Objective:

- The purpose of this quiz is to focus on the very basic fundamental concepts learned so far in previous lectures.

Question No 1:

Given a set of comparable elements, the ceiling of x is the smallest element in the set greater than or equal to x, and the floor is the largest element less than or equal to x. Suppose you have an array of N items in ascending order. Give an O(log N) algorithm to find the floor and ceiling of x.

```
int findCeilFloor(int * arr, int N, int key)
{
    int lb=0, ub=N-1, mid=0, lastCeilFloorOccur=-1;

    while( lb <= ub )
    {
        mid = (lb + ub) / 2;

        if (arr[mid] == key)
        {
            lastCeilFloorOccur = mid;
            break;
        }
        else if (arr[mid] > key)
        {
            lastCeilFloorOccur = mid;
            lb=0;
            ub=mid-1;
        }
        else
            lb = mid + 1;
    }
    return lastCeilFloorOccur;
}

int main ()
{
    int a[15]= {10,16,16,16,21,23,24,25,30,40,50,60,70,70,70};
    cout<<findCeilFloor(a, 15, 26);
    return 0;
}
```