

//Course: CS2400-60 Computer Science 2

//Name: Abdalkarim, Marina

//Assignment: Programming Assignment #1

//Date Assigned: 9/05/18

//Date due: 9/20/18

//Date handed in: 9/18/18

//Remark: Should swap the numbers

```
#include <iostream>
```

```
#include <iomanip>
```

```
#include <cmath>
```

```
using namespace std;
```

```
void swap(int &a, int &b);
```

```
int main()
```

```
{
```

```
    int x, y;
```

```
    cout << "Pick a number: ";
```

```
    cin >> x;
```

```
    cout << "Pick another number: ";
```

```
    cin >> y;
```

```
    cout << "The first number is " << x << " the second number is " << y << endl << endl;
```

```
    cout << "...ONE SWAP LATER..." << endl << endl;
```

```
    swap(x, y);
```

```
    cout << "The first number is " << x << " the second number is " << y << endl << endl;
```

```
    return 0;
```

```
}
```

```
void swap(int &a, int &b)
```

```
{
```

```
    int temp1, temp2;
```

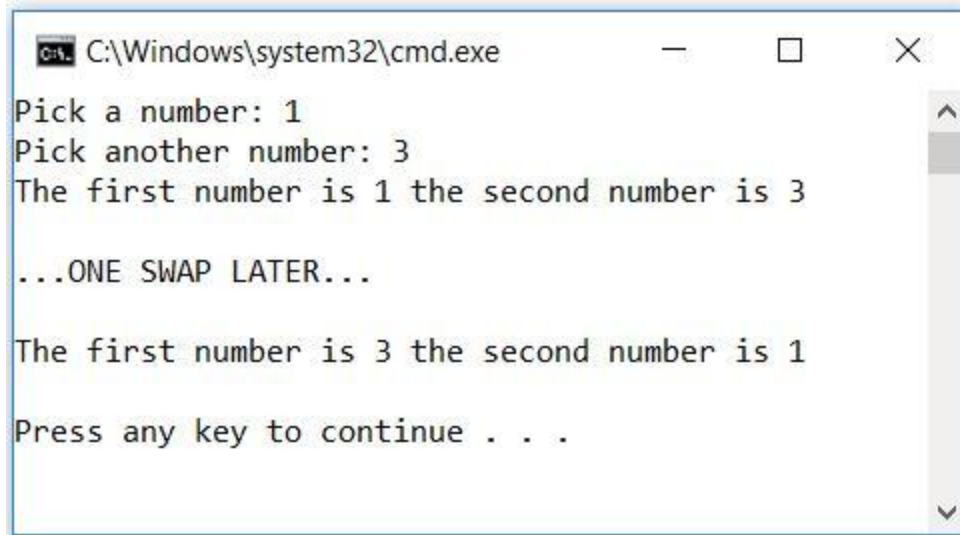
```
    temp1 = a;
```

```
    temp2 = b;
```

```
    a = temp2;
```

```
    b = temp1;
```

```
}
```



```
C:\Windows\system32\cmd.exe
Pick a number: 1
Pick another number: 3
The first number is 1 the second number is 3

...ONE SWAP LATER...

The first number is 3 the second number is 1

Press any key to continue . . .
```

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//Remark: Should list largest to smallest.

```
#include <iostream>
```

```
#include <iomanip>
```

```
#include <cmath>
```

```
using namespace std;
```

```
void largest_and_Smallest(int &a, int &b, int &c, int &d, int &smallest, int &largest);
```

```
int main()
```

```
{
```

```
    int w, x, y, z, small, large;
```

```
    cout << "Enter four numbers: ";
```

```
    cin >> w >> x >> y >> z;
```

```
    cout << endl;
```

```
    largest_and_Smallest(w, x, y, z, small, large);
```

```
    cout << "The smallest number is " << small << endl;
```

```
    cout << "The largest number is " << large << endl;
```

```
    return 0;
```

```
}
```

```
void largest_and_Smallest(int &a, int &b, int &c, int &d, int &smallest, int &largest)
```

