**QUICKSORT**

#include<time.h>

#include<stdio.h>

#define MAX 5000

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

int partition(int[],int,int);

void main()

{

int i,n,a[MAX],ch;

clock\_t start,end;

clrscr();

while(ch)

{

printf("\n enter the number of elements\n");

scanf("%d",&n);

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

a[i]=rand()%200;

printf("The random generated array is\n");

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

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

start=clock();

quicksort(a,0,n-1);

end=clock();

printf("\n\nthe sorted array elements are\n\n");

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

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

printf("time taken = %f",(end-start)/CLK\_TCK);

printf("\n\n do u wish to continue (0/1)\n");

scanf("%d",&ch);

}

}

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

{

int mid;

delay(500);

if(low<high)

{

mid=partition(a,low,high);

quicksort(a,low,mid-1);

quicksort(a,mid+1,high);

}

}

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

{

int key,i,j,temp,k;

key=a[low];

i=low+1;

j=high;

while(i<=j)

{

while(i<=high && key>=a[i])

i=i+1;

while(key<a[j])

j=j-1;

if(i<j)

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

else

{

k=a[j];

a[j]=a[low];

a[low]=k;

}

}

return j;

}

Output:

