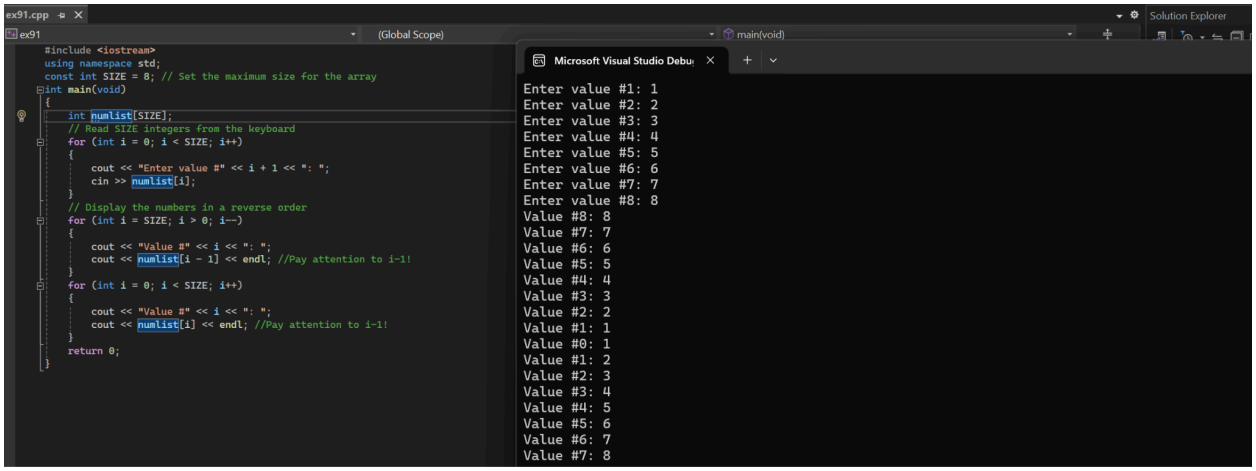
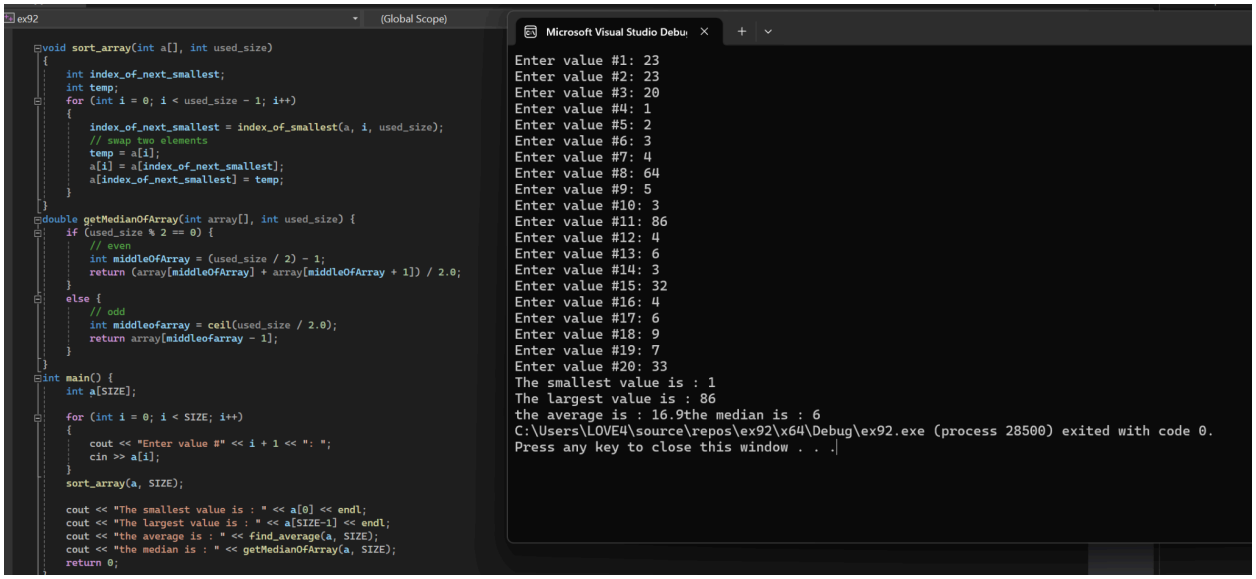
Ex. 9.1



```cpp
#include <iostream>
using namespace std;
const int SIZE = 8; // Set the maximum size for the array
int main(void)
{
    int numlist[SIZE];
    // Read SIZE integers from the keyboard
    for (int i = 0; i < SIZE; i++)
    {
        cout << "Enter value #" << i + 1 << ": ";
        cin >> numlist[i];
    }
    // Display the numbers in a reverse order
    for (int i = SIZE; i > 0; i--)
    {
        cout << "Value #" << i << ": ";
        cout << numlist[i - 1] << endl; //Pay attention to i-1!
    }
    for (int i = 0; i < SIZE; i++)
    {
        cout << "Value #" << i << ": ";
        cout << numlist[i] << endl; //Pay attention to i-1!
    }
    return 0;
}
```

```
Enter value #1: 1
Enter value #2: 2
Enter value #3: 3
Enter value #4: 4
Enter value #5: 5
Enter value #6: 6
Enter value #7: 7
Enter value #8: 8
Value #8: 8
Value #7: 7
Value #6: 6
Value #5: 5
Value #4: 4
Value #3: 3
Value #2: 2
Value #1: 1
Value #0: 1
Value #1: 2
Value #2: 3
Value #3: 4
Value #4: 5
Value #5: 6
Value #6: 7
Value #7: 8
```

