Introduction to Computer Programming

EMAT10007

Assignment Report Writing Guide

The purpose of the report is to explain the process of writing your program and analyse the choices you made in your code design. This document explains how you should address the main objectives of the assignment in the report.

Structure : your report should contain introduction, analysis and conclusion sections.

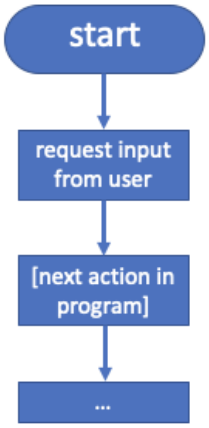
Reference any external code or ideas used, including code snippets you may have found online.

Introduction

Give an overview/summary of what your program does to show that you have attempted to implement all the required components. This should indicate the control flow of your program. This may be expressed, for example, as a flow diagram or a list of steps.

Examples:

- List of steps:
  1. Request input from user
  2. Process input by doing [next action in program]
  3. …
- Flow diagram:



Analysis

You should discuss what programming techniques you chose to meet the objectives of the assignment and discuss why you made these decisions.

Types: Appropriate use of data types and data structures

The choice of data type/structure effects how the data is handled in the program. Comment on any design choices you made and how they impacted the program.

Examples:

- *In line X (Part Y.Z), the data was converted to a Numpy array to allow elementwise operations to be performed because....*
- *In line X (Part Y.Z), the data was compiled into a list so that a list comprehension could be performed to....*
- *In line X (Part Y.Z), variable A was converted to [data type] so that....*

Concise, efficient code (use of functions, list comprehensions, imported functions from Python packages etc)

Explain how you have used programming techniques to make your program shorter, faster, more readable and less prone to error.

Examples:

- *Starting in line X (Part Y.Z), I wrote a function, [name of function], to allow this block of code to be used multiple times in the program by calling the function in lines U and V.*
- *In line X (Part Y.Z), I imported the function, [name of function], from the package [name of package] to do [describe process] as this was more concise than writing this process in pure python code.*

More advanced programming techniques (classes and user-defined libraries stored as separate .py files etc)

Explain the choices you made when implementing any additional programming techniques used.

Examples:

- *The program was arranged over files A, B and C. The purpose of file A was …, the purpose of file B was.... . Files A and B were stored in folder D because....*

- *Starting in line Z, I wrote a class [name of class] so that...*

Optional Enhancements

Explain any optional modifications you made to enhance your program.

Examples:

- *Starting in line X, I produced a bar chart showing …. by ...*
- *In line X, I modified the encryption process to...*

Conclusion

Discuss anything in your program that you think could be improved. If possible, make suggestions for what you could try to do to improve it if you had more time. This can include making improvements to the existing program (e.g. to make the code more concise) or enhancements that you would add to the program to give additional functionality.