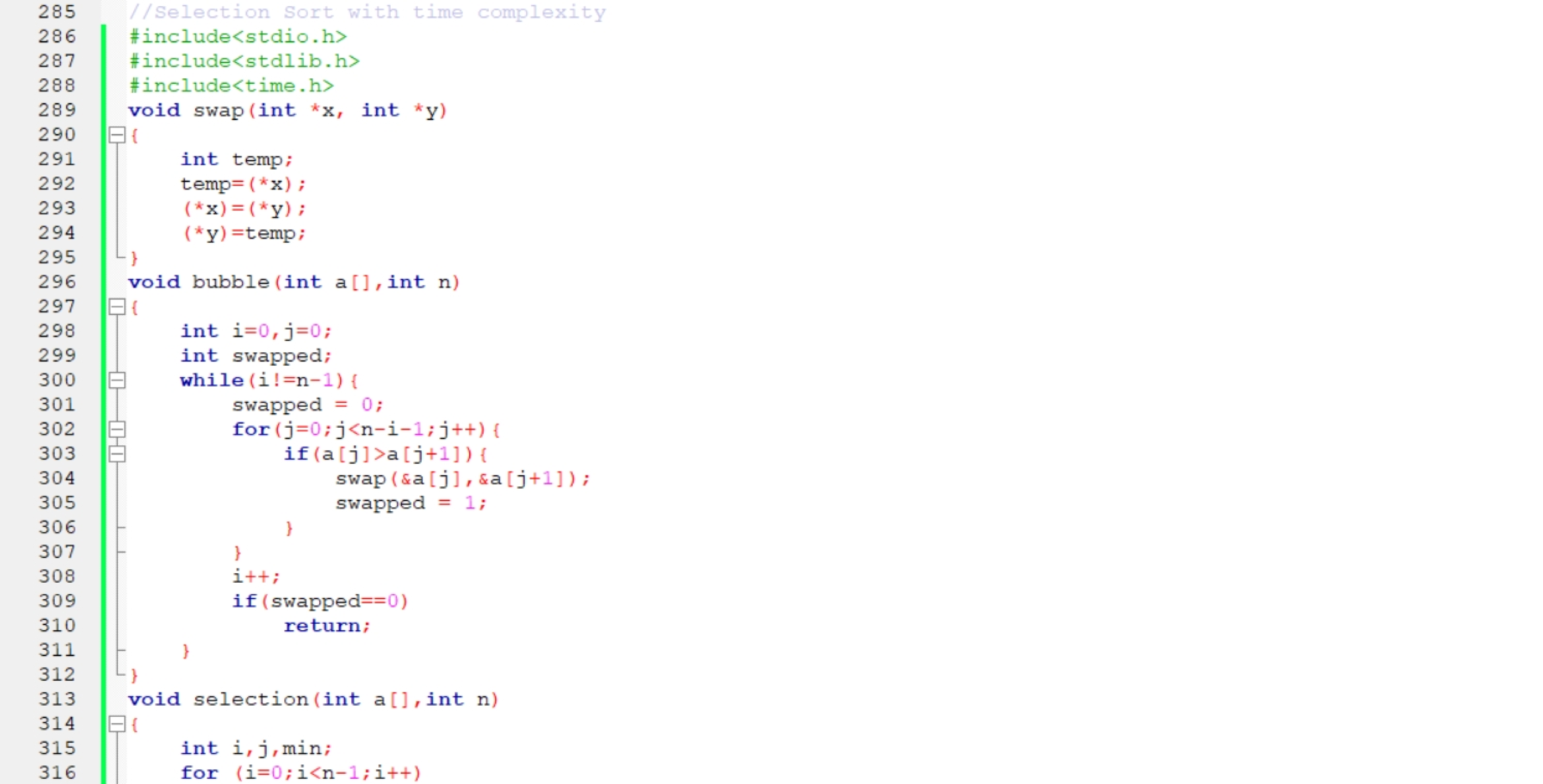
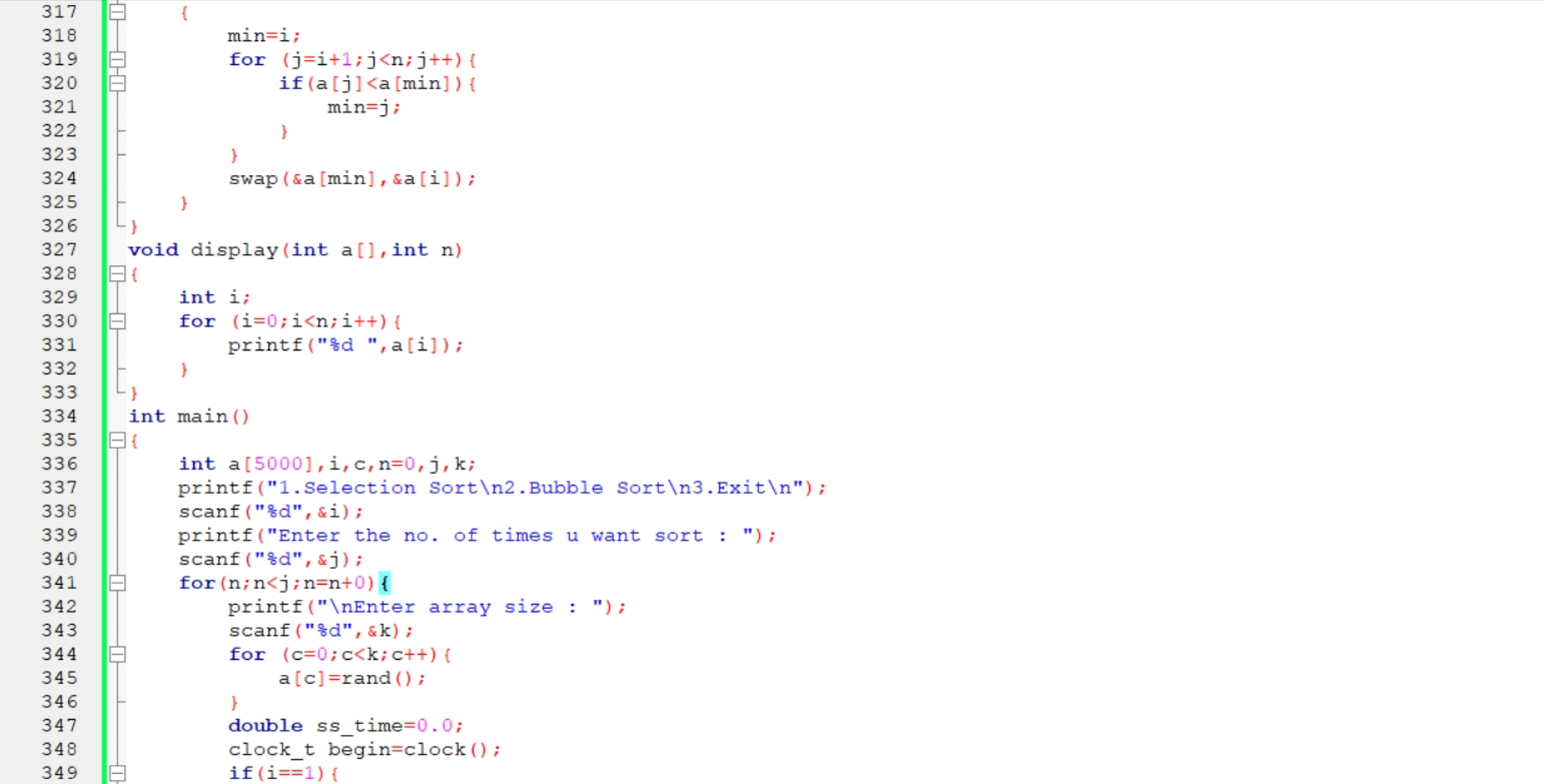
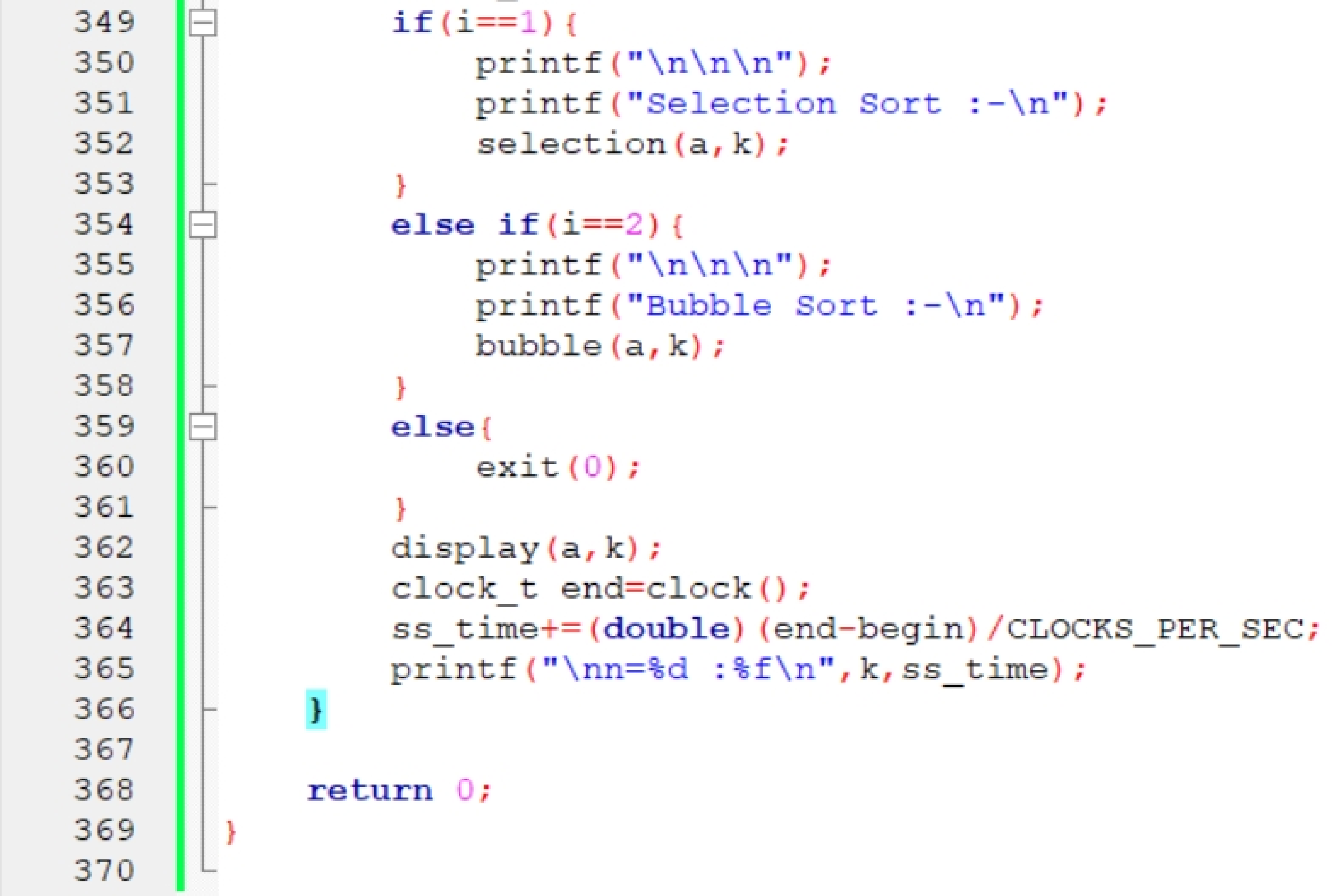


```
//Selection Sort with time complexity
#include<stdio.h>
#include<stdlib.h>
#include<time.h>
void swap(int *x, int *y)
{
    int temp;
    temp=(*x);
    (*x)=(*y);
    (*y)=temp;
}
void bubble(int a[],int n)
{
    int i=0,j=0;
    int swapped;
    while(i!=n-1){
        swapped = 0;
        for(j=0;j<n-i-1;j++){
            if(a[j]>a[j+1]){
                swap(&a[j],&a[j+1]);
                swapped = 1;
            }
        }
        i++;
        if(swapped==0)
            return;
    }
