

ANKARA UNIVERSITY
COMPUTER ENGINEERING DEPARTMENT
Computer Programming II
Spring 2022-23

LAB7 Quiz
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Write a program in which the grades of two classes and the number of students in these classes are given as input and the letter grades for these classes are determined according to a bell curve method and the numbers of the letter grades are found by using a function. The bell curve formula for each student is as follows:

$$10*((\text{Current Student's Grade} - \text{Grade Average of the Class}) / \text{Standard Deviation}) - 50.$$

The letter grade will be determined according to the following grade ranges by the result from this formula.

- Under 40 points: FF
- 40 – 49.99 points range: DC
- 50 – 59.99 point range: CC
- 60 – 69.99 points range: CB
- 70 – 79.99 points range: BB
- 80 – 89.99 points range: BA
- 90 and over 90 points: AA

For the simplicity, letter grades other than FF and AA will be evaluated in one group as the others. The **standard deviation will be taken as 10** for both classes. **Average variable will be used in integer data type.** You should also print which class is better by looking at the average of the class grades.

You have to use function and pointers. Variables where the number of letter grades have to be kept as pointers. The function you will use should be as follows:

void grades(int class[], int avg, int sD, int nclass, int *nFFs, int *nAAs, int *nOthers)

In here,
int class[]: array of class A or B
int avg: average of the related class
int sD: standard deviation
int nclass: number of the elements in the related class
int *nFFs: pointer for the number of FF letter grade
int *nAAs: pointer for the number of AA letter grade
int *nOthers: pointer for the number of different letter grades than AA and FF.

I/O Format:

Input format: Integer numbers

Output format: Text

Example:**Input:**

14 13	→ number of grades for Class A and B
25 50 75 100 90 6 0 22 0 13 33 4 0 12	→ student grades of Class A
5 34 66 10 10 65 23 12 30 93 84 14 20	→ student grades of Class B

Output:

The number of AAs: 5
The number of other grades: 12
The number of FFs: 10
Class A is better than Class B

Submission:

1-Name your C source file as <student_id>.c; replace <student_id> with your student id number.

2-Upload your C file using the interface provided in e-kampüs course page.

Compiling Process

Compiling your program and to use the input file

//normal compile process

gcc yourfilename.c -o yourprogramname

//running compiled program

./yourprogramname

//to use .txt file as input

./yourprogramname<input.txt

// to use .txt file as input and to print the results to .txt file

./yourprogramname<input.txt>output.txt

// to compare two files

diff -w filename1 filename2

Please, PAY ATTENTION TO THE I/O FORMAT!