Ahsanullah University of Science and Technology, Bangladesh

CSE 1102: Elementary Structured Programming Lab (Fall 24)

Structure Practice Problems

SL	Problem statement	
1	Write a C program where you will write two structures : **Student** and **Teacher.** A **Student** structure will have the members **roll** and **marks.** A **Teacher** structure will have the members **id,name** and **studentList (array of structures of size 5);** Create two teacher instances. Then insert the information about the teachers (id, name , studentInfo). Then you will have to insert the information about the students who are under those teachers (use for loop). Finally print the values of members of the two teacher **structures.** **Sample Input:** Enter teacher 1' name: Afrin Enter teacher 1's id: 100 Enter teacher 1's student info : 1 10 2 20 3 30 4 40 5 50 Enter teacher 2' name: Jarin Enter teacher 2's id:200 Enter teacher 2's student info : 100 11 200 21 300 31 400 41 500 51 **Sample Output:** Teacher id: 100 Teacher name: Afrin The students of teacher Afrin are: (1,10) (2,20) (3,30) (4,40) (5,50) ********** Teacher id: 200 Teacher name: Jarin The students of teacher Jarin are: (100,11) (200,21) (300,31) (400,41) (500,51) **********	

<table>
<tr>
<td>2</td>
<td>Determine which teacher’s students have the higher average marks.
For the given sample input, the output will be as follows:

The students of teacher Afrin have a total number of 150 and an average number of 30.
The students of teacher Jarin have a total number of 155 and an average number of 31.
The students of Jarin have better results.</td>
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<td>3</td>
<td>Write a C program where you need to do the followings:
● Define three structures namely Date, Book, Student with necessary member variables.
Member variables of the three structure are shown in the following table:

<table>
<tr><th>Structure</th><th>Members</th></tr>
<tr><td>Date</td><td>day, month</td></tr>
<tr><td>Book</td><td>Book Name, Issuing Date, Return Date
(Issuing date and Return date are two instances of Date structure.)</td></tr>
<tr><td>Student</td><td>ID, Name, Issued Book 1, Issued Book 2
(Issued Books are two instances of the Book structure)</td></tr>
</table>
● Construct a function named Calculate_Fine() that will take a Student instance as parameter and calculate the total fine if that student hasn’t returned the books within the due date. (Each book has to be returned within 5 days of being issued. Otherwise the student has to pay a fine for each passing day and the fine rate is Tk 50 per day for each book.)
Explanation: [You may consider that each month has 30 days for ease of calculation. E.g. If the issuing date is 5/10 and the return date is 15/11 then the day difference may be considered as 40 days and the fine will be calculated for 35 days].
● Create one instance of “Student” in the main() function.
● Take user input for all member variables of the student from the main() function.
● Finally, from the main() function, call the Calculate_Fine() function by passing a valid argument and print the total fine of that student.</td>
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<td>4</td>
<td>Prepare a Date Structure, it will have the following members
Day, Month, Year
Now write a function that will take two dates and compare them.
Sample Input:
Enter Date 1:
Day : 1
Month :1
Year : 1997</td>
<td></td>
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	Enter Date 2: Day : 1 Month :1 Year : 1999 **Sample Output:** Date 1 is earlier than Date 2	