Week_6_Assignment Due Sunday by 11:59pm Points 15 Submitting a file upload File Types pdf, doc, and docx Available Oct 4 at 12am - Oct 17 at 11:59pm Instructions

The work will be done on individual basis. The Tasks in the questions and the Rubrics are completing each other. The Assessment is graded and contributes to the final grade. You may choose to resubmit it (in case you did not resubmit), in that case you have no chance to resubmit any other work in the course. If you have legit reasons for not submitting on time, submit them to the facilitator 24 hours before the due time. Keep the github repositories public until the trimester ends. Grade appeal for the assignment will be done in 48 hours after the grades are released (beyond then, the appeal will not be valid). The assignment contributes 15% to the final grade Submission of AI Generated Codes is not Permitted (0 will be given as a grade) Tasks to Complete

Qn 1. Music Playlist Manager

Assessment Goals:

Implement a linked list with the right applications of algorithms. Play music in C Tasks:

Implement a system to manage a playlist of songs (every node is a song with a name, and time length as the details). A new song to the list, every new song will be appended to the end of the playlist. The play starts from the beginning of the linked list. Once the song completes, the next song will be played. Qn2. Binary Search Tree (BST) for Databases

Assessment Goals:

Store data in BST Access and manipulate data in a BST Implement a database. Tasks:

Implement a simple database system where data is stored in a binary search tree. Insert new products (node) with details like product ID, name, price, and quantity. Search for products by name. Update product details. Display products in sorted order. Track out-of-stock products. Qn3. Recommendation System in Social Networks

Assessment Goals:

Use graphs in real-world applications Search through a graph using DFS Tasks:

Create a recommendation system that uses DFS to suggest new connections Represent users as nodes and connections as edges in a graph. Use DFS to explore the network and find potential new connections. Recommend each node new members that are found in its network without a direct connection.

Qn4. Emergency Room Patient Management Assessment Goals:

Implement heaps (max-heap) Traverse the heap Heapify the heap

Tasks:

Store patients in a max-heap based on the severity of their condition. Extract the patient with the highest severity for treatment. Update the severity as conditions change. Display the current queue of patients waiting for treatment. Rubric Week 6_assignment_rubric Week 6_assignment_rubric Criteria Ratings Pts This criterion is linked to a Learning OutcomePlaylist Manager The program that leverages linked list data structures and algorithms to play music 3 to >2.0 pts Full Marks The Program submitted implements a linked list where every

node is a song with a name and time length. The program would allow the user to add a new song which will be appended at the tail of the list. The user would use the program to play the songs where playing would start from the beginning. 2 to >1.0 pts Good The program submitted works exactly like in the full marks rating but the details (name and time length). Otherwise, playing music, adding a new song and taking the next song upon completing the previous. 1 to >0.0 pts Fair The program works well but only played a static list of music predetermined. 0 pts No Marks No submission or incorrect submission 3 pts This criterion is linked to a Learning OutcomeDatabase Implementation Use Binary Search to create a database 4 to >3.0 pts Full Marks The submission is an implemented database that stores data in a binary search tree for products where for each product there will be product ID, product name, product price, and product quantity. Search products by name Update product details like quantities Display the products in ascending order by name Display the products that are out of the stock 3 to >2.0 pts Good The program works exactly like in the full marks rating but can only update one field of the product 2 to >1.0 pts Fair The program works in the full marks but fails to identify out of stock items and hence does not display those elements 1 to >0.0 pts Fair The program only performs one of the operations either searches, adds a product, or returns products in ascending order 0 pts No Marks No submission, or incorrect submission or implement without using BST