

1. You are required to insert elements into a queue in a manner that ensures the queue remains sorted at all times. Each time you push an element into the queue, you must place it in its correct position so that, the smallest element is always at the front of the queue. [10]

- Declare a class named "myStack"
- Declare a stack of integers (You must use library function)
- Define a function "Insert(int x)" which will insert x into the queue in such manner so that queue remains sorted at all times
- Define another function "display()" that will display the elements of the queue

Expected output:

```
Enter element:9
Queue: 9
Enter element:5
Queue: 5, 9
Enter element:7
Queue: 5, 7, 9
Enter element:4
Queue: 4, 5, 7, 9
Enter element: -1
Process returned 0.
```

Use **Queue.cpp** file as template for this question.

2. Suppose that, you are given a Binary Search Tree. Your task is to print the leaf nodes of that tree. [7]

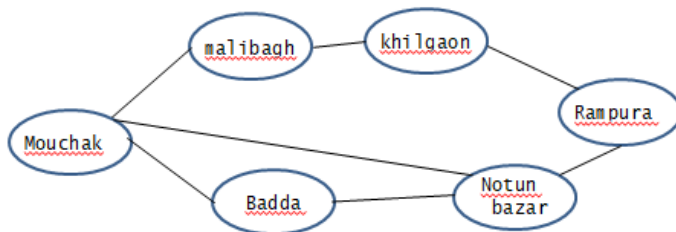
***To check the output, you will insert the elements in the tree: 18, 9, 30, 25, 12, 10, 48, 40. (already inserted in the code)

Expected output:

Leaf nodes : 10, 25, 40

Use **"Tree.cpp"** as template for this question.

3. Consider the following graph: [8]



Suppose that, you live in Badda and your friend lives in Malibagh. One day you and your friend decided to visit a restaurant which is located in Rampura. You told your friend that you will pick him up from Malibagh, then you two will go to the restaurant together. Now find the path you should follow.

Expected output:

Badda -> Mouchak -> Malibagh -> Khilgaon -> Rampura.

Use **Graph.cpp** as template.