

EXPERIMENT - 5

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Semester: 6th

Subject Code: 22ITP-351

PROBLEM-1

AIM:-

Merge Sorted Array

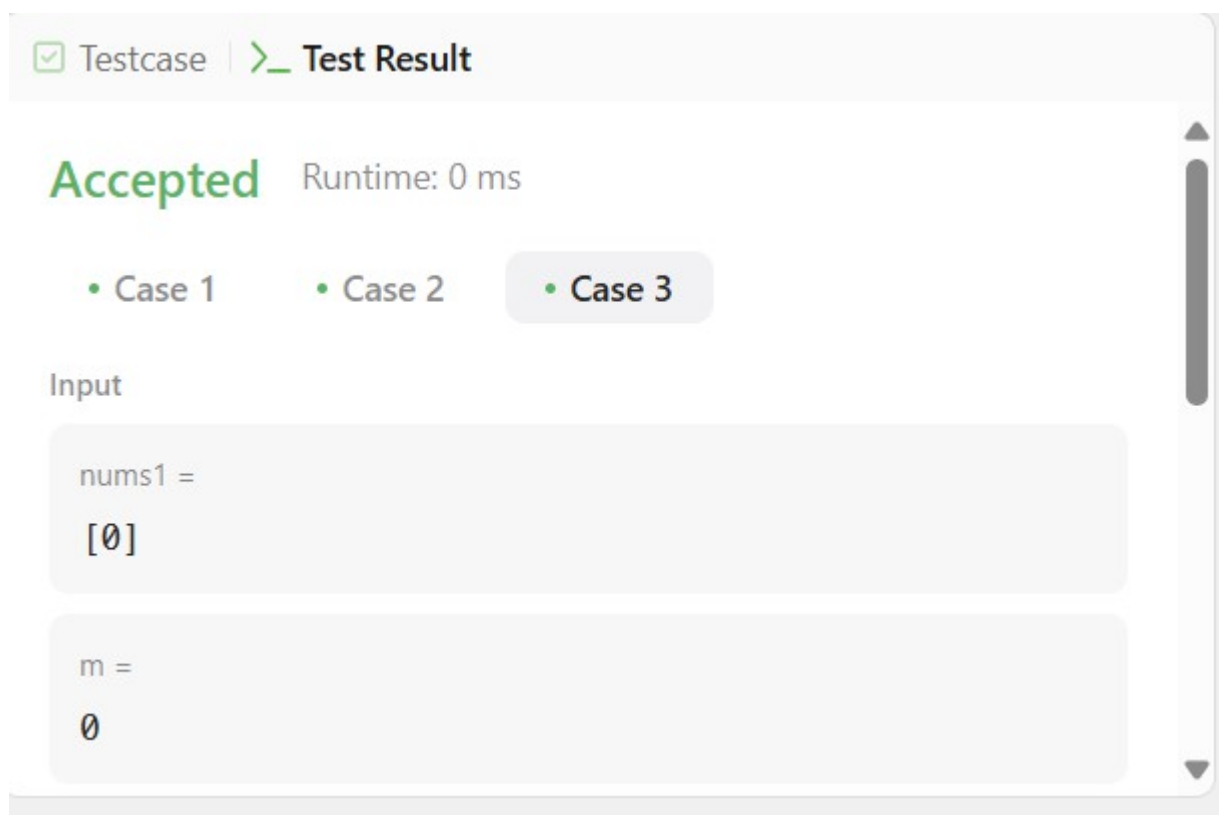
CODE:-

```
class Solution
{ public:
    void merge(vector<int>& nums1,
int m, vector<int>& nums2, int n) {
        for (int j = 0, i = m; j<n;
            j++){ nums1[i] = nums2[j];
                i++;
            }

        sort(nums1.begin(),nums1.end());
    }
};
```

OUTPUT:-

The screenshot shows a code execution interface. At the top, there are two tabs: 'Testcase' (checked) and 'Test Result'. Below the tabs, the status 'Accepted' is displayed in green, followed by 'Runtime: 0 ms'. Underneath, there are three buttons labeled 'Case 1', 'Case 2', and 'Case 3', with 'Case 1' being the active one. The 'Input' section shows two variables: 'nums1 =' with the value '[1,2,3,0,0,0]' and 'm =' with the value '3'. A vertical scrollbar is visible on the right side of the interface.