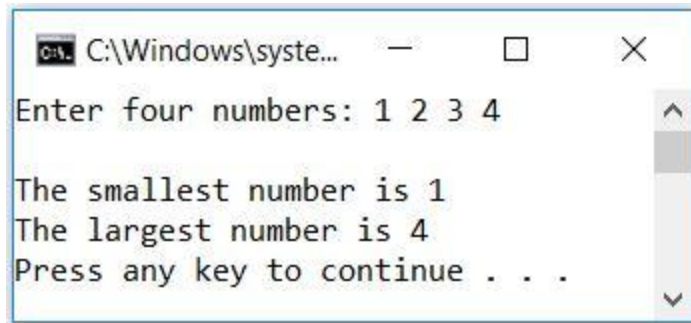
```
{
```

```
    if (a > b)
```

```

        largest = a;
    else
        largest = b;
    if (c > largest)
        largest = c;
    if (d > largest)
        largest = d;
    if (a < b)
        smallest = a;
    else
        smallest = b;
    if (c < smallest)
        smallest = c;
    if (d < smallest)
        smallest = d;
}

```



```

C:\Windows\system...
Enter four numbers: 1 2 3 4

The smallest number is 1
The largest number is 4
Press any key to continue . . .

```

```

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//Remark:      Should keep counting.

```

```

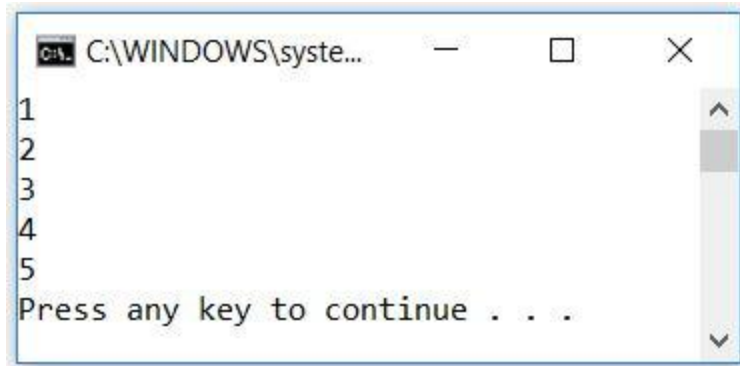
#include "stdafx.h"
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;
void counting();
int main()
{

```

```

        counting();
        counting();
        counting();
        counting();
        counting();
        return 0;
    }
    void counting()
    {
        static unsigned int count = 1;
        cout << count << endl;
        count++;
    }
}

```



```

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//Remark:       Should list largest to smallest.

```

```

#include <iostream>
#include <iomanip>
using namespace std;
void f();
int x = 5;
int main()
{
    cout << "x = " << x << endl;
    int x = 6;
    cout << "x = " << x << endl;
}

```

```

    {
        int x = 7;
        cout << "x = " << x << endl;
    }
    cout << "x = " << x << endl;
    f();
    return 0;
}
void f()
{
    cout << "x = " << x << endl;
    int x = 8;
    cout << "x = " << x << endl;
}

```

a.) x = 5

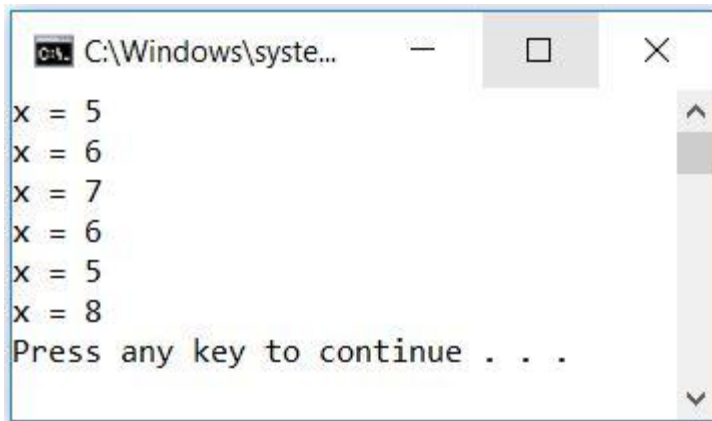
x = 6

x = 7

x = 6

x = 5

x = 8



```

C:\Windows\system...
x = 5
x = 6
x = 7
x = 6
x = 5
x = 8
Press any key to continue . . .

```

b.)

Yay I'm smart.

