Quick Sort

**ALGORITHM**

**Input**: Read an array

**Output**: Display the sorted array

**Steps**:

Int a[10]

**quicksort**(int first,int last)

1. Start
2. Declare i, j, pivot, temp
3. if(first<last)
4. pivot=first
5. i=first
6. j=last
7. while(i<j)
8. while(a[i]<=a[pivot] && i<last)

i++

1. while(a[j]>a[pivot])

j--

1. if(i<j)

temp=a[i]

a[i]=a[j]

a[j]=temp

1. temp=a[pivot]
2. a[pivot]=a[j]
3. a[j]=temp
4. Call function quicksort(first,j-1)
5. Call function quicksort(j+1,last)
6. Stop

**main( )**

1. Start
2. Declare i,n
3. print "Enter the size of the array: "
4. Read n
5. print "Enter the elements: "
6. for(i=0;i<n;i++)
7. Read a[i]
8. Call function quicksort(0,n-1)
9. print "Sorted Array: "
10. for(i=0;i<n;i++)
11. Print a[i]
12. Stop

**PROGRAM**

#include<stdio.h>

int a[10];

void quicksort(int first,int last)

{

int i, j, pivot, temp;

if(first<last)

{

pivot=first;

i=first;

j=last;

while(i<j)

{

while(a[i]<=a[pivot] && i<last)

i++;

while(a[j]>a[pivot])

j--;

if(i<j)

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

temp=a[pivot];

a[pivot]=a[j];

a[j]=temp;

quicksort(first,j-1);

quicksort(j+1,last);

}

}

void main()

{

int i,n;

printf("Enter the size of the array: ");

scanf("%d",&n);

printf("Enter the elements: ");

for(i=0;i<n;i++)

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

quicksort(0,n-1);

printf("Sorted Array: ");

for(i=0;i<n;i++)

printf(" %d",a[i]);

}