PROBLEM-2

AIM:-

First Bad Version

CODE:-

// The API isBadVersion is defined
for you.

// bool isBadVersion(int version);

class Solution

{ public:

int firstBadVersion(int

n){ long long l = 1, r = n;

long long m, res = n;

while(l <= r){

m = l + (r - l) / 2;

if(isBadVersion(m) == 1){

r = m - 1;

res = min(res, m);

} else {

l = m + 1;

}

}

return res;

}

};

OUTPUT:-

☒ Testcase | >_ Test Result

Accepted Runtime: 0 ms

- Case 1
- Case 2

Input

n =
5

bad =
4

☒ Testcase | >_ Test Result

Accepted Runtime: 0 ms

- Case 1
- Case 2

Input

n =
1

bad =
1

PROBLEM-3

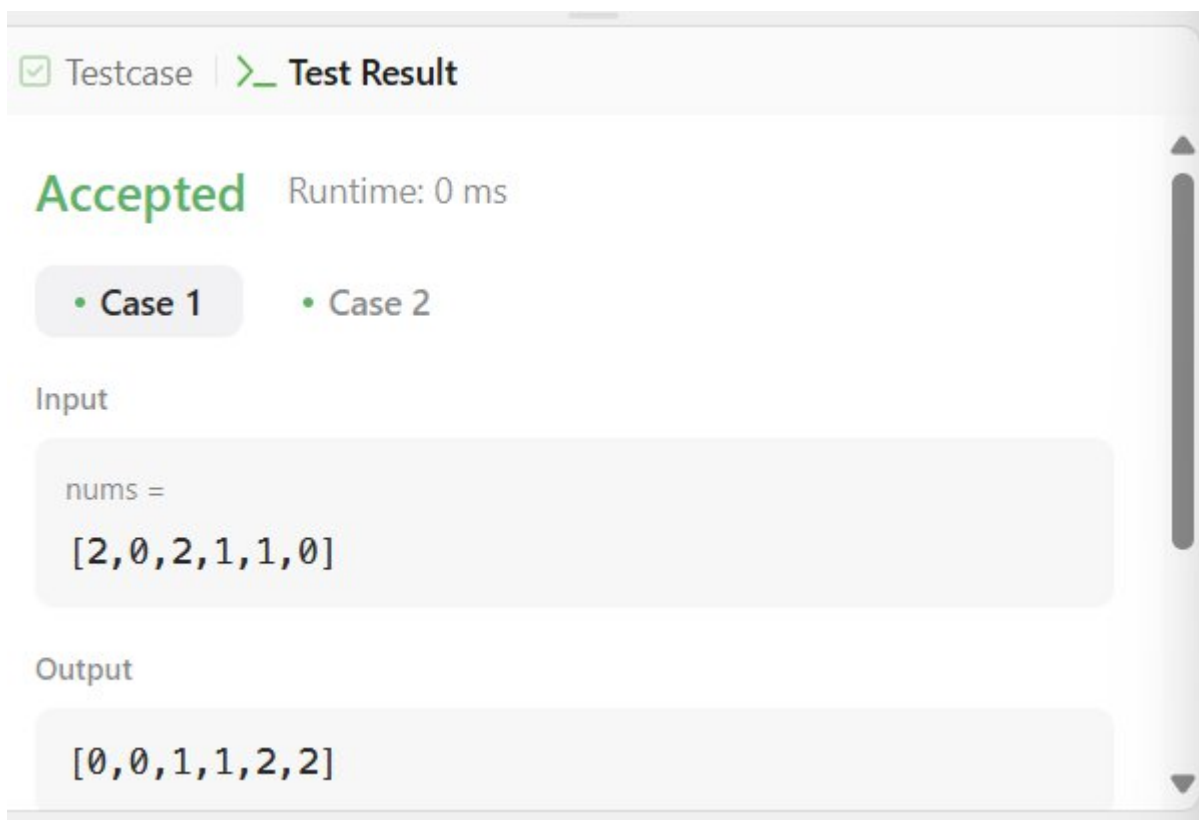
AIM:-

Sort Colors

CODE:-

```
class Solution
{ public:
    void sortColors(vector<int>& nums) {
        int low = 0, mid = 0, high = nums.size()-1;
        while(mid <= high){
            if(nums[mid] ==
                0){ swap(nums[low],
                    nums[mid]); low++;
                    mid++;
                }
            else if(nums[mid] ==
                1){ mid++;
                }
            else{
                swap(nums[mid], nums[high]);
                high--;
            }
        }
    }
};
```

OUTPUT:-



The screenshot shows a coding platform interface. At the top, there are two tabs: 'Testcase' (checked) and 'Test Result'. Below the tabs, the word 'Accepted' is displayed in green, followed by 'Runtime: 0 ms'. There are two buttons labeled 'Case 1' and 'Case 2'. Under the 'Input' section, the text 'nums =' is followed by the array '[2,0,2,1,1,0]'. Under the 'Output' section, the array '[0,0,1,1,2,2]' is shown. A vertical scrollbar is visible on the right side of the output area.

✓ Testcase | >_ Test Result

