COS10009 – Introduction to Programming

Learning Summary Report

Gia Hy Nguyen (101922778)

Self-Assessment Details

The following checklists provide an overview of my self-assessment for this unit.

	Pass (D)	Credit (C)	Distinction (B)	High Distinction (A)
Self-Assessment (please tick)				✔

Self-assessment Statement

	Included (please tick)
Learning Summary Report	✔
Test 1 and Test 2 are Compete in Ed	✔
All Pass level tasks completed (including tutorial tasks)	✔

Minimum Pass Checklist

	Included (please tick)
All Credit Tasks are Complete in Ed	✔

Minimum Credit Checklist, in addition to Pass Checklist

	Included (please tick)
Distinction tasks (other than Custom Program) are Complete	✔
Custom program meets Distinction criteria & Interview booked	✔
Design report has structure chart and screenshots of program	✔

Minimum Distinction Checklist, in addition to Credit Checklist

	Included (please tick)
HD Project included	✔
Custom project meets HD requirements	✔

Minimum High Distinction Checklist, in addition to Distinction Checklist

Declaration

I declare that this portfolio is my individual work. I have not copied from any other student's work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part of this submission been written for me by another person.

Signature: Gia Hy Nguyen

Portfolio Overview

This portfolio includes work that demonstrates that I have achieve all Unit Learning Outcomes for COS10009 Introduction to Programming to a **High Distinction** level.

This unit is very helpful for my learning experience, it provides enough theory and practices to help me get used to the programming language and concepts. I am now having a better understanding about coding and in this part, I will indicate and justify how I have developed myself through the unit, and how did I go beyond the requirements.

1. Things that I obtain from the unit:
    - Programming mindset and logical thinking
    - Fundamental of programming:
        - Data types: Integer, String, Boolean, Float, Array, Enumeration, Record, …
        - Function and procedure
        - Parameters, arguments, variables
        - Design principles: coupling, cohesion , decomposition, abstraction, …
        - Statements: condition, assignment
        - Looping
    - Advance topic of programming covered by in this unit:
        - Using Gosu to do game programming, GUI degisn, …
        - Skills to research and read documentation to use a new library (Gosu, OpenGL, Tk, …)
        - Algorithms: complexity, recursion
    - Test and debugging
    - Clean & consistent coding style
    - Ability to read code and understand
2. How did I develop myself:
    - I watched lectures to gain knowledge, then searched for additional resources to make myself understand the topics better.
    - Solved the portfolio tasks, then got stuck, searched for solutions online, try again and repeat the loop until I can solve it.
    - Some tasks are very difficult to complete but I did not give up, I thought about it more carefully, search for the solution and tried anything I can to defeat it. And this is the most important thing and experience that helped me to push myself beyond the boundary.
3. Completed tasks:
    - 1.1T, 1.2T: introduction and help me to get used to Ruby.
    - 1.3P: helps me to understand how to use variable, type conversion.
    - 2.1T: introduce the concept of debugging and code fixing.
    - 2.2T, 2.3P, 3.1.1T, 3.1.2T, 3.2T: taught me to use functions and procedures, condition statements and looping.
    - 3.3C, 4.2T, 4.3C, 5.3C: help me to understand Gosu and how to apply it.
    - 4.1T, 5.1T: taught me how to read and write to external files.
    - 5.2T, 4.4.D, 6.1T, 6.2P, 7.1P: a combination of fundamental programming concepts, complex data types and file reading/writing.
    - 7.2C, 7.3D, 8.2D: advance use of Gosu library to make GUI program.
    - 8.1T: a revision of the general picture of all the concepts.
    - 9.1T, 12.1C: testing and debugging.
    - 10.1.1P, 10.1.2P, 11.4D, 11.2P, 11.3C: introduction and get used to other programming languages.
    - 10.2C, 10.3HD: recursion algorithm and application of it.
    - 6.3D, 9.2D, 9.3HD, 10.4HD, 11.5HD: design and completion of custom program.
4. How did I go beyond the requirements:
    - I have done all of the tasks within the expected deadlines.
    - I got stuck a lot but found out how to overcome it by myself without any help from tutor or help desk.

- All of the tests are completed in the first try.
- I help other students to solve their problems in the Discord channel of this unit.

Reflection

The most important things I learnt:

The most important thing that I have learnt from this unit is the programming mindset, I have explored a lot of fundamental principles and techniques in general programming. I now can understand how human interact with computers to make programs and how tell it to do what we want. With a good programming mindset, I can easily adapt with different programming languages and use it as a base to approach more advance programming knowledge later.

The things that helped me most were:

Resources on canvas about this unit is comprehensive and easy to find. The platform we use to submit our tasks (Ed) is also helpful, it is an all-in-one place that allow us to access both portfolio tasks and lectures conveniently. My tutor also helped me a lot with my studying. I am very thankful.

I found the following topics particularly challenging:

I think using the Gosu library is the most challenging part to me in this unit. This is a very new concept to me, and I had to spend a lot of time to understand it at the beginning. But throughout the tasks and the documentations provided by lecturer and tutor, I am able to use it nicely at the end.

I found the following topics particularly interesting:

GUI parts are the most interesting parts to me, I can create something that looks nice and is highly interactive with the users. I can visible my result and play with it, which is a very nice experience when studying programming.

I feel I learnt these topics, concepts, and/or tools really well:

I think that I have done the GUI topics (with Gosu support) very well, the evidence for this is I can complete the music player GUI (which is a very hard task to me at the beginning), and also complete the high distinction custom project using the GUI knowledge that I have learnt through the previous tasks.

The other topic that I think I did well is the recursive algorithm. This is a very unique concept that I have never learnt it from somewhere else. And the application of this algorithm is very practical and helpful in real life problems.

I still need to work on the following areas:

I think I need to practise more with the programming principles such as cohesion and coupling, the idea of these topics is to help me to have better code writing style and programming mindset, which is very helpful for my future career, and I definitely need to improve more on it.

This unit will help me in the future:

This unit has helped me to learn the basic and fundamental of general programming, I have developed my coding skills a lot throughout this unit, and it is definitely a key for me to unlock my career chances in the future.

If I did this unit again I would do the following things differently:

If I did this unit again, I would try to implement all the programming concepts and principles that I have learnt into the tasks as much as I can. I do not want to just get the tasks done, but

also done it in a better and a more efficient way. And this is also a good practice that will help me a lot in developing my skills for future career.