DIVIDE AND CONQUER

PROBLEM 5:

5-IMPLEMENTATION OF QUICK SORT

AIM:
Write a Program to Implement the Quick Sort Algorithm

CODE:

```
#include<stdio.h>

void swap(int arr[], int a,int b){

   int temp= arr[a];

   arr[a] = arr[b];

   arr[b]= temp;

}

int partition (int arr[], int low,int high){

   int pivot = arr[high];

   int i = low -1;

   for (int j = low;j<high;j++){

      if (arr[j] <= pivot){

         i++;

         swap(arr,i,j);

      }

   }

   swap(arr,i+1,high);

   return(i+1);
```

```
}
void quickSort(int arr[],int low,int high){
    if(low < high){
        int pi = partition(arr, low, high);
        quickSort(arr,low,pi-1);
        quickSort(arr,pi+1,high);
    }
}
int main(){
    int n;
    scanf("%d",&n);
    int arr[n];
    for (int i = 0; i<n;i++){
        scanf("%d",&arr[i]);
    }
    quickSort(arr,0,n-1);
    for(int i=0;i<n;i++){
        printf("%d ",arr[i]);
    }
    printf("\n");
    return 0;
}
```

INPUT AND OUTPUT:

	Input	Expected	Got	
✔	5 67 34 12 98 78	12 34 67 78 98	12 34 67 78 98	✔
✔	10 1 56 78 90 32 56 11 10 90 114	1 10 11 32 56 56 78 90 90 114	1 10 11 32 56 56 78 90 90 114	✔
✔	12 9 8 7 6 5 4 3 2 1 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	✔