**ALGORITHM (30 points)**

English, no code references, no references to functions either custom, or library,

Get user data

Run until user want to exit:

Display main menu

Get user option

If option is A:

Read StudyHours.txt file:

Read name and capitalize first letter in each word

Read credits and validate it

while credits is not valid:

Get valid input from user

Read grade and validate it

while grade is not valid:

Get valid input from user

Calculate total number of working hours

Write these updated data back to StudyHours.txt

Sort the data by name

Write name, credits, total working hours, grade to “HowManyHours.txt”

If option is B:

Read Grades.txt file

Read credits and validate it

While credits is not valid:

Get valid input from user

Read total number of hours and validate it

While hours is not valid:

Get valid input from user

Calculate grade

Write these updated data back to Grade.txt

Sort the data by name

Write name, credits, total working hours, grade to “HowManyHours.txt”

If option is C:

Open and read “HowManyHours.txt” files

Calculate total number of users

Calculate average credits

Calculate average working hours

Display user details

Display count, average credits and average working hours

**VARIABLES/CONSTANTS (5 points)**

username (String)

employee\_id (String)

department (String)

count (Int)

name (String)

tempCredit (Int)

tempGrade (Char)

hours (Int)

creditValue (Int)

data (List)

lines (List)

index (Int)

hoursPerWeak (Dictionary)

**FORMULAS (5 points)**

total\_working\_hours = working\_hours \* credits / 3

average\_credits = credits\_count/count

average\_study\_hours = hours/count

**HIERARCHY – Main Program Only (10 points)**

**TEST DATA – 5 complete data sets (10 points)**

You do NOT need to enter test data on the design document. You need to **ADD 5 NEW RECORDS** including at least one invalid record to each of the input files (*StudyHours.txt* and *Grades.txt*). You DO need to submit the text files with your project.

**UML Class only – (10 points)**

**Table

Description automatically generated**

**CODE (submitted in separate file) (30 points)**