Object Oriented programming

Assignment 1

Due Date: 17 March 2022.

Total marks 50

Note: Do not copy code from internet or any other source even across the sections. I will check the plagiarism of the assignment and it will capture the cheated code from internet or copied from class fellows. Those who will try they will get some marks for their effort even you do not get perfect solution. Copied & Shared work will score in negative grading. Assignment should be in visual Studio. You will send .c and .exe file in zipped format. Write "System Pause" at the end so that exe screen does not vanish instantly. After submission, no excuse will be entertained. No assignment will be accepted after due date.

Q1. Write a C++ program to keep track of the records of 5 students. The information of each student contains RollNum, Name, Gender, Test Scores (2 tests per semester), mid-term score, final score, and total score. **15**

Write a function to display the menu. Menu should represent 1 to 6 choices.

Use array of structures.

I.	Add student record from user	3
II.	View all student records	3
III.	Calculate average score of a student	3
IV.	Show student who gets the max total score	3
V.	Find a student by ID	3

Q2. Find the largest number between four numbers by defining a function which returns a pointer. int* SearchGreater(int*, int*, int*, int*); Use C++ language. 5

Q3. Write a C++ code which will take an array of size 10 as input from the user through a function named getdata(). Function should be function pointer that will return an array and call another function adddata() and return the array to the main where you will display the array. Remember Array is also a constant pointer. 5

Q4. The CS department needs your help to assign Letter grades to newly admitted students. The help is needed for the course OOP. If a student takes marks greater than 90 out of 100 then he/she must be awarded A+ grade letter, if marks are between 80 and 90 out of 100 then you may assign the student grade A, for the range 70 to 80, B+ is given and for from 60 to 70 grade B will be fine and from 50 to 60 we can give them B- but all marks obtained below 40 must be categorized as F and from 40 to 50 we may grant them a D. If a student fails, the program must also them that they have failed and needs to enroll again. Write a C++ code to serve the purpose. You have to make a class named "Student" that has Roll_number, total marks and a function/method named"CalculateGrade ()"as its members and the function should display corresponding grades. For each student you have to add the corresponding information after taking **input from user** and then calculate Grade for each student added using your "CalculateGrade()" method. 15

Q5. Write a class name fraction, whose two members are the fraction's numerator and denominator (both type int). For input make a member function that will accept the input in this format 8/3 from

the user and outputs the result in the same form. There should be another member function to sum up two fractions. In the main() function, ask user to enter two fractions and then show their result. After each operation, ask whether the user wants to continue. 20

Good Luck . . .