}
void selection(int a[],int n)
{
    int i,j,min;
    for (i=0;i<n-1;i++)
```



```
    {
        min=i;
        for (j=i+1;j<n;j++){
            if(a[j]<a[min]){
                min=j;
            }
        }
        swap(&a[min],&a[i]);
    }
}
void display(int a[],int n)
{
    int i;
    for (i=0;i<n;i++){
        printf("%d ",a[i]);
    }
}
int main()
{
    int a[5000],i,c,n=0,j,k;
    printf("1.Selection Sort\n2.Bubble Sort\n3.Exit\n");
    scanf("%d",&i);
    printf("Enter the no. of times u want sort : ");
    scanf("%d",&j);
    for(n;n<j;n=n+0){
        printf("\nEnter array size : ");
        scanf("%d",&k);
        for (c=0;c<k;c++){
            a[c]=rand();
        }
        double ss_time=0.0;
        clock_t begin=clock();
        if(i==1){
```



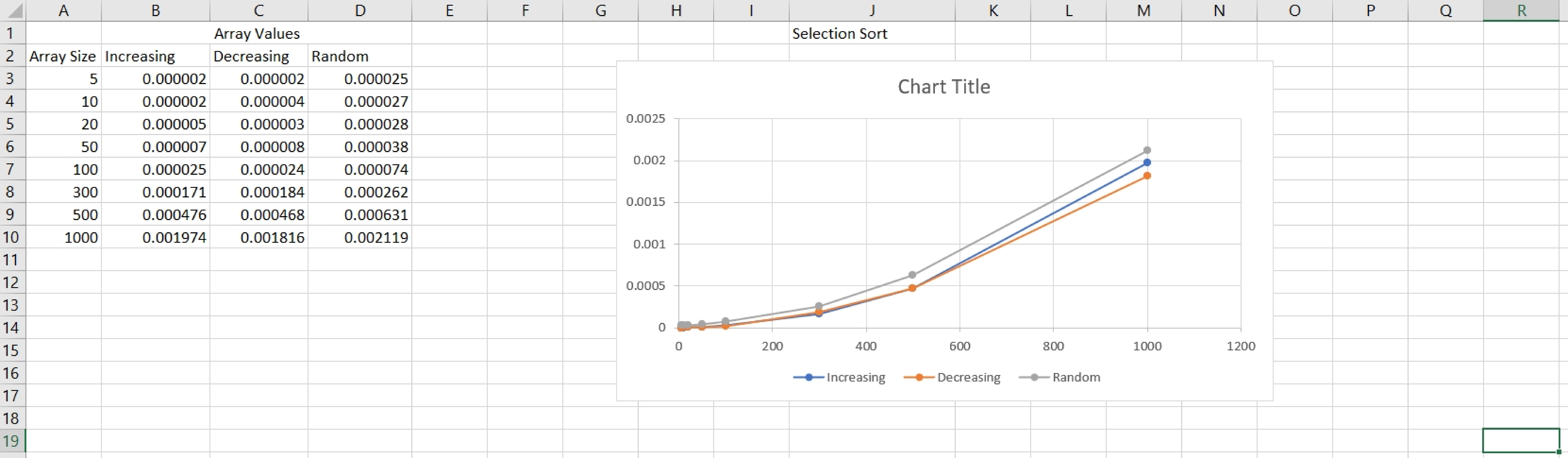
```
        if(i==1){
            printf("\n\n\n");
            printf("Selection Sort :-\n");
            selection(a,k);
        }
        else if(i==2){
            printf("\n\n\n");
            printf("Bubble Sort :-\n");
            bubble(a,k);
        }
        else{
            exit(0);
        }
        display(a,k);
        clock_t end=clock();
        ss_time+=(double)(end-begin)/CLOCKS_PER_SEC;
        printf("\nn=%d :%f\n",k,ss_time);
    }

    return 0;
}

```

"C:\Users\Shreshtha Aggarwal\Desktop\4sem\bin\Debug\4sem.exe"

```
1.Selection Sort
2.Bubble Sort
3.Exit
1
Enter the no. of times u want sort : 1

Enter array size : 50



Selection Sort :-
41 153 292 491 1869 2995 3902 4664 4827 5436 5447 5705 6334 6868 7711 9894 9961 11478 11538 11942 12382 14604 14771 15141 15724 16827 17035 17421 17673 18467 18716 19169 19718 19895 19912 21726 23281 23811 2446
 25667 26299 26500 26962 28145 28253 28703 29358 30333 31322 32391
n=50    Time:0.005000

Process returned 0 (0x0)   execution time : 3.894 s
Press any key to continue.
