DSA Lab Final Exam (Fall 2022 - BSCS)

Allowed Time = 90 minutes

Version: X1

Instructions for Invigilators:

1. Students will have total 90 minutes to finish the whole exam.
2. It is up to the students to manage their time.

Instructions for Students:

1. There are only 2 questions in the exam.
2. Late submissions will **NOT** be considered.
3. Create as many classes and functions as required. Remember, one function for one functionality.
4. Plagiarism will not be tolerated in any case.
5. Use meaningful variable names, and take care of naming conventions and indentation.
6. The format of the name of your submission should be
   - *RegisterionNumber_Name_Course_Section*.
   - For eg: ***L1F13BSCS2124_MohsinAbbas_DSA_SEC_D***

Time allowed = 90 minutes;

Marks: 100 = 50 + 50

Question 1:

Suppose you are working for a hotel chain that needs to maintain a list of reservations for each guest. Each reservation is identified by a unique integer identifier. Your team has decided to use an unordered_map to store the reservations for each guest, with the guest name as the key.

Write a C++ program to implement the reservation system and support the following operations using a menu:

1. Insert a new reservation ID into the map for a given guest name
2. Delete a reservation ID from the map for a given guest name
3. Print all reservation IDs and corresponding guest names in the map
4. Exit

Question 2:

Suppose you are developing a program to manage an online store's inventory. Each item in the inventory is represented by a unique integer item code. You decide to use a binary search tree to store the item codes, with the integer as the key for each node. Write a C++ program that allows the user to add new item codes to the inventory, display all the item codes in the inventory in descending order and search for a specific item by its code.