COUNTING SORT :


```cpp
# include <iostream>
using namespace std;
// counting sort sorting algorithm
void CountingSort(int input_array[],int s, int r)
{
        int output_array[s];
        int count_array[r];

        // initialize all elements to 0 in count array
        for(int i=0;i<r;i++)
                count_array[i]=0;

        // to take a count of all elements in the input array
        for(int i=0;i<s;i++)
                ++count_array[input_array[i]];

        // cummulative count of count array to get the
        // positions of elements to be stored in the output array
        for(int i=1;i<r;i++)
                count_array[i]=count_array[i]+count_array[i-1];

        // placing input array elements into output array in proper
        //  positions such that the result is a sorted array in ASC
order
        for(int i=0;i<s;i++)
                output_array[--count_array[input_array[i]]] =
input_array[i];

        // copy output array elements to input array
        for(int i=0;i<s;i++)
                input_array[i]=output_array[i];
}

int main()
{
        int size=0;
        int range = 10;
        cout<<"Enter Size of array: "<<endl;
        cin>>size;
        int myarray[size];
        cout<<"Enter "<<size<<" integers in any order in range of
0-9: "<<endl;
        for(int i=0;i<size;i++)
        {
                cin>>myarray[i];
        }
        cout<<"Before Sorting"<<endl;
        for(int i=0;i<size;i++)
        {
                cout<<myarray[i]<<" ";
```

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        }
        cout<<endl;
        CountingSort(myarray,size,range);  // counting sort called
        cout<<"After Sorting"<<endl;
        for(int i=0;i<size;i++)
        {
                cout<<myarray[i]<<" ";
        }
        return 0;
}
```