



```
1 #include<stdio.h>
2 #include<time.h>
3
4 void qsort(int[],int,int);
5 int partition(int[],int,int);
6
7 void qsort(int a[], int low, int high)
8 {
9     int mid;
10    if(low<high)
11    {
12        mid=partition(a,low,high);
13        qsort(a,low,mid-1);
14        qsort(a,mid+1,high);
15    }
16 }
17
18
19 int partition(int a[], int low, int high)
20 {
21     int i, j, temp, pivot;
22     pivot=a[low];
23     i=low+1;
24     j=high;
25     while(i<=j)
26     {
27         while(a[i]<=pivot)
28             i++;
29         while(a[j]>pivot)
30             j--;
31         if(i<j)
32         {
33             temp=a[i];
34             a[i]=a[j];
35             a[j]=temp;
36         }
37     }
38     temp=a[low];
39     a[low]=a[j];
40     a[j]=temp;
41     return;
42 }
43
44 void main()
45 {
46     int a[100],n,i;
47     clock_t start,end;
48     srand(time(NULL));
49     printf("Enter number of Elements: ");
50     scanf("%d", &n);
51     printf("Array Elements: ");
52     for(int c=0;c<n;c++)
53         a[c]=rand()%100;
54     for(int c=0;c<n;c++)
55         printf("%d ",a[c]);
56     start=clock();
57     qsort(a,a[0],a[n-1]);
58     end=clock();
59     printf("\nSorted Array: ");
60     for(int c=0;c<n;c++)
61         printf("%d ",a[c]);
62     printf("\nTime Taken:%lf", (double)(end-start)/CLOCKS_PER_SEC);
63 }
```

× Terminal



```
Enter number of Elements: 6
Array Elements: 98 83 96 3 0 55
Sorted Array: 98 83 96 3 0 55
Time Taken:0.000001
Process finished.
```

× Terminal



```
Enter number of Elements: 30
Array Elements: 61 42 46 40 27 12 9 35 97 51 7 6 55 89 51 25 86 94 46 24 19 39 4 2 45 40 20 61
Sorted Array: 61 42 46 40 27 12 9 35 97 51 7 6 55 89 51 25 86 94 46 24 19 39 4 2 45 40 20 61 79
Time Taken:0.000002
Process finished.
```

× Terminal



```
Enter number of Elements: 80
Array Elements: 98 99 77 22 22 93 37 55 88 6 22 70 94 70 63 68 20 46 18 86 49 71 51 6 95 47 50
Sorted Array: 98 99 77 22 22 93 37 55 88 6 22 70 94 70 63 68 20 46 18 86 49 71 51 6 95 47 50 14
Time Taken:0.000002
Process finished.
```