🡪Easy 🡪Medium 🡪Hard

**Practical 11-14** (Topic: Trees & Heaps)

**Class-work:**

* Write a program to create menu-driven program to create and display BST and Heap.

**Home-work:**

1. Write a program to find a particular element in binary search tree.
2. Write a program to build a heap and display it.
3. Write a program to implement HeapSort.
4. Write a program to find number of element in maximum length branch of BST.
5. Write a program to determine whether a given binary tree of distinct integers is a valid binary search tree?
6. Write a program to check two nodes in BST are cousins or not. Two nodes will be cousins if they have at same level.
7. Write a program to find K’th largest element from a stream efficiently.
8. Write a program to implement priority queue using max-heap.
9. In a tournament with N teams, where in one team can play only one match per day, Write a program which schedules the matches in the tournament. Each team shall play with the other team once(same as designing the league matches of a Cricket tournament like IPL).
10. Given input format, the first line has the number of employees of a company Z. The next two lines have employees to perform certain operations on. The first employee of the fourth line can be assumed to be the ceo of the company. Each line from then on has the format Employee X Employee Y where X manages Y. (and hence Y forms the child for X).

input:

6

Rajesh

Ravi

//Tree Starts here

Ram Raj

Ram Goku

Raj Rajesh

Raj Richa

Richa Ravi

Its known that each person in the company can directly manage a maximum of 2 other employees.

For the two employees in the first two lines, find the lowest common manager.

Write a program to implement above data and choose appropriate data structure.