Exercises for Laboratory Work 12

The topic of the laboratory work 12: pointers.

The aim of the laboratory work 12: to write a C++ program for solving a task using pointers.

1. Given an array A (10). Find the sum and the number of positive elements of array.

2. Given an array B (20). Find the minimum and maximum of the array elements and their positions.

3. Given an array C (15). Find the smallest element among the elements on the odd positions of the array.

4. Given an array D (30). Find the sum and the number of positive elements of the array.

5. If in the array F (15) there is an element that is equal to 5, assign to X a value that is equal to the sum of all positive elements.

6. Given an array A (12). Find the sum of negative elements.

7. Given an array B (20). Find the maximum of array elements.

8. Given an array C (18). Find the smallest element among the elements on the not odd positions.

9. Given an array D (7). Find the sum and the number of positive elements located between the minimum and maximum elements of the array.

10. Given an array F (20). Find the minimum and maximum of the array elements and their positions.

11. Given an array W (15). Find the largest element among the elements on not positions of the array.

12. Given an array A (6). Find the number of negative elements.

13. Given an array B (8). Find the sum and the number of negative elements of array.

14. Given an array C (14). Find the minimum and maximum of the array elements.

15. Given an array B (10). Find the minimum among the elements on the not odd positions of the array.

16. Given an array B (12). Find the sum and the number of odd elements of the array.

17. If in the array A (10) there is an element that is equal to zero, assign to X a value that is equal to the sum of all positive elements.

18. Given an array A (8). Find the sum of negative elements.

19. Given an array B (16). Find the maximum of array elements.

20. Given an array A (7). Find the minimum element among the elements on not odd positions.

12.4 Examples

Example 1. Given an array. Find the smallest element of the array using pointers and function.

Solution:

#include<iostream>

using namespace std;

int \*findMin(int arr[], int n);

int main(){

int n, i, \*p;

cout << "Enter number of data values";

cin >> n;

int arr[100];

for (i = 0; i<n; i++) {

cout << "Enter value: ";

cin >> arr[i];

}

p = findMin(arr, n);

cout << "The min value is:" << \*p;

return 0;

}

int \*findMin(int data[], int n){

int \*min = data;

int i;

for (i = 1; i<n; i++){

if (\*min>\*(min + i)) \*min = \*(min + i);

}

return min;

}

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

Enter number of data values3

Enter value: 7

Enter value: 2

Enter value: 4

The min value is:2

Example 2. Given an array. Find the sum of all elements of the array using pointers.

Solution:

#include<iostream>

using namespace std;

int main()

{

int arr[5],i;

int \*p=arr;

cout<<"Enter five numbers separated by space:";

cin>>\*p>>\*(p+1)>>\*(p+2)>>\*(p+3)>>\*(p+4);

int sum = 0;

for (int i = 0; i < 5; ++i)

{

if (arr[i] > 0)

sum += arr[i];

}

cout<<"Your sum is:"<< sum;

return 0;

}

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

Enter five numbers separated by space:4

9

7

5

1

Your sum is:26