Ex 9.2

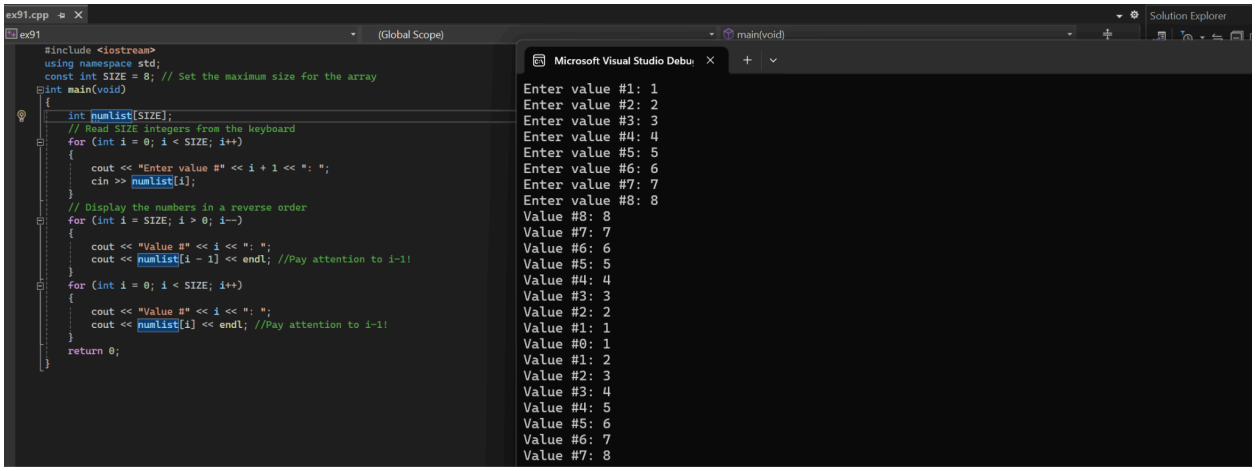


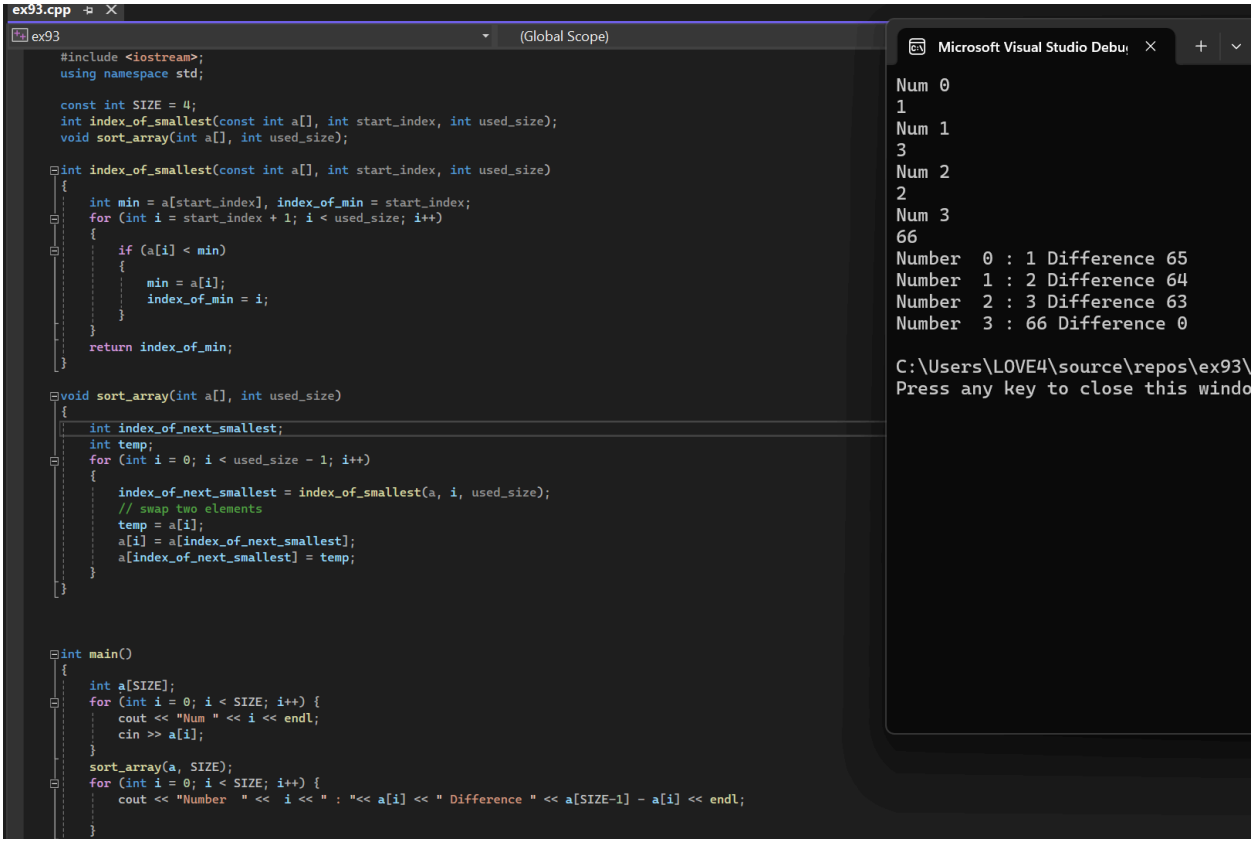
```cpp
void sort_array(int a[], int used_size)
{
    int index_of_next_smallest;
    int temp;
    for (int i = 0; i < used_size - 1; i++)
    {
        index_of_next_smallest = index_of_smallest(a, i, used_size);
        // swap two elements
        temp = a[i];
        a[i] = a[index_of_next_smallest];
        a[index_of_next_smallest] = temp;
    }
}
double getMedianOfArray(int array[], int used_size) {
    if (used_size % 2 == 0) {
        // even
        int middleOfArray = (used_size / 2) - 1;
        return (array[middleOfArray] + array[middleOfArray + 1]) / 2.0;
    }
    else {
        // odd
        int middleofarray = ceil(used_size / 2.0);
        return array[middleofarray - 1];
    }
}
int main() {
    int a[SIZE];

    for (int i = 0; i < SIZE; i++)
    {
        cout << "Enter value #" << i + 1 << ": ";
        cin >> a[i];
    }
    sort_array(a, SIZE);

    cout << "The smallest value is : " << a[0] << endl;
    cout << "The largest value is : " << a[SIZE-1] << endl;
    cout << "the average is : " << find_average(a, SIZE);
    cout << "the median is : " << getMedianOfArray(a, SIZE);
    return 0;
}
```

```
Enter value #1: 23
Enter value #2: 23
Enter value #3: 20
Enter value #4: 1
Enter value #5: 2
Enter value #6: 3
Enter value #7: 4
Enter value #8: 64
Enter value #9: 5
Enter value #10: 3
Enter value #11: 86
Enter value #12: 4
Enter value #13: 6
Enter value #14: 3
Enter value #15: 32
Enter value #16: 4
Enter value #17: 6
Enter value #18: 9
Enter value #19: 7
Enter value #20: 33
The smallest value is : 1
The largest value is : 86
the average is : 16.9the median is : 6
C:\Users\LOVE4\source\repos\ex92\x64\Debug\ex92.exe (process 28500) exited with code 0.
Press any key to close this window . . .
```

