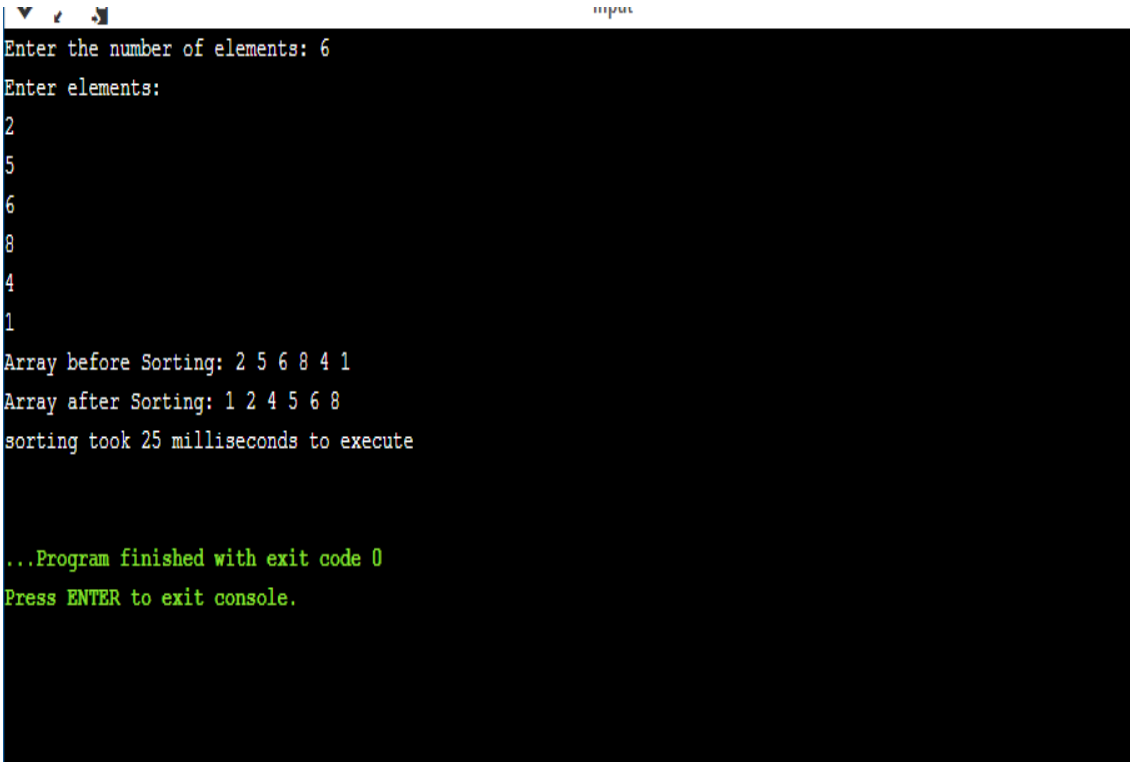


Bubblesort with time complexity:

```
1 #include<iostream>
2 using namespace std;
3 void swapping(int &a, int &b) {    //swap the content of a and b
4     int temp;
5     temp = a;
6     a = b;
7     b = temp;
8 }
9 void display(int *array, int size) {
10     for(int i = 0; i<size; i++)
11         cout << array[i] << " ";
12     cout << endl;
13 }
14 void bubbleSort(int *array, int size) {
15     for(int i = 0; i<size; i++) {
16         int swaps = 0;    //flag to detect any swap is there or not
17         for(int j = 0; j<size-i-1; j++) {
18             if(array[j] > array[j+1]) {    //when the current item is bigger than next
19                 swapping(array[j], array[j+1]);
20                 swaps = 1;    //set swap flag
21             }
22         }
23         if(!swaps)
24             break;    // No swap in this pass, so array is sorted
25     }
26 }
```

```
27 int main() {
28     int n;
29     clock_t t;
30     cout << "Enter the number of elements: ";
31     cin >> n;
32     int arr[n];    //create an array with given number of elements
33     cout << "Enter elements:" << endl;
34     for(int i = 0; i<n; i++) {
35         cin >> arr[i];
36     }
37     t=clock();
38     cout << "Array before Sorting: ";
39     display(arr, n);
40     bubbleSort(arr, n);
41     cout << "Array after Sorting: ";
42     t=clock()-t;
43     display(arr, n);
44     double time_taken=1000000*((double)t)/CLOCKS_PER_SEC;
45     cout<<"sorting took"<<" "<<time_taken<<" "<<"milliseconds to execute"<<endl;
46 }
47
```

Output:

A terminal window with a black background and white text. The window title is 'input'. The text inside shows a program that asks for the number of elements (6) and then the elements themselves (2, 5, 6, 8, 4, 1). It then displays the array before and after sorting, and the time taken to execute. The program finishes with exit code 0.

```
▼ ↵ ⌂ input
Enter the number of elements: 6
Enter elements:
2
5
6
8
4
1
Array before Sorting: 2 5 6 8 4 1
Array after Sorting: 1 2 4 5 6 8
sorting took 25 milliseconds to execute

...Program finished with exit code 0
Press ENTER to exit console.
```