**CP Problem Statement: 3**

A Job Ready Bootcamp in C++, DSA and IOT

MySirG

**3. Peak Index in a Mountain Array**

Problem Statement:

An array arr a mountain if the following properties hold:

arr.length >= 3

There exists some i with 0 < i < arr.length - 1 such that:

arr[0] < arr[1] < ... < arr[i - 1] < arr[i]

arr[i] > arr[i + 1] > ... > arr[arr.length - 1]

Given a mountain array arr , return the index i such that arr[0] < arr[1] < ... < arr[i -

1] < arr[i] > arr[i + 1] > ... > arr[arr.length - 1] .

You must solve it in O(log(arr.length)) time complexity.

Example 1:

Input: arr = [0,1,0]

Output: 1

CP Problem Statement: 3 2

Example 2:

Input: arr = [0,10,5,2]

Output: 1

Sol –

#include<iostream>

using namespace std;

int main()

{

int a[]={0,4,7,10,10,3,1};

int first=0,last=7,mid=(first+last)/2;

while(first<last)

{

if(a[mid-1]<=a[mid]&&a[mid]>=a[mid+1])

{

cout<<mid;

break;

}

else if(a[mid]<a[mid+1])

first=mid;

else if(a[mid]>a[mid+1])

last=mid;

mid=(first+last)/2;

}

return 0;

}