Accepted Runtime: 0 ms

• Case 1 • Case 2

Input

```
nums =  
[2,0,1]
```

Output

```
[0,1,2]
```

PROBLEM-4

AIM:-

Top K Frequency Element

CODE:-

```
class Solution  
{ public:  
    vector<int>  
topKFrequent(vector<int>&  
nums, int k) {  
    unordered_map<int, int>  
ump;  
  
    for(int i:  
        nums){ ump[i]++;  
    }  
  
    priority_queue<pair<int,  
int>>pq;  
  
    for(auto i: ump){  
  
        pq.push({i.second,i.first});  
    }  
}
```

```
vector<int> res;

while(k--){
    auto [elem, count] =
pq.top();
    res.push_back(count);
    pq.pop();
}

return res;
}
```

OUTPUT:-

☒ Testcase | > Test Result ⌂ ^

Accepted Runtime: 0 ms

• Case 1

• Case 2

Input

nums =
[1,1,1,2,2,3]

k =
2

Output

[1,2]

⌂ ⌂ ⌂

✓ Testcase | >_ Test Result

Accepted Runtime: 0 ms

• Case 1 • Case 2

Input

nums =
[1]

k =
1

Output

[1]

Expected

PROBLEM-5

AIM:- Find Peak Element

CODE:-

```
class Solution
```

```
{ public:
```

```
void solve(vector<int>&nums,int l,int r,
```

```
int&ans){ if(l>r || ans>-1) return ;
```

```
int m=(r-l)/2+l;
```

```
if(!(m-1>=0 && nums[m]<nums[m-1]) &&
```

```
!(m+1<nums.size() && nums[m]<nums[m+1])) ans=m;
```

```
solve(nums, l, m-1, ans);
```

```
solve(nums, m+1, r, ans);
```

```
return ;
```

```
}  
  
int findPeakElement(vector<int>& nums)  
  
    { int ans=-1, l=0, r=nums.size()-1;  
  
      solve(nums, l, r, ans);  
  
      return ans;  
  
    }  
  
};
```

OUTPUT:-

☒ Testcase | [> Test Result](#)

Accepted Runtime: 0 ms

- Case 1
- Case 2

Input

nums =
[1,2,3,1]

Output

2

Expected

2

Accepted Runtime: 0 ms

- Case 1
- **Case 2**

Input

```
nums =  
[1,2,1,3,5,6,4]
```

Output

1

Expected

5