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| 1 | A book consists of chapters, chapters consist of sections and sections consist of subsections. Construct a tree and print the nodes. |
| 2 | For given expression eg. a-b\*c-d/e+f construct inorder sequence and traverse it using postorder traversal(non recursive). |
| 3A | 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.   1. Use adjacency list representation of the graph and find runtime of the function |
| 3B | 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.   1. Use adjacency matrix representation of the graph and find runtime of the function |
| 4 | 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 representationof the graph or use adjacency matrix representation of the graph. |
| 5 | Consider telephone book database of N clients. Make use of a hash table implementation to quickly look up client‘s telephone number (with Replacement) |
| 6 | Implement all the functions of a dictionary (ADT) using hashing (Without Replacement). 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) |
| 7 | 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. |
| 8 | A Dictionary stores keywords & its meanings. Provide facility for adding new keywords. Provide facility to display whole data sorted in ascending/ Descending order |
| 9A | create the ADT that implements set concept  1. add(new element) place a value into the set  2.remove  3.contains return a true if element is in collection  4.size returns no. of values in collection  5.intersection of two sets |
| 9B | create the ADT that impleents set concept  1. add(new element) place a value into the set  2.remove  3.contains return a true if element is in collection  4.size returns no. of values in collection  5.union of two sets |
| 10 | 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. |
| 11 | 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. |
| 12 | 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. |
| 13 | 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. |
| 14A | 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 |
| 14B | 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. Change a tree so that the roles of the left and right pointers are swapped at every node iii. Search a value |