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| **List of Experiments** | | | | | | |
| **Subject: Advanced Data Structures Lab (ADSL)** | | | | | | |
| **CLASS: SE** | | **SEMESTER: IV** | | | | |
| **Academic Year : 2019-20** | | | | | | |
| **Sr. No.** | **Title of Experiment** | | **CO** | **PO** | **PSO** |
|  | **Bridge the Gap:** Implementation of single linked list | |  |  |  |
|  | **Group A Assignments** | | **CO** | **PO** | **PSO** |
| 1 | Beginning with an empty binary search tree, Construct binary search tree by inserting the values in the order given. After constructing a binary tree -  i. Insert new node  ii. Find number of nodes in longest path  iii. Minimum data value found in the tree  iv. Change a tree so that the roles of the left and right pointers are swapped at every node  v. Search a value | | C203.1 | 1,2,3,4 | 1,2 |
| 2 | A book consists of chapters, chapters consist of sections and sections consist of subsections.  Construct a tree and print the nodes. Find the time and space requirements of your method. | | C203.1 | 1,2,3,4 | 1,2 |
| 3 | For given expression eg. a-b\*c-d/e+f construct inorder sequence and traverse it using postorder traversal(non recursive). | | C203.1 | 1,2,3,4 | 1,2 |
|  | **Group B Assignments** | |  |  |  |
| 4 | Write a function to get the number of vertices in an undirected graph and its edges. You may assume that no edge is input twice.  i. Use adjacency list representation of the graph and find runtime of the function ii. Use adjacency matrix representation of the graph and find runtime of the function | | C203.2 | 1,2,3,4 | 1,2 |
| 5 | There are flight paths between cities. If there is a flight between city A and city B then there is an edge between the cities. The cost of the edge can be the time that flight takes to reach city B from A, or the amount of fuel used for the journey. Represent this as a graph. The node can be represented by airport name or name of the city. Use adjacency list representation of the graph or use adjacency matrix representation of the graph. Justify the storage representation used. | | C203.2 | 1,2,3,4 | 1,2 |
|  | **Group C Assignments** | |  |  |  |
| 6 | Implement all the functions of a dictionary (ADT) using hashing  Data: Set of (key, value) pairs, Keys are mapped to values, Keys must be comparable, Keys must be unique Standard Operations: Insert(key, value), Find(key), Delete(key) | | C203.3 | 1,2,3,4 | 1,2 |
| 7 | Consider telephone book database of N clients. Make use of a hash table implementation to quickly look up client‘s telephone number. | | C203.3 | 1,2,3,4 | 1,2 |
|  | **Group D Assignments** | |  |  |  |
| 8 | Given sequence k = k1 <k2 < … <kn of n sorted keys, with a search probability pi for each key ki . Build the Binary search tree that has the least search cost given the access probability for each key. | | C203.4 | 1,2,3,4 | 1,2 |
| 9 | A Dictionary stores keywords & its meanings. Provide facility for adding new keywords, deleting keywords, updating values of any entry. Provide facility to display whole data sorted in ascending/ Descending order. Also find how many maximum comparisons may require for finding any keyword. Use Height balance tree and find the complexity for finding a keyword | | C203.4 | 1,2,3,4 | 1,2 |
|  | **Group E Assignments** | |  |  |  |
| 10 | To create ADT that implements the SET concept.  a. Add (newElement) -Place a value into the set b. Remove (element) Remove the value c. Contains (element) Return true if element is in collection d. Size () Return number of values in collection Iterator () Return an iterator used to loop over collection e. Intersection of two sets, f. Union of two sets, g. Difference between two sets, h. Subset | | C203.5 | 1,2,3,4 | 1,2 |
|  | **Group F Assignments** | |  |  |  |
| 11 | Department maintains a student information. The file contains roll number, name, division and address. Allow user to add, delete information of student. Display information of particular employee. If record of student does not exist an appropriate message is displayed. If it is, then the system displays the student details. Use sequential file to main the data. | | C212.4 | 1,2,3,4 | 1,2 |
|  | **Group G Assignments** | |  |  |  |
| 12 | Any application defining scope of Formal parameter, Global parameter, Local parameter accessing mechanism and also relevance to private, public and protected access. Write a Java program which demonstrates the scope rules of the programming mechanism. | | C212.6 | 1,2,3,4 | 1,2 |
| 13 | Write a Java program which will demonstrate a concept of Interfaces and packages: In this assignment design and use of customized interfaces and packages for a specific application are expected. | | C212.6 | 1,2,3,4 | 1,2 |
| 14 | Write a Java program for the implementation of different data structures using JAVA collection libraries (Standard toolkit library): at least 5 data structures are used to design a suitable application. | | C212.6 | 1,2,3,4 | 1,2 |

**Subject Incharge**  **HOD**

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