

Experiment No. - 1.1

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Branch: 20BCC1

Section/Group: A

Semester: 5th

Date of Performance: 11/08/2022

Subject Name: ADVANCED PROGRAMMING LAB

Subject Code: 20CSP-334

1. Aim/Overview of the practical:

To write a program in C++ the Kth largest or Kth smallest element in an array using template and C++ STL.

2. Task to be done:

To write a program in C++ the Kth largest or Kth smallest element in an array using template and C++ STL.

3. Steps for practical:

1. Include the header files.
2. Take the size of an array, array elements, and k.
3. Sort the array using STL sort.
4. Output the Kth largest/smallest element.

4. Code:

a) Kth Largest element :

```
#include<bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    cout<<"Enter the size of array: ";
```

```
cin>>n;
int arr[n];
cout<<"Enter array elements: ";
for(int i=0; i<n; i++)
{
    cin>>arr[i];
}
int k;
cout<<"Enter the Kth largest element to output: ";
cin>>k;
sort(arr,arr + n);
cout<<"The Kth largest element of the array is: "<<arr[n-k]<<endl;
}
```

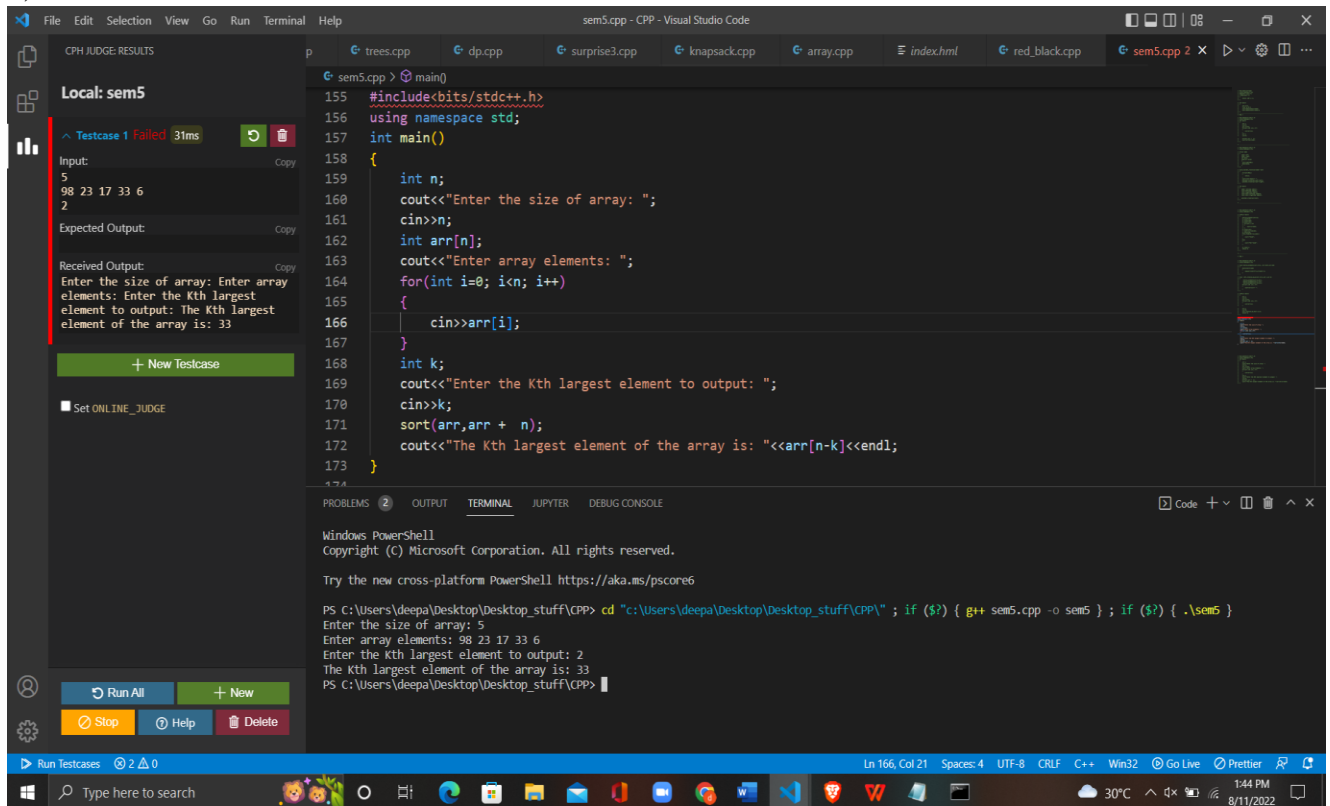
b) Kth smallest element :

```
#include<bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    cout<<"Enter the size of array: ";
    cin>>n;
    int arr[n];
    cout<<"Enter array elements: ";
    for(int i=0; i<n; i++)
    {
        cin>>arr[i];
    }
    int k;
    cout<<"Enter the Kth smallest element to output: ";
    cin>>k;
```

```
sort(arr, arr + n);
cout<<"The Kth smallest element of the array is: "<<arr[k-1]<<endl;
}
```

5. Output:

a)



The screenshot shows a Visual Studio Code editor with a C++ file named `sem5.cpp`. The code implements a program to find the Kth largest element in an array. The program prompts the user for the size of the array, the array elements, and the value of K. It then sorts the array in descending order and prints the Kth largest element.

```
sem5.cpp - CPP - Visual Studio Code
155 #include<bits/stdc++.h>
156 using namespace std;
157 int main()
158 {
159     int n;
160     cout<<"Enter the size of array: ";
161     cin>>n;
162     int arr[n];
163     cout<<"Enter array elements: ";
164     for(int i=0; i<n; i++)
165     {
166         cin>>arr[i];
167     }
168     int k;
169     cout<<"Enter the Kth largest element to output: ";
170     cin>>k;
171     sort(arr, arr + n);
172     cout<<"The Kth largest element of the array is: "<<arr[n-k]<<endl;
173 }
```

The left sidebar shows the 'Local: sem5' section with a 'Testcase 1 Failed' status. The 'Received Output' shows the program's execution results for the input: 5, 98 23 17 33 6, 2. The output is: Enter the size of array: Enter array elements: Enter the Kth largest element to output: The Kth largest element of the array is: 33.

The bottom terminal window shows the command prompt output:


```
PS C:\Users\deepa\Desktop\Desktop_stuff\CPP> cd "c:\Users\deepa\Desktop\Desktop_stuff\CPP" ; if ($?) { g++ sem5.cpp -o sem5 } ; if ($?) { .\sem5 }
Enter the size of array: 5
Enter array elements: 98 23 17 33 6
Enter the Kth largest element to output: 2
The Kth largest element of the array is: 33
PS C:\Users\deepa\Desktop\Desktop_stuff\CPP>
```



```
PROBLEMS 2 OUTPUT TERMINAL JUPYTER DEBUG CONSOLE
Code + v [ ] [ ] ^ X

Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\deepa\Desktop\Desktop_stuff\CPP> cd "c:\Users\deepa\Desktop\Desktop_stuff\CPP\" ; if ($?) { g++ sem5.cpp -o sem5 } ; if ($?) { .\sem5 }
Enter the size of array: 5
Enter array elements: 98 23 17 33 6
Enter the Kth smallest element to output: 2
The Kth smallest element of the array is: 17
PS C:\Users\deepa\Desktop\Desktop_stuff\CPP> |
```