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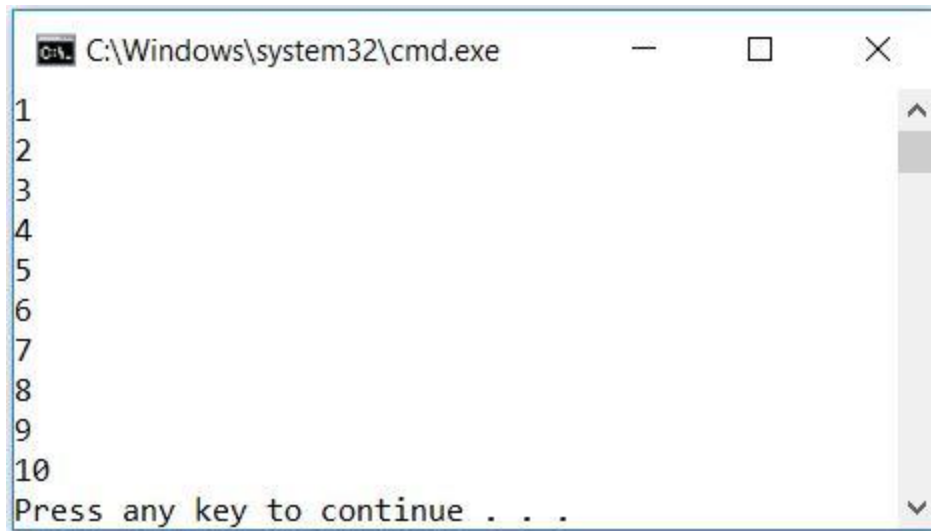
//Remark: Should fill the array.

#include <iostream>

```

#include <iomanip>
#include <cmath>
using namespace std;
void display_array(int x[], int y);
int main()
{
    const int SIZE = 10;
    int a[SIZE] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    display_array(a, SIZE);
    return 0;
}
void display_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cout << x[i] << endl;
}

```



```

C:\Windows\system32\cmd.exe
1
2
3
4
5
6
7
8
9
10
Press any key to continue . . .

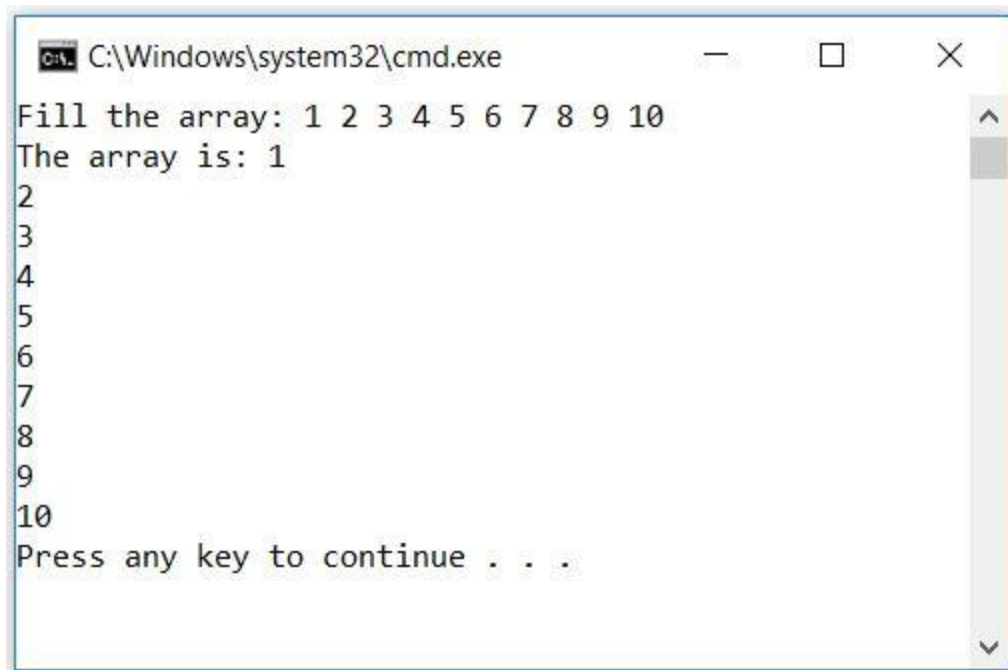
```

```

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//Date due:     9/20/18
//Date handed in: 9/18/18
//Remark:      Should fill the array.
#include <iostream>
#include <iomanip>
#include <cmath>

