S. Y. B. Tech

Academic Year – 2022-2023 Semester -I

[CB2106]: Advanced Data Stuructures Lab

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| **List of Laboratory Assignments for Practical Exam** | |
| **1** | Tina loves cookies and wants the sweetness of some cookies to be greater than value k. To do this, two cookies with the least sweetness are repeatedly mixed. This creates a special combined cookie with:  sweetness = (1st Least sweet cookie + 2nd least sweet cookie).  Use linked list to maintain all the cookies & add newly created cookie at the end of linked list |
| **2** | You are given a pointer to the root of a binary search tree and values to be inserted into the tree. Insert the values into their appropriate position in the binary search tree and return the root of the updated binary tree. |
| **3** | Consider threading a binary tree using preorder threads rather than inorder threads. Design an algorithm for traversal without using stack and analyze its complexity.Given the sweetness of a number of cookies, determine the minimum number of operations required. |
| **4** | Determine the minimum cost to provide library access to all citizens of India. There are cities numbered from 1 to n. Currently, libraries are not found in every city. Find the shortest route between each city and city "xyz," which has a library.. |
| **5** | Given an undirected graph of N nodes and N weighted edges, it doesn't contain parallel edges nor self loops, Find out a cost of minimum spanning tree. |
| **6** | Prepare a hash table for employee record  Perform following operation on it.   1. search an employees ID. 2. Insert a new employee record. |

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| **7** | Implement the full AVL tree insert function, and write a program that demonstrates that your AVL tree is capable of handling a number of insertions while remaining balanced. |
| **8** | Main canteen of Mumbai university has n hungry students waiting in line. Each unique order, i , is placed by a student at time ti, and the order takes di units of time to process. Now canteen incharge wanted to know the sequence in which the orders will be completed so that order which is completed first is served first which resulting in less chaos in canteen during the break hours but he doesn't know how to solve this problem, so he asks you to solve this problem Given the information for all n orders, can you find and print the order in which all n students will receive their orders? If two or more orders are fulfilled at the exact same time t, sort them by ascending order number. |
| **9** | Perfrom linked list operation   1. Insterting node 2. Deleting node |
| **10** | Perform Circular linked list  1.Insertion at the beginning  2. Insertion at the end  3. Delete the first element |
| **12** | Create BST and display node using   1. Pre-order 2. In-order 3. Pos-order |
| **13** | CreateThereaded binary tree and find out depth |
| **14** | Perform DFS Traversal of graph using adjacency matrix |
| **15** | Perform BFS Traversal of graph |
| **16** | Perform dijkstra’s algorithum |
| **17** | Perfoerm on linear probing in open addressing |
| **18** | Program to delete node from Max heap. |
| **19** |  |
| **20** |  |