Quick Sort

Program:

```
#include<iostream.h>

#include<conio.h>


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

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


void main()

{

        int n,ele,i;

        // accept no of elements in array

        cout<<"Enter number of element to be placed in array"<<endl;

        cin>>n;

        int a[20];

        cout<<"Enter array elements"<<endl;

        // acceting values for array

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

        {

                cin>>a[i];

        }


        quicksort(a,0,n-1);
```

```
	cout<<"Array after sorting"<<endl;
	for(int j=0;j<n;j++)
	{
		cout<<a[j]<<"\t";
	}
	getch();
}

void quicksort(int a[],int l,int u)
{
	int j;
	if(l<u)
	{
		j=partition(a,l,u);
		quicksort(a,l,j-1);
		quicksort(a,j+1,u);
	}
}

int partition(int a[],int l,int u)
{
	int pivot=a[l],i,j,temp;
	i=l;
	j=u+1;
```

```
        while(i<j)
        {
                do{
                i++;
                }while(a[i]<=pivot);

                do{
                j--;
                }while(a[j]>pivot);

                if(i<j)
                {
                temp=a[i];
                a[i]=a[j];
                a[j]=temp;
                }
        }
        a[l]=a[j];
        a[j]=pivot;
        return(j);
}
```

Output:

```
Enter number of element to be placed in array
10
Enter array elements
10 9 8 7 6 5 4 3 2 1
Array after sorting
1       2       3       4       5       6       7       8       9       10
_
```

```
Enter number of element to be placed in array
5
Enter array elements
111 56 98 300 22
Array after sorting
22      56      98      111     300     _
```