```

```
using namespace std;
void display_array(int x[], int y);
void fill_array(int x[], int y);
int main()
{
    const int SIZE = 10;
    int a[SIZE];
    cout << "Fill the array: ";
    fill_array(a, SIZE);
    cout << "The array is: ";
    display_array(a, SIZE);
    return 0;
}
void display_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cout << x[i] << endl;
}
void fill_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cin >> x[i];
}
```

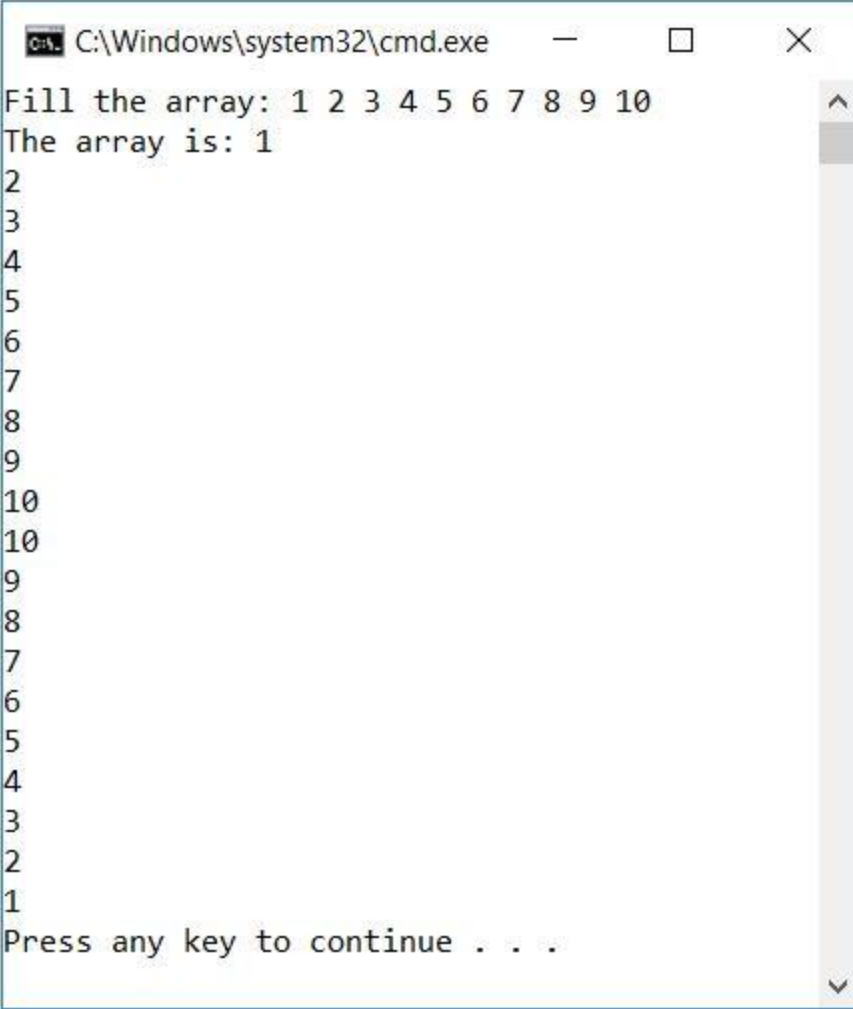


```
C:\Windows\system32\cmd.exe
Fill the array: 1 2 3 4 5 6 7 8 9 10
The array is: 1
2
3
4
5
6
7
8
9
10
Press any key to continue . . .
```

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//Remark: Should fill the array and reverse the array.

```
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;
void display_array(int x[], int y);
void fill_array(int x[], int y);
void reverse(int x[], int y);
int main()
{
    const int SIZE = 10;
    int a[SIZE];
    cout << "Fill the array: ";
    fill_array(a, SIZE);
    cout << "The array is: ";
    display_array(a, SIZE);
    reverse(a, SIZE);
    return 0;
}
void fill_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cin >> x[i];
}
void display_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cout << x[i] << endl;
}
void reverse(int x[], int y)
{
    for (int i = 1; i < y + 1; i++)
        cout << x[y - i] << endl;
```


