CYCLE SHEET-2

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1. Write a C program that takes the details of sales representatives (name, age, products and years of experience) .Sort the data based on years of experience using bubble sort. Display the details of the agents who represent a pair of products in common.

2. Consider that there are 'n' number of apartments in a city. Each apartment is described by Appartment_no,Appartment_name, Builder_name, Location (Road_No,street_no, landmarking), No_of_floors, No_of_flats_each floor. Sort the above details by choosing Appartment_no as the pivot element. Get the details of an apartment by searching the data using binary search.

3. Consider two lists L1 and L2.write a C++ program to sort the lsits using merge sort algorithm.

4. Write a C++ program to sort the following data using shell sort assuming the span as {5, 3, and 1}. Display the elements of each sub array for every span before and after sorting.
   15,11,8,5,2,14,10,7,4,1,13,9,6,3,0,12

5. Write C++ program which takes the following details of picture: Picture Title, date_taken, type of image, Description, Camera_used. Using max_selection sort, Sort the details of the pictures first based on date_taken and then by type of image. Search for a specific picture based on date_taken or Picture_ Title.

6. Write a C++ program to sort an array of 10 elements using Heap sort algorithm. (construct a MAX_Heap and also perform In-place sorting).

7. Write a C++ programs that use (a) non-recursive (b) recursive functions to traverse the given binary tree in .
   - preorder
   - inorder
   - postorder

8. Double order traversal of binary tree is defined as follows:
     If the binary tree is empty, do nothing; otherwise:

        Visit the root for the first time

        Traverse the left sub tree in double order

        Visit the root for the second time

        Traverse the right sub tree in double order

Write a recursive algorithm to implement double order traversal of a binary tree and implement the same in c++.

9. Write a C++ program to perform the following operations on binary search tree of strings: {Dhanush, Bala, Elumalai, Arun, Bhuvanesh, Himanshu, Garima, Indrajit, Faisal, James}

- Create a binary search tree

- Insert the following strings into a binary search tree {Harish,Ajay}
- Delete the following strings from above binary search tree{ Bhuvanesh,Arun, Indrajit, Himanshu}
- Search for a string in a binary search tree {Ajay,Harish}

10. Construct an expression tree for the following prefix expression. Find the corresponding postfix expression by traversing the tree in post order. Evaluate that postfix expression using stacks.
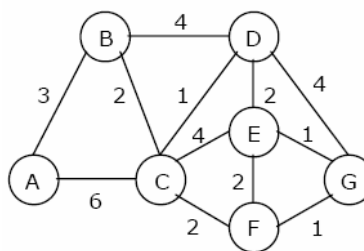
- + - 5 / 7 6 3 * 4 8
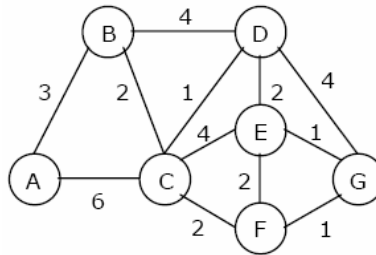
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CYCLE SHEET-3

11. Write a C++ program to traverse the below graph using Depth first traversal and Breadth first traversal .
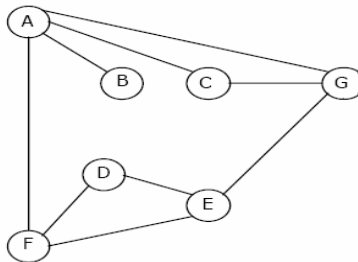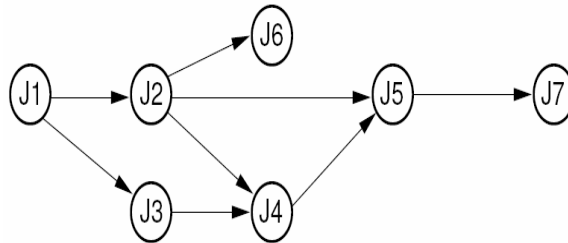

12. Write a C++ program to find the minimum spanning tree of the   following graph using Prim's algorithm.
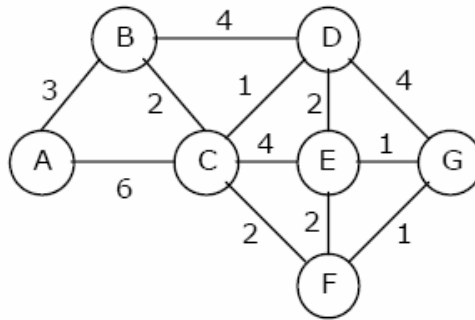
13. Write a C++ program to find the minimum spanning tree of the   following graph using Kruskal's algorithm.

14. Write a C++ program to traverse the following digraph using topological sorting:

15. Consider the following directed graph. Write a C++ program to find the shorted path between   vertex ' A' and Vertex 'G'   using Dijkstra's algorithm.

16. Write a C++ program to find the shortest path between all pairs of vertices for the following graph using Floyd algorithm.