Ex 9.3

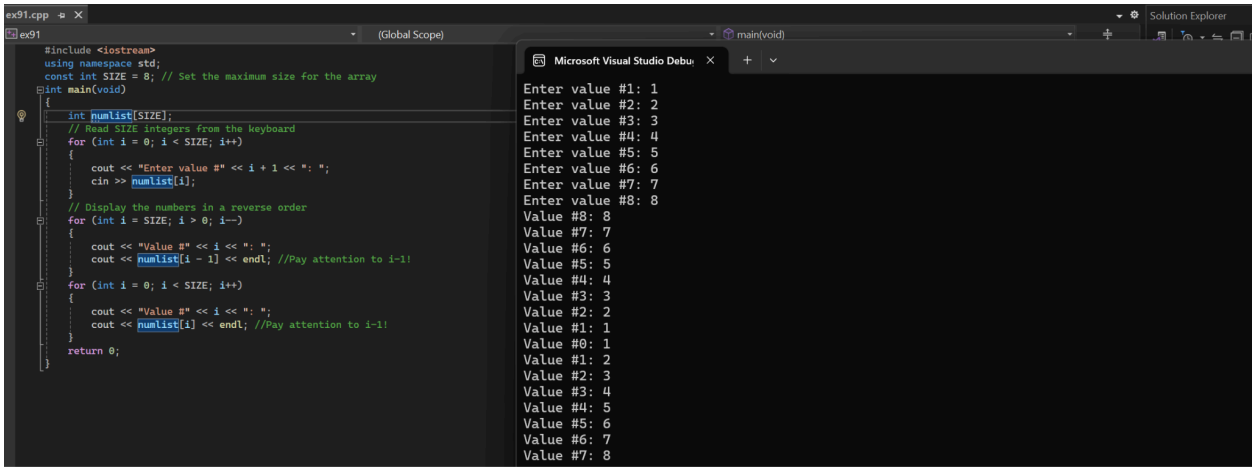
Ex. 9.1


ex91.cpp
ex91
(Global Scope)
main(void)
Solution Explorer
#include <iostream>
using namespace std;
const int SIZE = 8; // Set the maximum size for the array
int main(void)
{
int numlist[SIZE];
// Read SIZE integers from the keyboard
for (int i = 0; i < SIZE; i++)
{
cout << "Enter value #" << i + 1 << ": ";
cin >> numlist[i];
}
// Display the numbers in a reverse order
for (int i = SIZE; i > 0; i--)
{
cout << "Value #" << i << ": ";
cout << numlist[i - 1] << endl; //Pay attention to i-1!
}
for (int i = 0; i < SIZE; i++)
{
cout << "Value #" << i << ": ";
cout << numlist[i] << endl; //Pay attention to i-1!
}
return 0;
}
Microsoft Visual Studio Debu
Enter value #1: 1
Enter value #2: 2
Enter value #3: 3
Enter value #4: 4
Enter value #5: 5
Enter value #6: 6
Enter value #7: 7
Enter value #8: 8
Value #8: 8
Value #7: 7
Value #6: 6
Value #5: 5
Value #4: 4
Value #3: 3
Value #2: 2
Value #1: 1
Value #0: 1
Value #1: 2
Value #2: 3
Value #3: 4
Value #4: 5
Value #5: 6
Value #6: 7
Value #7: 8


ex93.cpp
ex93
(Global Scope)
#include <iostream>;
using namespace std;
const int SIZE = 4;
int index_of_smallest(const int a[], int start_index, int used_size);
void sort_array(int a[], int used_size);
int index_of_smallest(const int a[], int start_index, int used_size)
{
int min = a[start_index], index_of_min = start_index;
for (int i = start_index + 1; i < used_size; i++)
{
if (a[i] < min)
{
min = a[i];
index_of_min = i;
}
}
return index_of_min;
}
void sort_array(int a[], int used_size)
{
int index_of_next_smallest;
int temp;
for (int i = 0; i < used_size - 1; i++)
{
index_of_next_smallest = index_of_smallest(a, i, used_size);
// swap two elements
temp = a[i];
a[i] = a[index_of_next_smallest];
a[index_of_next_smallest] = temp;
}
}
int main()
{
int a[SIZE];
for (int i = 0; i < SIZE; i++) {
cout << "Num " << i << endl;
cin >> a[i];
}
sort_array(a, SIZE);
for (int i = 0; i < SIZE; i++) {
cout << "Number " << i << " : "<< a[i] << " Difference " << a[SIZE-1] - a[i] << endl;
}
Microsoft Visual Studio Debu
Num 0
1
Num 1
3
Num 2
2
Num 3
66
Number 0 : 1 Difference 65
Number 1 : 2 Difference 64
Number 2 : 3 Difference 63
Number 3 : 66 Difference 0
C:\Users\LOVE4\source\repos\ex93\
Press any key to close this windo

