytechnic** website located at <https://www.op.ac.nz/about-us/governance-and-management/policies>.

## Submissions

You must submit all program files via **GitHub Classroom**. Here is the link to the repository you will use for your submission – <https://classroom.github.com/a/VJIq7Ae0>. Create a new branch from the **main** branch called **02-kotlin**. This branch will be your development branch for this assessment. Once you have completed this assessment, create a pull request & assign the **GitHub** user **grayson-orr** to a reviewer. **Do not** merge your own pull request. Late submissions will incur a **10% penalty per day**, rolling over at **5:00 PM**.

## Extensions

Familiarise yourself with the assessment due date. If you need an extension, contact the course lecturer before the due date. If you require more than a week's extension, a medical certificate or support letter from your manager may be needed.

## Resubmissions

Learners may be requested to resubmit an assessment following a rework of part/s of the original assessment. Resubmissions are to be completed within a negotiable short time frame & usually must be completed within the timing of the course to which the assessment relates. Resubmissions will be available to learners who have made a genuine attempt at the first assessment opportunity & achieved a **D grade (40-49%)**. The maximum grade awarded for resubmission will be **C-**.

## Resits

Resits & reassessments are not applicable in **IN721: Mobile Application Development**.

## Instructions - Learning Outcomes 2, 3

### Task 1:

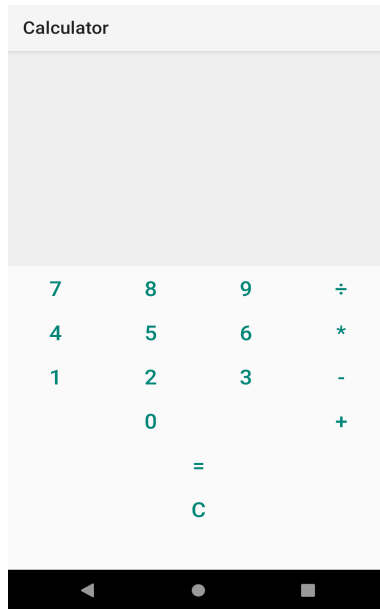
Create a new **Android** project with the following configurations:

- Template - Empty activity
- Name - Calculator

- Package name - op.mobile.app.dev.calculator
- Save location - /<YOUR GITHUB REPOSITORY>/02-calculator
- Language - Kotlin
- Minimum SDK - API 28: Android 9.0 (Pie)

## Task 2:

In **activity.xml**, create a calculator layout. For example:



Do **not** need to worry about the functionality of the calculator (we will look at this next assessment). Feel free to express your **creativity** in this assessment.

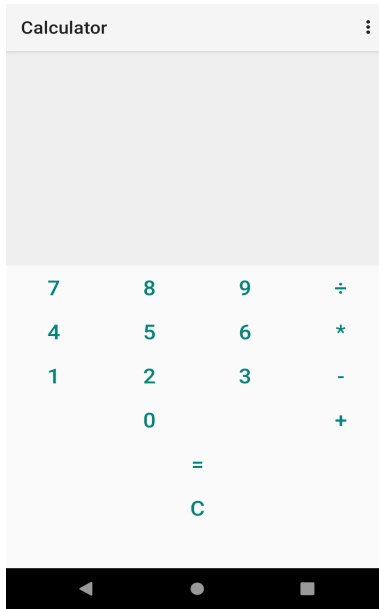
## Task 3:

In its basic form, the **action bar** displays the **title** for the activity on the right-hand side & an overflow **menu** on the left-hand side. In preparation for the next assessment, you will create a **menu** resource directory. To do this, right-click **res** > **Android Resource Directory**. In the **New Resource Directory** window, change the **Directory name** & **Resource type** to **menu**. In the **res/menu/**, create a new file called **menu.xml**. Use the following resource to define a menu in **menu.xml**: <https://developer.android.com/guide/topics/ui/menus>

To specify the options menu for an activity, override **onCreateOptionsMenu()**. In this method, you can inflate your menu resource (defined in **XML**) into the **Menu** provided in the callback. For example:

```
override fun onCreateOptionsMenu(menu: Menu): Boolean {  
    val inflater = menuInflater  
    inflater.inflate(R.menu.menu, menu)  
    return true  
}
```

Run your application on the **Android Emulator** or **connect device**. You should see the following:



## Reflection:

At the bottom of **MainActivity.kt**, answer the following:

1. The `<item>` element supports several attributes, describe the following attributes:
  - **android:title**
  - **android:showAsAction**
2. What are the **three** fundamental types of menus?