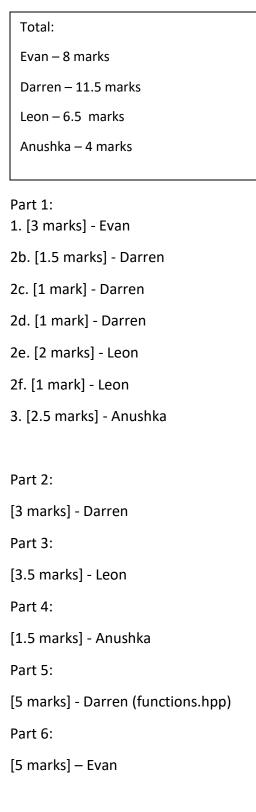
## **ENSC 251 Final Project Document**

## Task Breakdown:



## 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: 2.850000000000001    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)