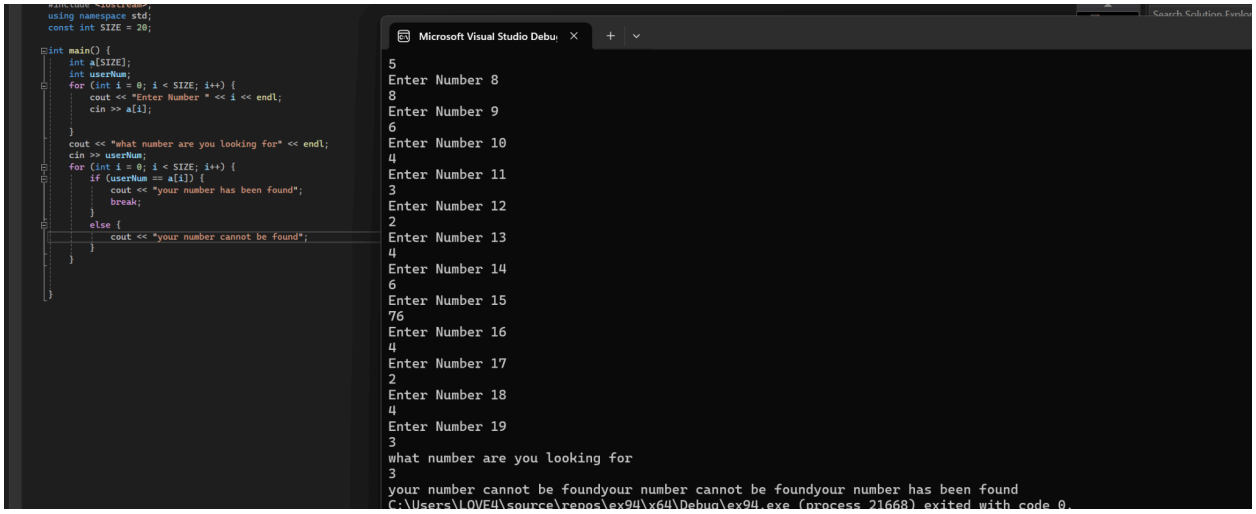
Ex 9.4

Ex. 9.1



```cpp
#include <iostream>
using namespace std;
const int SIZE = 8; // Set the maximum size for the array
int main(void)
{
    int numlist[SIZE];
    // Read SIZE integers from the keyboard
    for (int i = 0; i < SIZE; i++)
    {
        cout << "Enter value #" << i + 1 << ": ";
        cin >> numlist[i];
    }
    // Display the numbers in a reverse order
    for (int i = SIZE; i > 0; i--)
    {
        cout << "Value #" << i << ": ";
        cout << numlist[i - 1] << endl; //Pay attention to i-1!
    }
    for (int i = 0; i < SIZE; i++)
    {
        cout << "Value #" << i << ": ";
        cout << numlist[i] << endl; //Pay attention to i-1!
    }
    return 0;
}
```

```
Enter value #1: 1
Enter value #2: 2
Enter value #3: 3
Enter value #4: 4
Enter value #5: 5
Enter value #6: 6
Enter value #7: 7
Enter value #8: 8
Value #8: 8
Value #7: 7
Value #6: 6
Value #5: 5
Value #4: 4
Value #3: 3
Value #2: 2
Value #1: 1
Value #0: 1
Value #1: 2
Value #2: 3
Value #3: 4
Value #4: 5
Value #5: 6
Value #6: 7
Value #7: 8
```



```cpp
using namespace std;
const int SIZE = 20;

int main() {
    int a[SIZE];
    int userNum;
    for (int i = 0; i < SIZE; i++) {
        cout << "Enter Number " << i << endl;
        cin >> a[i];

    }
    cout << "what number are you looking for" << endl;
    cin >> userNum;
    for (int i = 0; i < SIZE; i++) {
        if (userNum == a[i]) {
            cout << "your number has been found";
            break;
        }
        else {
            cout << "your number cannot be found";
        }
    }

}
```

```
5
Enter Number 8
8
Enter Number 9
6
Enter Number 10
4
Enter Number 11
3
Enter Number 12
2
Enter Number 13
4
Enter Number 14
6
Enter Number 15
76
Enter Number 16
4
Enter Number 17
2
Enter Number 18
4
Enter Number 19
3
what number are you looking for
3
your number cannot be foundyour number cannot be foundyour number has been found
C:\Users\LOVE4\source\repos\ex94\x64\Debug\ex94.exe (process 21668) exited with code 0.
```