1.1 Exercises for Laboratory Work 4

The topic of the Laboratory Work 4: One-dimensional arrays.

The aim of the Laboratory Work 4: to write a program in C++ using one-dimensional arrays, loop for, to input values of array elements of from the keyboard (or assign values of array elements) and to display the result of the program on the screen.

Exercises:

Write a C++ program to solve a task using one-dimensional array:

1. Given an array A(5). Find the sum of negative elements and the number of positive elements of the array.
2. Given an array A(8). Find the smallest element (minimum) of the array, the greatest element (maximum) and their positions.
3. Given an array A(7). Find the smallest element (minimum) of the array among elements on the odd positions of the array.
4. Given an array A(10). Find the sum of positive elements and the number of positive elements located between the minimum and the maximum of the array.
5. If in the array A(15) there is an element that is equal to 5, assign to a variable X a value that is equal to the sum of all positive elements.
6. Given an array A(12). Find the sum of all negative elements and the greatest element (maximum) of the array.
7. Given an array A(8). Find the smallest element (minimum) of the array and its position.
8. Given an array A(7). Find the greatest element (maximum) among the elements on the odd positions.
9. Given an array A(10). Find the sum of positive elements and the number of positive elements that located between the minimum (the smallest element) and maximum (the greatest element) of the array.
10. If in the array A(9) there is an element that is equal to zero, then assign to variable X a value that is equal to the sum of all positive elements.
11. Given an array A(14). Find the smallest element (minimum) among positive elements of the array and the greatest element (maximum) among odd positive elements and their positions.
12. Given an array A(8). Find the greatest element (maximum) among positive elements on the odd positions.
13. Given an array A(7). Find the product of negative elements and the number of positive elements of the array on odd positions.
14. Given an array A(10). Find the smallest positive element of the array and the greatest positive element and their positions.

15. Given an array A(14). Find the smallest positive element of the array among elements on the even positions of the array.
16. Given an array A(9). Find the product of negative elements and the number of positive elements located between the minimum and the maximum of the array.
17. If in the array A(8) there is an element that is equal to 10, assign to a variable X a value that is equal to the product of all positive elements.
18. Given an array A(10). Find the product of all negative elements and the greatest element (maximum) of the array.
19. Given an array A(15). Find the smallest positive element of the array and its position.
20. Given an array A(10). Find the greatest negative element among the elements on the even positions.

1.2 Examples:

Example 1.
Given an array A(10). Find the smallest element (minimum) of the array and the largest element (maximum) of the array.
Solution:

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

int main(){
     int max,min;
     int a[10]={65, 64, 11, 43, 39, -15 ,-100 ,125, 150, -
250};
     max = a[0];
     min = a[0];
    for(int i=0; i<20; i++){
     if(a[i]>max) max = a[i];
     if(a[i]<min) min = a[i];
    }
    cout<<"min= " <<min<<endl;
    cout<<"max= " <<max<<endl;
}
```

Run the program and you will see on the screen of monitor:

```
min= -1467085824
max= 1780427589
```

Example 2.

Given an array A(20). Find the smallest positive element of the array and the largest odd element of the array.
Solution:

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

int main(){
     int max,min;
     int a[20]={ 2, -17, -12, 9, 10, 0, -9, -12,
     -1, 2, 65, 65, 11, 47, 70, -15 ,-100 ,801, 802, -250 };
     max = a[0];
     min = a[0];
    for(int i=0; i<20; i++){
     if(a[i]>max && !(a[i]%2==0)) max = a[i];
     if(a[i]<min && a[i]>0) min = a[i];
    }
    cout<<"min= " <<min<<endl;
    cout<<"max= " <<max<<endl;
}
```

Run the program and you will see on the screen of monitor:

```
min= 2
max= 801
```