main.c

```c
1    #include<stdio.h>
2    #include<time.h>
3    void sort(int a[],int n);
4    int main()
5    {
6        clock_t t;
7        int n;
8        printf("\nEnter the Number Of Elements Of The Array\n");
9        scanf("%d",&n);
10       int a[n];
11       printf("Enter the elements of the array\n");
12       for(int i=0;i<n;i++)
13           scanf("%d",&a[i]);
14       t=clock();
15       sort(a,n);
16       t=clock()-t;
17       double time_taken=((double)t)/CLOCKS_PER_SEC;
18       printf("Time Taken =%f\n",time_taken);
19
20       printf("Final Sorted Order Is\n");
21       for(int i=0;i<n;i++)
22       {
23           printf("%d\t",a[i]);
24       }
25
26   }
27   void sort(int a[] ,int n)
28   {
29       int v,j;
30       for(int i=1;i<=n-1;i++)
31       {
32           v=a[i];
33           j=i-1;
34           while(j>=0 && a[j]>v)
35           {
36               a[j+1]=a[j];
37               j=j-1;
38           }
39           a[j+1]=v;
40
41       }
42   }
```

Console	Shell

```
> clang-7 -pthread -lm -o main main.c
> ./main

Enter the Number Of Elements Of The Array
4
Enter the elements of the array
12 8 45 31
Time Taken =0.000002
Final Sorted Order Is
8   12  31  45  >
```

Chart 4   ✕ ✓ *fx*

	A	B	C	D	E	F	G	H	I
1	Array Size	Time (in sec)							
2	2000	0.002							
3	4000	0.008							
4	6000	0.019							
5	8000	0.033							
6	10000	0.053							
7	12000	0.074							
8	14000	0.1							

Time (in sec)

(Chart: scatter/line plot with x-axis from 0 to 16000 and y-axis from 0 to 0.12, showing an increasing curve through the plotted points.)