```

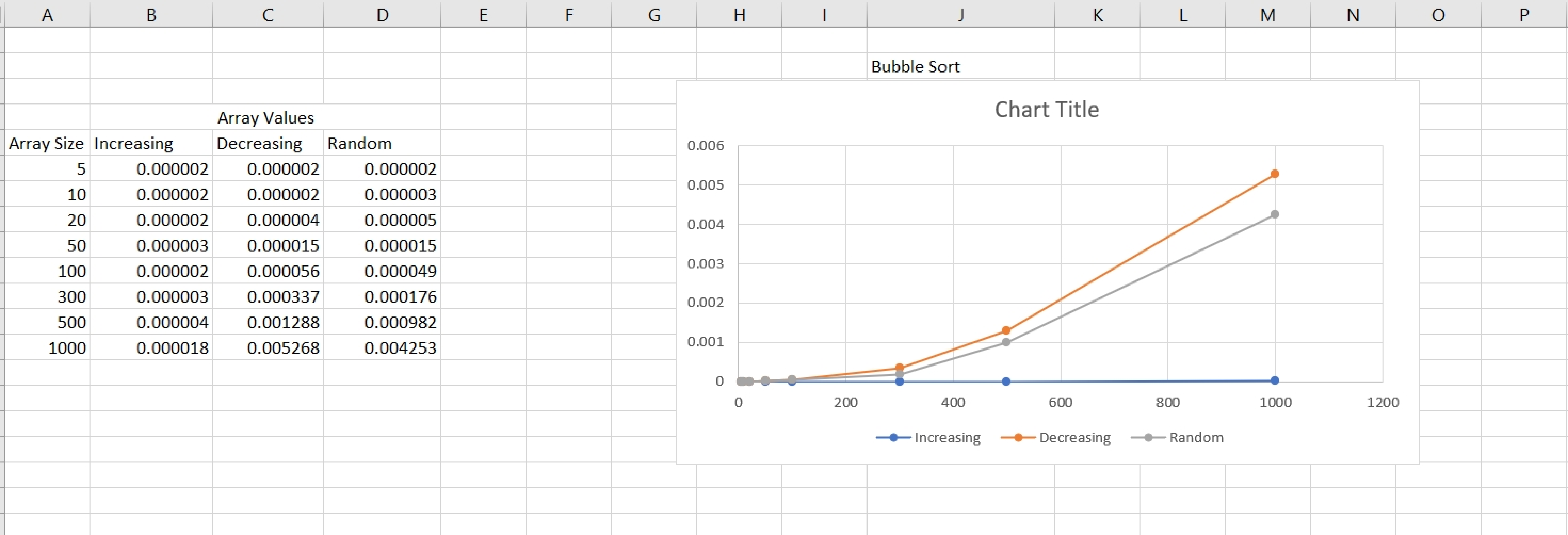
"C:\Users\Shreshtha Aggarwal\Desktop\4sem\bin\Debug\4sem.exe"

```
1.Selection Sort
2.Bubble Sort
3.Exit
2
Enter the no. of times u want sort : 2

Enter array size : 20



Bubble Sort :-
41 491 2995 4827 5436 5705 6334 9961 11478 11942 15724 16827 18467 19169 23281 24464 26500 26962 28145 29358
n=20    Time:0.001000

Enter array size : 100



Bubble Sort :-
153 288 292 778 1842 1869 2082 2306 3035 3548 3902 4639 4664 4833 4966 5021 5097 5447 5537 5829 6270 6729 6868 7376 7711 8723 8942 9040 9741 9894 9930 11323 11538 11840 12316 12382 12623 12859 13931 13977 14604
14771 15006 15141 15350 15573 15890 16118 16512 16541 16944 17035 17421 17673 18716 18756 19072 19264 19629 19718 19895 19912 19954 20037 21538 21726 22190 22386 22648 22704 22929 23805 23811 24084 24370 24393 2
4626 25547 25667 26299 26308 26777 26924 27446 27529 27644 28253 28703 28745 29658 30106 30333 31101 31115 31322 31673 32391 32439 32662 32757
n=100   Time:0.009000

Process returned 0 (0x0)   execution time : 8.115 s
Press any key to continue.
```



	Array Values		
Array Size	Increasing	Decreasing	Random
5	0.000002	0.000002	0.000025
10	0.000002	0.000004	0.000027
20	0.000005	0.000003	0.000028
50	0.000007	0.000008	0.000038
100	0.000025	0.000024	0.000074
300	0.000171	0.000184	0.000262
500	0.000476	0.000468	0.000631
1000	0.001974	0.001816	0.002119

Selection Sort



	Array Values		
Array Size	Increasing	Decreasing	Random
5	0.000002	0.000002	0.000002
10	0.000002	0.000002	0.000003
20	0.000002	0.000004	0.000005
50	0.000003	0.000015	0.000015
100	0.000002	0.000056	0.000049
300	0.000003	0.000337	0.000176
500	0.000004	0.001288	0.000982
1000	0.000018	0.005268	0.004253

Bubble Sort