Northern University Bangladesh

(Assignment-01)

Id :- 04200101466 (Day)

Name :- Md. Mehedi Hasan

Semester :- Fall 2022

Program :- CSE

Course Title :- Algorithms Lab Work

Course Code :- CSE 2264

CODE

```
#include<iostream>
using namespace std;

int iteration = 0;

int partition(int arr[], int low, int high, int pivot){
            int PIndex = low;
   iteration ++;
   for(int i=low;i<=high;i++) {

      if(arr[i]<=pivot) {
         swap(arr[PIndex],arr[i]);
         PIndex++;
      }
   }

   PIndex--;

            return PIndex;
}

void quickSort(int arr[], int low, int high){
```

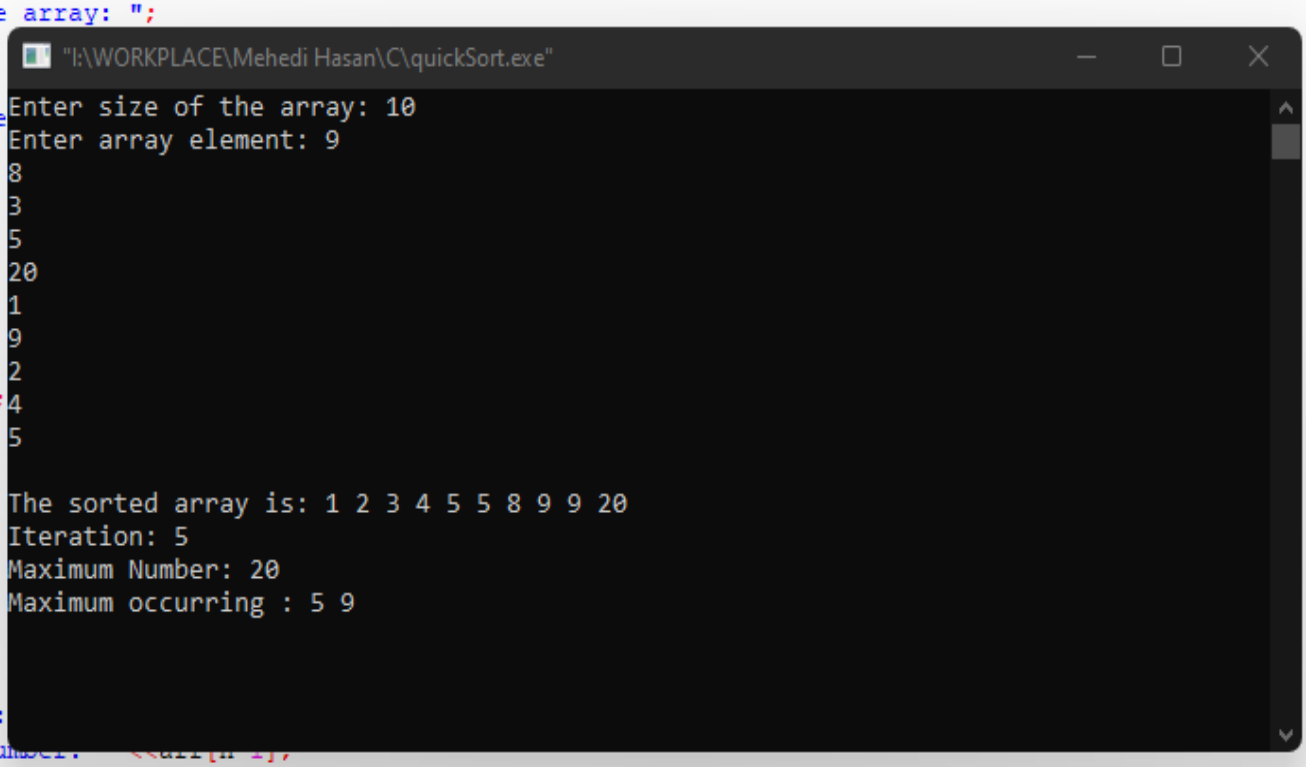
```
        if(low < high) {
            int pivot = arr[high];

            int PIndex = partition(arr, low, high, pivot);
        quickSort(arr, low, PIndex-1);
        quickSort(arr, PIndex+1, high);
         }
}

void maxOccurred(int nums[], int size)
{
  int max_count = 0;
  cout << "\nMaximum occurring : ";
  for (int i=0; i<size; i++)
  {
   int count=1;
   for (int j=i+1;j<size;j++)
      if (nums[i]==nums[j])
         count++;
   if (count>max_count)
     max_count = count;
  }

  for (int i=0;i<size;i++)
  {
   int count=1;
   for (int j=i+1;j<size;j++)
```

```
      if (nums[i]==nums[j])
         count++;
   if (count==max_count)
      cout << nums[i] << " ";
  }
 }

int main()
{

          int arr[1000];
          int n;

          cout<<"Enter size of the array: ";
          cin>>n;

    cout<<"Enter array element: ";

    // taking array element from user
          for(int x = 0 ; x < n ; x++){
       cin>> arr[x];
          }

          //sorting the array
          quickSort(arr, 0 , n-1);
```

```
    cout<<endl;
        cout<<"The sorted array is: ";
        for( int i = 0 ; i < n; i++){
            cout<< arr[i]<<" ";
        }

        cout<<endl <<"Iteration: " <<iteration;
        cout<<endl <<"Maximum Number: " <<arr[n-1];

        //Maximum occurring number
    maxOccurred(arr, n-1);

    cout<<endl;
    int o;
        cin>>o;

    return 0;
}
```

OUTPUT

```
ize of the array: ";

rray eleme

y element
; x < n ;
x];

array
 0 , n-1);

ted array
 ; i < n;
[i]<<" ";

Iteration:
Maximum Numb
```




```
e of the

ay elemen

element f
x < n ; x
;

ray
 , n-1);

d array i
 i < n; i
]<<" ";

eration:
ximum Num

ing number
 n-1);
```