School of Science, Computing and Engineering Technologies

Object Oriented Programming

Pass Task 7.1: Key Object Oriented Concepts

Overview

You have been using object oriented programming to implement the programs you have created in this unit. In this task you need to express your understanding of the principles associated with this programming paradigm and how they relate to one another.

Purpose:	Express your understanding of how the programming artefacts, tools, and concepts relate to each other.
Task:	Write a short explanation of object oriented programming to outline your understanding of the associated principles and tools, and how they are used to create programs. Create an accompanying concept map to show how the concepts are linked.
Time:	This task should be completed by the start of week 8.

Submission Details

You must submit the following files:

- A PDF document with your description and accompanying concept map.

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

- For written explanations:
  - 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.
- For the concept map:
  - Demonstrates thought in what is presented, and how it is presented.
  - Relationships are clearly shown and annotated with explanations, not just listed.

Instructions

To make the most of programming, you need to deeply understand the principles that underly the paradigm that you are using.

For this task you must **explain** the principles of object oriented programming and **relate** these to the programs you have created. You must also **visualise** how these principles are related in a concept map.

Note: An explanation 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.

Tip: Refer to your visualisation (i.e., concept map) in your written explanations.

Create a document that explains the principles of object oriented programming, as you understand them. Draw a concept map to accompany your explanation, that elaborates on the relationships between the concepts and programming artefacts.

Requirements:

1. Keep it to about 1 or 2 pages of text
2. Structure your document as a list. Each item in the list should clearly communicate: which term you are defining, a definition of the term, and an example.
3. Relate the items to programs **you** have written in this unit.

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

Tip: We encourage you to use metaphors to communicate ideas.

Make sure your explanation covers the following (as a minimum, feel free to extend this):

Concepts	Artefacts	Action	Terminology
Abstraction	Class	Method Call	Value Type
Encapsulation	Object	New	Reference Type
Inheritance	Interface		Abstract Class
Polymorphism	Method		Abstract Methods
Roles	Fields		Private
Responsibilities			Public
Collaborations			Protected
Coupling			Overload
Cohesion			Override
			Virtual

Assessment Criteria

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

- Every term listed in the table is covered.
- Every term is clearly and accurately defined.
- An appropriate example is provided for every definition.
- Explanations are written in your own words and sources are correctly cited.