Object Oriented Programming

Lab Task 02

Note:

● Copied task will be awarded zero marks.
● Note that these lab task marks could be graded through a viva in lab.
● Submit the .cpp file for each task in google classroom and rename it with your
  roll no and name.
  For example: Ali_Ahmed_22p9023_task1.cpp.
● Lab Tasks will be graded in Lab.

1. Write a program that takes the name and password of a person. The
   password should be passed to a function as an argument. The function
   should check if the password is fulfilling the following requirements:

   • Password must be 8 characters long.

   • Password must contain at least one special symbol (%, !, *, ^, &).

   • (Plus, you can further add your restrictions too, recommended but
   optional). If any of the above-mentioned criteria's is not fulfilling the
   program must prompt the user to enter a valid password again.

   • When all the criteria of the password fulfill, the program asks again to
   enter the password to display a secret message. If it matches with the
   information entered by the user previously. The program should display a
   message "You know what? You can be a great programmer. Keep Coding!".
   You can display your own funny/customized message too.

2. Write a C program that does the following according to user input. It's a
   menu-driven program. The user is asked to enter a string. Then the program
   displays the following menu:
   - A) Count the number of vowels in the string
   - B) Count both the vowels and consonants in the string
   - C) Display the most frequent character in the string.
   - D) Concatenate another string with the existing string.

- E) Exit the program. The program performs the operation selected by the user and repeats until the user selects E to exit the program.

3. There is a hotel in Murree which has 4 floors and each floor has 5 rooms in a sequence. The first two floor rooms (basement and ground floor) contain elite rooms (business class rooms) that cost 10,000 RS per day. The upper two floor rooms are economy class rooms (budget friendly) that costs 6000 Rs per day. Your task is to design a program that is menu driven and ask the user whether he wants to:
• Book a room.
• Show available rooms.
• Exit the program
If the user wants to book a room, then ask the user to enter the floor and room number that he wants to book and also the total number of days for which he wants to book the room. The program then books the room if it is not already occupied and displays the message "Floor: n, Room m, successfully booked". Your total cost for X days is Y Rupees. If the room is already booked then the program should display a message accordingly and asks the user to book another room. User can also see which rooms are booked and which are not. Booked rooms are represented using a * and available rooms are shown using – symbol. The program should repeatedly ask the user to select from an option until the user presses 3 to exit the program. Your program must be user friendly and you must validate all the inputs. Note: In your program the floors and the rooms are basically a 2D array so you have to perform operations on this 2D array. See the screenshot below for a better picture!

```
Choose from menu:
1. Show Available/Booked Rooms
2. Book a Room
3. Exit the program

2

enter the floor no in which you want to occupy a Room: (1 - 4) 3

enter the room number you want to occupy (1 - 5) 4

For how many days you want to book the room? 3

Room successfully booked on Floor 3, Room 4
Your total cost is: 18000 R.S

Choose from menu:
1. Show Available/Booked Rooms
2. Book a Room
3. Exit the program

1

- indicate the room is available. * indicate the room is booked
- - - - -
- - - - -
- - - * -
- - - - -


Choose from menu:
1. Show Available/Booked Rooms
2. Book a Room
3. Exit the program

2

enter the floor no in which you want to occupy a Room: (1 - 4) 3

enter the room number you want to occupy (1 - 5) 4

Sorry this room is already booked.

Choose from menu:
1. Show Available/Booked Rooms
2. Book a Room
3. Exit the program
```