

ENSC 251 Final Project Document

Task Breakdown:

Total:

Evan – 8 marks

Darren – 11.5 marks

Leon – 6.5 marks

Anushka – 4 marks

Part 1:

1. [3 marks] - Evan

2b. [1.5 marks] - Darren

2c. [1 mark] - Darren

2d. [1 mark] - Darren

2e. [2 marks] - Leon

2f. [1 mark] - Leon

3. [2.5 marks] - Anushka

Part 2:

[3 marks] - Darren

Part 3:

[3.5 marks] - Leon

Part 4:

[1.5 marks] - Anushka

Part 5:

[5 marks] - Darren (functions.hpp)

Part 6:

[5 marks] – Evan

Innovations:

5 new user-defined functions in our custom functions.hpp file that is used throughout the program:

- 1) isNumerical – checks whether an inputted string is an integer
- 2) toLowerCase – converts an entire string to lower case
- 3) toUppserCase – converts an entire string to upper case
- 4) isDouble – checks whether an inputted string is a double
- 5) compareDoubles – checks whether a double is equal or not. This is especially useful when checking doubles that have been converted from strings, as sometimes they are a few decimals off, as shown in the document below:

```
double one = temp->getCGPA(); one: 2.8499999046325684 temp: 0x1b9dc687bc0  
double two = stod( str: inputSearchOne2); two: 2.8500000000000001 inputSearchOne2: "2.85"
```

Where temp->getCGPA is a double 2.85 and inputSearchOne2 is 2.85.

Big O Analysis Results:

Insert Function: $O(n)$

Search Function: $O(n)$

Delete Function: $O(n)$

Merge Function: $O(n)$