

CSC2111 Computer Science I Lab

Lab 04

Objectives

1. Learn how to write a function to search an array.
2. Learn how to generate an array of **n** random values.
3. Learn how to sort an array (using selection sort)

Example 1

- Write a program that displays an array of ten randomly generated numbers.

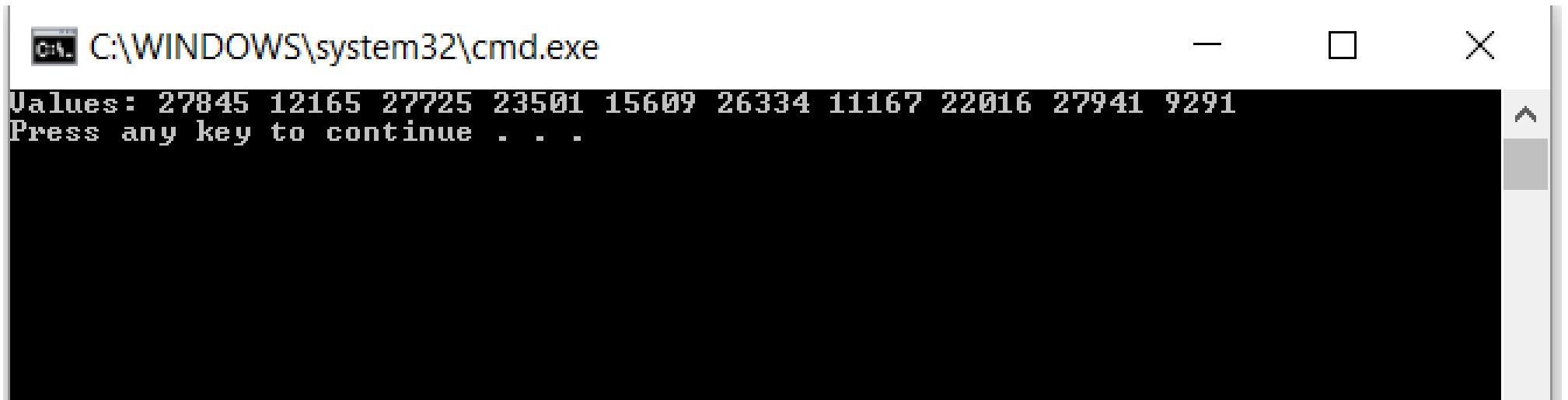
Example 1

```
#include<iostream>
#include<time.h>
using namespace std;

#define ASIZE 10
int main(void) {
    // Seed the random number generator
    srand((int)time(NULL));

    int a[ASIZE];
    for (int i = 0; i < ASIZE; i++) {
        // Store the random value
        a[i] = rand();
    }
    cout << "Values: ";
    for (int i = 0; i < ASIZE; i++) {
        cout << a[i] << " ";
    }
    cout << endl;
    return 0;
}
```

Output



A screenshot of a Windows command prompt window. The title bar at the top shows the icon for a command prompt and the text "C:\WINDOWS\system32\cmd.exe". The window contains the following text: "Values: 27845 12165 27725 23501 15609 26334 11167 22016 27941 9291" followed by "Press any key to continue . . .". The text is displayed in a monospaced font on a black background. The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
C:\WINDOWS\system32\cmd.exe  
Values: 27845 12165 27725 23501 15609 26334 11167 22016 27941 9291  
Press any key to continue . . .
```

Example 2

- Write a program that finds the minimum value of a ten element randomly generated array.

Example 2

```
#include<iostream>
#include<time.h>
using namespace std;

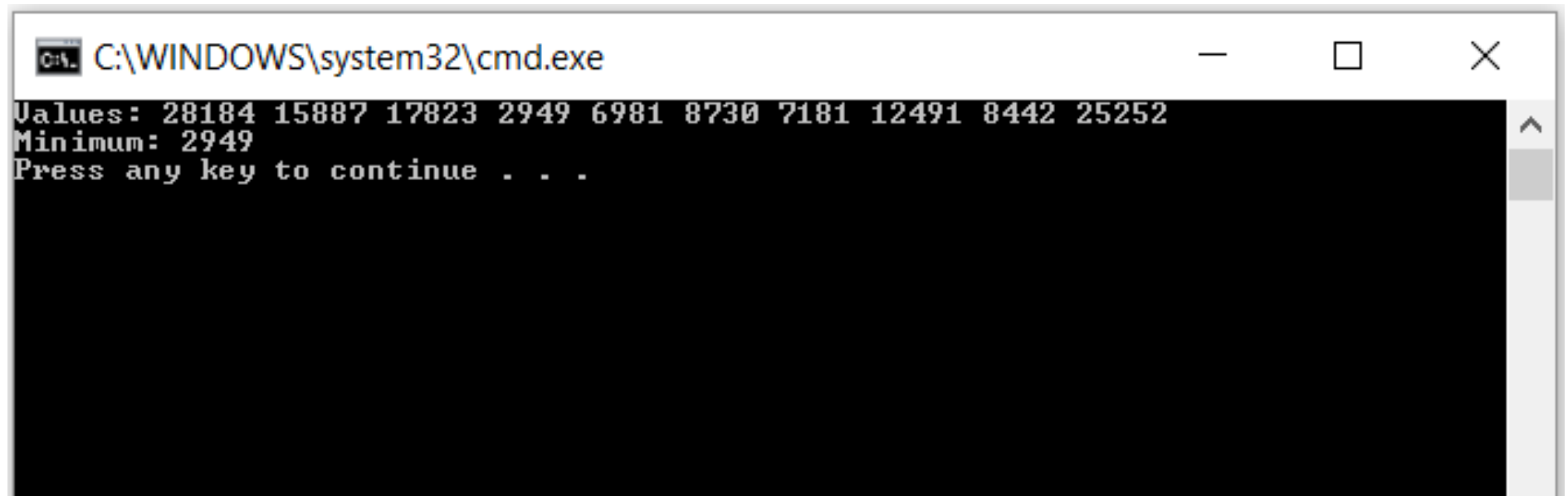
#define ASIZE 10
int main(void) {
    // Seed the random number generator
    srand((int)time(NULL));

    int a[ASIZE];
    for (int i = 0; i < ASIZE; i++) {
        // Store the random value
        a[i] = rand();
    }

    cout << "Values: ";
    int min = a[0];
    for (int i = 0; i < ASIZE; i++) {
        cout << a[i] << " ";
        if (a[i] < min) {
            min = a[i];
        }
    }
    cout << endl << "Minimum: " << min << endl;

    return 0;
}
```

Output



A screenshot of a Windows command prompt window. The title bar shows the path `C:\WINDOWS\system32\cmd.exe`. The command prompt displays the following text:

```
Values: 28184 15887 17823 2949 6981 8730 7181 12491 8442 25252  
Minimum: 2949  
Press any key to continue . . .
```

The output shows a list of ten values, with the minimum value (2949) highlighted in the original image. The prompt then waits for a key press to continue.