Assignment #5 – Student Grades

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**The Math:**

**Constants:**

5 courses

**Questions:**

1. Calculate Average grade:

(Windows + HTLM + Communications + Programming + Hardware) / 5

**Pseudocode:**

1. Open studentGrades.txt
2. Read and store data (7 lines) – line by line
3. Calculate average grade using lines 3-7 (Windows, HTLM, Communications, Programming, Hardware)

Add scores and divide by 5

1. Determine if student has obtained Honours. (Average of 80% with no marks below 80%)
2. Print data from lines 1-7 (Student ID, Student Name, Windows, HTLM, Communications, Programming, Hardware), Average, and Honours if obtained.
3. Output Student ID, Student Name, and Average to file named studentAverage.txt
4. Loop until empty string is detected in studentGrades.txt
5. Close studentGrades.txt

**Code:**

#Program: Assignment #5

#Written By: Andrew McDonald (W0426368)

#Date written: 11 Mar 19

#Purpose:Import student grade data, determine average and honours then output data to new file

def header():

#Display header data

print()

print('\t\t\t\t\t\t\t\tStudent Grade Report')

print('------------------------------------------------------------------------------------------------------------------------------------')

print('Student ID \tStudent Name \t\tWindows \tHTLM \tCommunications \tProgramming \tHardware \tGrade Average')

print('------------------------------------------------------------------------------------------------------------------------------------')

#Write header to studentAverage.txt

Grade\_Output = open('studentAverage.txt', 'w')

Grade\_Output.write ('Student ID \tStudent Name \t\tGrade Average \n')

Grade\_Output.close()

def read\_data(Student\_Grades):

#begin to read file line by line

Grade\_Data = Student\_Grades.readline()

#begin reading loop until empty string

while Grade\_Data !='':

Student\_ID = Grade\_Data.rstrip('\n')

Grade\_Data = Student\_Grades.readline()

Student\_Name = Grade\_Data.rstrip('\n')

Grade\_Data = Student\_Grades.readline()

gradeWin = float(Grade\_Data)

Grade\_Data = Student\_Grades.readline()

gradeHTLM = float(Grade\_Data)

Grade\_Data = Student\_Grades.readline()

gradeCom = float(Grade\_Data)

Grade\_Data = Student\_Grades.readline()

gradePro = float(Grade\_Data)

Grade\_Data = Student\_Grades.readline()

gradeHar = float(Grade\_Data)

#Calculate total grade for average

Grades\_total = gradeWin + gradeHTLM + gradeCom + gradePro + gradeHar

#Calculate average grade

Grade\_average = (Grades\_total/5)

#Determine honours

if gradeWin >= 80 and gradeHTLM >= 80 and gradeCom >= 80 and gradePro >= 80 and gradeHar >= 80:

Grade\_check = 1

else:

Grade\_check = 0

if Grade\_average >=80 and Grade\_check == 1:

Honours = '(Hons.)'

else:

Honours = ''

#Print data from studentGrades.txt

Grades = Student\_ID + '\t\t' + Student\_Name + '\t\t'

Grades += format(gradeWin, '.2f') + '%\t\t'

Grades += format(gradeHTLM, '.2f') + '%\t'

Grades += format(gradeCom, '.2f') + '%\t\t'

Grades += format(gradePro, '.2f') + '%\t\t'

Grades += format(gradeHar, '.2f') + '%\t\t'

Grades += format(Grade\_average, '.2f') + '%\t'

Grades += Honours

print(Grades)

#Write to studentAverage.txt

Grade\_Output = open('studentAverage.txt', 'a')

Grade\_Output.write (Student\_ID + '\t\t')

Grade\_Output.write (Student\_Name + '\t\t')

Grade\_Output.write (str(Grade\_average) + '% ')

Grade\_Output.write (Honours + '\n')

Grade\_Output.close()

Grade\_Data = Student\_Grades.readline()

def main():

#Open studentGrades.txt

try:

Student\_Grades = open('studentGrades.txt', 'r')

#Show errors with file if any exist

except Exception as err:

print('Error - Problem trying to read file!')

print(' ǀ The following problem has occured')

print()

print(err)

#If no errors continue on

else:

header()

read\_data(Student\_Grades)

#Close studentGrades.txt

Student\_Grades.close()

main()