



Introduction to Programming

Pass Task 4.1: Programming Principles

Overview

Note: Use your class concept map as the basis for this report. Your report should explain the concepts covered in your diagrams and relate what is shown to the structured programming principles taught in this unit.

You have been using structured programming to implement the programs you have created in this unit. In this task you need to express your understanding of these principles (using sequence, selection, and repetition) to create programs.

Purpose: Express your understanding of how the programming artefacts, tools, and concepts relate to each other.

Task: Write a short explanation of programming to outline your understanding of the structured programming principles and tools, and how they are used to create programs. You should cover the following content from the unit outline:

1. Describe the principles of structured programming, and relate these to the syntactical elements of the programming language used and the way programs are developed.
2. Use modular and functional decomposition to break problems down functionally, represent the resulting structures diagrammatically, and implement these structures in code as functions and procedures.

As well the other concepts that arose in your class Concept map.

Time: This task should be completed before the start of week 12.

Resources:

- Programming Arcana
- Swinburne CodeCasts ([YouTube Channel](#), [iTunesU](#))
 - [Making the most of the concept of abstraction](#)

Submission Details

You must submit the following files to Doubtfire:

- A PDF document with your description

Make sure that your task has the following in your submission:

- Explanation should clearly demonstrate a good understanding of the structured programming principles and how they relate to the development of software.
- The report is your work and expresses your understanding in your own words. Where ideas and descriptions are related to other people they are appropriate cited and referenced.

Instructions

To make the most of programming, you need to deeply understand the principles of structured procedural programming.

For this task you must **explain** the principles of structured programming and **relate** these to the programs you have created.

Note: Explain is more than just a description, you want to convey a deeper understanding that can be achieved with a simple description. Try to relate the principles together and express the depth of your understanding.

Tip: A deep explanation does not need to be a long one. Aim to convey your understanding in a concise fashion.

Create an article / blog post / letter to a friend / comic / movie / podcast / etc that explains the principles of structured programming as you understand them. Write or produce your explanation as though you are producing these things for someone else learning programming in this unit.

1. Keep it to about 1 or 2 pages of text (if text based)
2. Videos or podcasts should be kept as short — but still demonstrate depth of understanding (3 – 5 minutes).
3. Creativity will be valued if it helps aid the reader/viewer's understanding of the concepts.

Tip: Including references to textbooks (not wikipedia) or research papers can help you strengthen your explanation. Remember to reference other peoples work.

Make sure your explanation covers the following:

Concepts and Principles		Programming Artefacts	
Sequence	Selection	Function	Procedure
Repetition	Modularisation	Variable	Constant
		Type	Array
		Program	For, While, Repeat
		If and Case	

Relate these to programs **you** have written in this unit.

Submit your final product to Doubtfire.

Your tutor will grade your submission as follows:

Pass – Basic Requirements Met

Credit – Good Expression of the Concepts

Distinction – Excellent Expression of the Concepts (eg: a high level of novelty or creativity in how the concepts are expressed or presented)

High Distinction – Excellent expression of Concepts in highly effective and creative way.