}



A screenshot of a Windows command prompt window titled "C:\Windows\system32\cmd.exe". The window shows the following text: "Fill the array: 1 2 3 4 5 6 7 8 9 10", "The array is: 1", followed by a vertical list of numbers from 2 to 10, then 10 again, then 9 down to 1. At the bottom, it says "Press any key to continue . . .".

```
C:\Windows\system32\cmd.exe
Fill the array: 1 2 3 4 5 6 7 8 9 10
The array is: 1
2
3
4
5
6
7
8
9
10
10
9
8
7
6
5
4
3
2
1
Press any key to continue . . .
```

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//Remark: Should search for the value in the array.

```
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;
void display_array(int x[], int y);
void fill_array(int x[], int y);
void linear_search(int x[], int y);
```

```

int main()
{
    const int SIZE = 10;
    int a[SIZE];
    cout << "Fill the array: ";
    fill_array(a, SIZE);
    cout << "The array is: ";
    display_array(a, SIZE);
    linear_search(a, SIZE);
    return 0;
}

void fill_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cin >> x[i];
}

void display_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cout << x[i] << endl;
}

void linear_search(int x[], int y)
{
    int find;
    bool a;
    cout << "Search: ";
    cin >> find;
    for (int i = 0; i < y; i++)
    {
        if (x[i] == find)
            cout << "x[" << i << "]" << endl;
        if (x[i] != find)
            a = false;
    }
    if (a == false)
        cout << "-1" << endl;
}

```

```
C:\Windows\system32\cm...
Fill the array: 1 2 3 4 5 6 7 8 9 10
The array is: 1
2
3
4
5
6
7
8
9
10
Search: 2
x[1]
Press any key to continue . . .
```

```
C:\Windows\system32\cmd...
Fill the array: 1 2 3 4 5 6 7 8 9 10
The array is: 1
2
3
4
5
6
7
8
9
10
Search: 11
-1
Press any key to continue . . .
```

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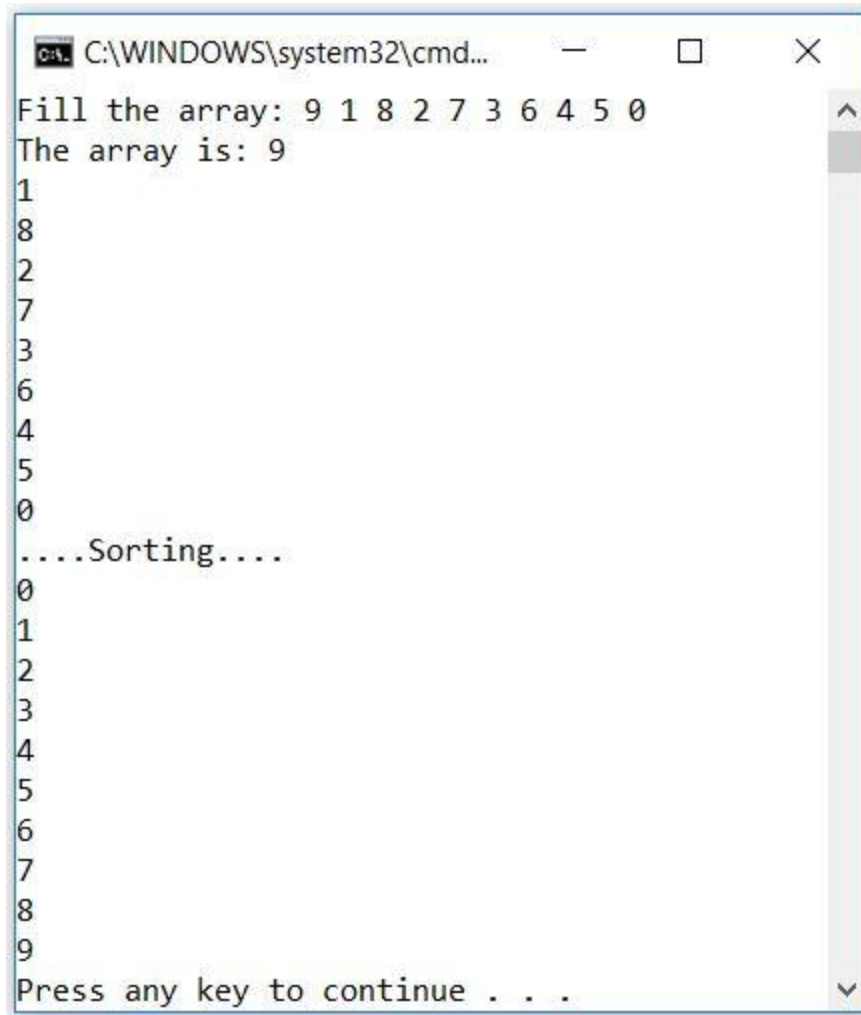
//Remark: Should search for the value in the array.

```
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;
void display_array(int x[], int y);
void fill_array(int x[], int y);
void sort(int x[], int y);
int main()
{
    const int SIZE = 10;
    int a[SIZE];
    cout << "Fill the array: ";
    fill_array(a, SIZE);
    cout << "The array is: ";
    display_array(a, SIZE);
    sort(a, SIZE);
    display_array(a, SIZE);
    return 0;
}
void fill_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cin >> x[i];
}
void display_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cout << x[i] << endl;
}
void sort(int x[], int y)
{
    cout << "...Sorting..." << endl;
    for (int i = 0; i < y; ++i)
    {
        int minSoFar = x[i];
        for (int j = i + 1; j < y; ++j)
        {
```

```

        if (x[j] < minSoFar)
        {
            minSoFar = x[j];
            int tmp = x[i];
            x[i] = x[j];
            x[j] = tmp;
        }
    }
}

