**NAME – ABHIRAJ YOGESH SRIVASTAVA**

**ROLL NO. – 1906137**

**SUBJECT NAME – DESIGN AND ANALYSIS OF ALGORITHMS LAB**

**SUBJECT CODE – CSL4403**

**DATE – 11TH JAN, 2021**

**BRANCH – CSE 2**

**ASSIGNMENT-2**

**Q2. WAP to sort the array using Quick Sort algorithm.**

**Source Code in C Language:**

#include<stdio.h>

#include<conio.h>

void exchange(int\* a,int\* b)

{

int temp=\*a;

\*a=\*b;

\*b=temp;

}

int part(int arr[],int a,int b)

{

int p=arr[b];

int i=a,j=a;

i--;

while(j<b)

{

if(arr[j]>=p)

j+=1;

else

{

i+=1;

exchange(&arr[i],&arr[j]);

j+=1;

}

}

exchange(&arr[i+1],&arr[b]);

i+=1;

return i;

}

void quick(int arr[],int a,int b)

{

if(a>=b)

return;

else

{

quick(arr,a,part(arr,a,b)-1);

quick(arr,part(arr,a,b)+1,b);

}

}

int main()

{

printf("Program to illustrate Quick Sorting!!\n");

int n,i=0;

printf("Enter the size of the array.\n");

scanf("%d",&n);

printf("Enter array elements.\n");

int a=0,b=n-1;

int arr[n];

while(i<n)

scanf("%d",&arr[i++]);

printf("Input array:\n");

i=0;

while(i<n)

printf("%d ",arr[i++]);

printf("\n");

quick(arr,a,b);

printf("Sorted elements in ascending order using Quick Sort are:\n");

i=0;

while(i<n)

printf("%d ",arr[i++]);

printf("\n");

return 0;

}

**Output Screenshot:**

