CMSC 21 Fundamentals of Programming

Structures Exercise

Implement a GWA calculator for 6 courses/subjects. The GWA can be calculated by getting the

sum of all weighted grades (units \* grade) divided by the total number of units.

A course has the following properties:

● string title (size of 256) - the course title (e.g. Fundamentals of Programming)

● course\_code code - the course code (e.g. CMSC 21) which consists of:

○ string name (size of 10) - the subject of the course (CMSC)

○ int num - the number of the course (21)

● int units - the number of credited units

● float grade - the grade issued on the said course

Your application should be able to:

1. Print a menu that has the following capabilities, each has its own function (except Exit).

This menu should loop indefinitely until the user inputs exit:

a. Add Course

adds a course to the current list given that the current courses\_count is less than

6. It should ask the user for the course title, course code, units, and grade.

b. Edit a Grade

shows the summary of courses, with respect to courses\_count, and asks the user

which course they wish to edit the grade. It should only update the grade of the

chosen course.

c. Calculate GWA

shows the summary of courses and prints the GWA.

d. Exit

Exits the program.

These are the minimum requirements of the exercise but feel free to add functions if you think it

is necessary.

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Sample Input/Output:

-- GWA CALCULATOR --

1. Add a Course

2. Edit a Grade

3. Calculate GWA

0. Exit

Choice: 1

Enter course title: Fundamentals of Programming

Enter course code: CMSC 21

Enter units: 3

Enter grade: 1.00

[!] Course successfully added.

-- GWA CALCULATOR --

1. Add a Course

2. Edit a Grade

3. Calculate GWA

0. Exit

Choice: 1

Enter course title: Discrete Mathematics II

Enter course code: CMSC 57

Enter units: 3

Enter grade: 1.25

[!] Course successfully added.

-- GWA CALCULATOR --

1. Add a Course

2. Edit a Grade

3. Calculate GWA

0. Exit

Choice: 3

Course Summary

1. CMSC 21 (Fundamentals of Programming) 3 units - 1.00

2. CMSC 57 (Discrete Mathematics II) 3 units - 1.25

Your GWA is: 1.1250

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-- GWA CALCULATOR --

1. Add a Course

2. Edit a Grade

3. Calculate GWA

0. Exit

Choice: 2

Course Summary

1. CMSC 21 (Fundamentals of Programming) 3 units - 1.00

2. CMSC 57 (Discrete Mathematics II) 3 units - 1.25

Grade to edit: 2

Enter new grade for CMSC 57: 1.00

[!] Grade successfully updated.

-- GWA CALCULATOR --

1. Add a Course

2. Edit a Grade

3. Calculate GWA

0. Exit

Choice: 3

Course Summary

1. CMSC 21 (Fundamentals of Programming) 3 units - 1.00

2. CMSC 57 (Discrete Mathematics II) 3 units - 1.00

Your GWA is: 1.0000

-- GWA CALCULATOR --

1. Add a Course

2. Edit a Grade

3. Calculate GWA

0. Exit

Choice: 0

Bye!

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BONUS:

● Implement a semester functionality. A semester has a year, time (1, 2, M), and an array

(size of 6) of course. Your program can store up to 4 semesters and should now have

the following functionalities:

○ “Add Semester”

○ “Add Course in Semester”, “Edit a Grade of Course” - both of which will ask for

the semester first

○ “Calculate Overall GWA” - calculates the GWA from all courses on all semesters

○ “Calculate GWA of Semester” - asks which semester first before calculating the

GWA

● Implement a delete functionality. You should be able to “delete” a course. With this

functionality, if you have deleted a course, it should not be printed in the course

summary and it should not affect the GWA. Adding a course, once you have deleted,

should be reflected to the summary and GWA.