```



The screenshot shows a Windows command prompt window with the title bar "C:\WINDOWS\system32\cmd...". The text inside the window is as follows:

```

Fill the array: 9 1 8 2 7 3 6 4 5 0
The array is: 9
1
8
2
7
3
6
4
5
0
....Sorting....
0
1
2
3
4
5
6
7
8
9
Press any key to continue . . .

```

```

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//Date due:     9/20/18

```

//Date handed in: 9/18/18

//Remark: Should search for the value in the array.

```
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;
void display_array(int x[], int y);
void fill_array(int x[], int y);
void sort(int x[], int y);
void binary_search(int x[], int y);
int main()
{
    const int SIZE = 10;
    int a[SIZE];
    cout << "Fill the array: ";
    fill_array(a, SIZE);
    cout << "The array is: ";
    display_array(a, SIZE);
    sort(a, SIZE);
    display_array(a, SIZE);
    binary_search(a, SIZE);
    return 0;
}
void fill_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cin >> x[i];
}
void display_array(int x[], int y)
{
    for (int i = 0; i < y; i++)
        cout << x[i] << endl;
}
void sort(int x[], int y)
{
    cout << "...Sorting..." << endl;
    for (int i = 0; i < y; ++i)
    {
        int minSoFar = x[i];
```

```

        for (int j = i + 1; j < y; ++j)
        {
            if (x[j] < minSoFar)
            {
                minSoFar = x[j];
                int tmp = x[i];
                x[i] = x[j];
                x[j] = tmp;
            }
        }
    }
}

void binary_search(int x[], int y)
{
    int find;
    int mid;
    bool a;
    mid = x[y / 2];
    cout << "Search: ";
    cin >> find;
    if (mid == find)
        cout << "x[" << mid - 1 << "]" << endl;
    else
    {
        for (int i = (y / 2); i > 0; i--)
        {
            if (x[i] == find)
                cout << "x[" << i - 1 << "]" << endl;
            else
                a = false;
        }
    }
    if (a == false)
        cout << "-1" << endl;
}

```

```
C:\WINDOWS\system32\cmd.exe
Fill the array: 1 2 3 4 5 6 7 8 9 0
The array is: 1
2
3
4
5
6
7
8
9
0
...Sorting...
0
1
2
3
4
5
6
7
8
9
Search: 11
-1
Press any key to continue . . .
```


C:\WINDOWS\system32\cmd.exe

Fill the array: 1 2 3 4 5 6 7 8 9 0

The array is: 1

2

3

4

5

6

7

8

9

0

...Sorting...

0

1

2

3

4

5

6

7

8

9

Search: 2

x[1]

-1

Press any key to continue . . .