CS200 Computational Problem Solving
Spring 2020-21
Monday 1 February 2021

Lab 03: Exercise
CLASSES

Lab Guidelines

1. Make sure you get your work graded before the lab time ends.
2. You put all your work into the folder **Lab03_YourRollNo_TAname** and submit it on LMS (Assignment>Lab01) before the time the lab ends.
3. Talking to each other is NOT permitted. If you have a question, ask the lab assistants.
4. The object is not simply to get the job done, but to get it done in the way that is asked for in the lab.
5. Phone is NOT allowed. Put it in bag or at instructor desk.
6. Any cheating case will be reported to Disciplinary Committee without any delay.

Coding Conventions:

1. Constants are “ALLCAPS” or “ALL_CAPS”.
2. Variables are “allsmall” or “all_small”.
3. All function names must be “firstWordSmallAllOtherWordsCamelCase”.
4. All class names must be “CamelCaseWords”.
5. All curly brackets defining a block must be vertically aligned.

Marks: Name: _____ Roll #: _____

Task1									Total
									10

Task2									Total
									20

Task 3									Total
									30

Task 4									Total
									40

Total Marks Obtained

/100

TA: _____

Let’s Begin

Task 1: [10 marks]

Create a class of **Marks** that contains marks of each subject as members. Subjects will be: English, Urdu, Math, Science, History. Make Input and Display functions in class. Create a function that calculates the percentage of the student and displays it. (Assume that the marks of each subject are out of 100).

Task 2: [20 marks]

Create a class of **Student** containing the personal information of the student. (Members in class will be: Name, roll number, school, major, and GPA). Make an array of 5 students in main functions of type Student. And fill the array by taking input from user.

Student arr[5];

Now the program asks the user to input a name and display its details if the user is found.

Task 3: [30 marks]

You have to make a class of **DateTime** that include date, month, year, hours, minutes and seconds as members. (Take time in 24 hour format) In main function, take 2 DateTime inputs from the user and tell which is the later DateTime. Also make a function that finds difference between the two dates. The difference is to be printed in terms of years, months and days.

Task 4: [40 marks]

Make a class of **Fraction** that contains two members, denominator, and nominator. Also create a default constructor. Make a program that allows user to input two fractions and then ask them to perform basic operation ADD, SUBTRACT, MULTIPLY AND DIVIDE. The answer should be displayed in its simplest form. Make sure you handle all the exceptions such as fraction denominator cannot be zero or dividing a fraction by zero or negative fractions etc.
