CS-224: Object Oriented Programming & Design Methodologies

Assignment 02

Duration: 2 Weeks

Submission Deadline is Thursday Midnight of the 2nd Week (28th September, 1159 pm). No late submissions will be accepted.

ALWAYS READ THIS PAGE BEFORE CONTINUING

Guidelines:

For assignments, you will be making groups of 2. This means that 2 students can submit one solution and it will be counted for both. Be extra careful about your submission as plagiarism will count on both group partners if done.

It is strongly recommended that **everyone does the assignment themselves** even if one solution is submitted. Your midterm exams may contain questions done in the assignments. Unless you do the assignment yourself, you will be unable to score in the midterms.

The instructors may choose to take viva of the students if required.

It is better to submit incomplete assignment than none at all.

It is better to submit the work that you have done yourself than what you have plagiarized.

It is strongly advised that you start working on the assignment the day you get it. Assignments **WILL** take time. Also, Google is your friend in case you get stuck or do not know about stuff.

Do not try to make the assignment in one sitting. Pick one function at a time and solve it in a separate project. Make a new project and combine everything in it once you are confident of your solution.

Do not forget to properly comment your solution. Also give proper names to variables. Make a habit of using camel casing! Properly indent your code as well!

Deliverables:

For this assignment you need to submit a single CPP file. Suppose your name is John Doe and your id is 0022 so the name of the submitted file should be JohnDoe0022.cpp

Failure to comply will get you ZERO marks for not following clearly written instructions. Make sure that your SCM is working properly

You will upload your solutions to git hub. DO NOT MAIL THE ASSIGNMENT TO ANY INSTRUCTOR.

HOTEL MANAGEMENT SYSTEM

Pearl Continental Hotel Rawalpindi requires a hotel management system to support its administration. The major features of a hotel are:

- there are three floors numbered 1,2 and 3 each of which has ten rooms
- each room has a room number, e.g. 201 for room 1 on floor 2
- each room has a phone number which is actually created by adding a zero before the room number. So 0201 belongs to room 201.
- each room has a different occupancy which can range from 2 to 5
- each room has a refrigerator which can hold a total of 10 cold drinks, which can be Pepsi, Fanta and Sprite and their capacity is 200, 250 and 300 ml.
- guests drink these drinks at random. Whenever the count falls below 3, the staff replenishes the supply by adding random drinks.

A room can be booked to one or more persons with each person having a Name, CNIC and Date of Birth. Information of all persons needs to be added. The booking mechanism has the following key features that need to be implemented:

- adds persons to the room according to its occupancy and marks room as booked
- add date and time of booking and its charges (Day/Month/Year and Hour/Minute/Second)
- upon check out it removes all persons from the room and marks it as not booked

Staff should be able to obtain details of each room in a variety of ways. The user must be able to request information for the following reports:

- all the rooms on all floors
- all the rooms on a particular floor
- display the booking details of a particular room which includes the people staying in the room, the cold drinks available and the cold drinks used

Finally, your code should simulate actual behavior. Which means people coming and leaving for a week. This means that you are going to run 7 iterations. Every day a random number of people are going to ask for a room and they will be assigned appropriate rooms. You can make a file that contains the details of all the guests which frequent the Hotel. At the end of simulation, you will generate a file containing all the details of all the guests who left the hotel showing when they left and at what time and also how long they stayed based on the date and time of booking and the date and time they checked out.

You as programmers are required to design an efficient C++ application that creates classes presented in the scenario. Extensive use of arrays and pointers is expected during development.

GOOD LUCK!