**QUICKSORT**

#include<iostream.h>

#include<conio.h>

#include<time.h>

#include<stdlib.h>

#define MAX 500

void qsort(int[],int,int);

int part(int[],int,int);

void main()

{

clrscr();

int a[MAX],i,n;

clock\_t s,e,z;

s=clock();

cout<<"Enter the value of n:";

cin>>n;

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

a[i]=rand()%100;

cout<<"Before sorting:"<<"\t"<<"\n";

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

cout<<a[i]<<"\t";

qsort(a,0,n-1);

cout<<"After sort:"<<"\t"<<"\n";

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

cout<<a[i]<<"\t";

e=clock();

z=e-s;

cout<<"Time Taken:"<<z/CLOCKS\_PER\_SEC<<"sec"<<"\n"<<"\t";

getch();

}

void qsort(int a[],int low,int high)

{

int j;

if(low<high)

{

j=part(a,low,high);

qsort(a,j+1,high);

qsort(a,low,j-1);

}

}

int part(int a[],int low,int high)

{

int pivot,i,j,temp;

pivot=a[low];

i=low+1;

j=high;

while(1)

{

while(pivot>a[i]&&i<high)

i++;

while(pivot<a[j])

j--;

if(i<j)

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

else

{

temp=a[j];

a[j]=a[low];

a[low]=temp;

return j; } } }

**OUTPUT:**

Enter the value of n:3

Before sorting:

46 30 82

After sort:

30 46 82

Time Taken:1.813187sec