

## Отчёт по выполнению 3 лабораторной работы на C++

В ходе выполнения лабораторной работы я познакомился с массивами, методами массивов и операции с ними.

```
1  #include <iostream>
2  #include <cstdlib>
3  using namespace std;
4  int main()
5  {
6      int len = 0;
7      int sum = 0;
8      int array[10];
9      for (int i = 0; i < 10; i++)
10     {
11         array[i] = rand() % 10;
12         cout << array[i] << " ";
13         sum += array[i];
14         len += 1;
15     }
16     cout << endl;
17     int max = array[0];
18     int min = array[0];
19     int n = 0;
20     for (n; n != len; n++)
21     {
22         if (array[n] > max)
23         {
24             max = array[n];
25         }
26         if (array[n] < min)
27         {
28             min = array[n];
29         }
30     }
31     cout << "Max el: " << max << endl;
32     cout << "Min el: " << min << endl;
```

```
32     cout << "Min el: " << min << endl;
33     for (int i = 0; i < n; i++)
34     {
35         for (int j = 0; j < n - 1; j++) {
36             if (array[j] > array[j + 1])
37             {
38                 swap(array[j], array[j + 1]);
39             }
40         }
41     }
42     cout << "Sorted array:" << endl;
43     for (int i = 0; i < n; i++)
44     {
45         cout << array[i] << " ";
46     }
47     cout << endl;
48     cout << "Sum" << " " << "Len" << endl;
49     cout << sum << " " << len << endl;
50     cout << "sr arifm:" << (float(sum) / float(len)) << endl;
51     int num = 0;
52     cout << "Enter a number which i need to find it index" << endl;
53     cin >> num;
54     for (int p = 0; p != len; p++)
55     {
56         if (array[p] == num)
57         {
58             cout << p << endl;
59         }
60     }
61
62     return 0;
```

```
1  #include <iostream>
2  #include <cstdlib>
3  #include <algorithm>
4  using namespace std;
5  int main()
6  {
7      int len = 0;
8      int array[5];
9      for (int i = 0; i < 5; i++)
10     {
11         array[i] = rand() % 10;
12         cout << array[i] << " ";
13         len += 1;
14     }
15     cout << endl;
16     int len1 = 0;
17     int array1[5];
18     for (int i = 0; i < 5; i++)
19     {
20         array1[i] = rand() % 10;
21         cout << array1[i] << " ";
22         len1 += 1;
23     }
24     cout << endl;
25     int array2[10];
26     for (int j = 0; j != 5; j++)
27     {
28         array2[j] = array[j];
29     }
30     for (int i = 0; i != 5; i++)
```

```

28         array2[j] = array1[j];
29     }
30     for (int j = 0; j != 5; j++)
31     {
32         array2[j + 5] = array1[j];
33     }
34     cout << endl;
35     cout << "arr1+arr2:" << endl;
36     for (int i = 0; i < 10; i++)
37     {
38         cout << array2[i] << " ";
39     }
40     cout << endl;
41     cout << endl;
42     cout << "array1" << endl;
43     int array3[5];
44     for (int i = 0; i < 5; i++)
45     {
46         cout << array1[i] << " ";
47     }
48     cout << endl;
49     cout << "reversed array1:" << endl;
50     for (int i = len1 - 1, j = 0; i != 0, j != len1; j++, i--)
51     {
52         array3[j] = array1[i];
53     }
54     for (int i = 0; i < 5; i++)
55     {
56         cout << array3[i] << " ";
57     }
58     cout << endl;
59     cout << endl;
60     cout << "sum of array (arr1+arr2+arr3):" << endl;

```

```
49     cout << "reversed array1:" << endl;
50     for (int i = len1 - 1, j = 0; i != 0, j != len1; j++, i--)
51     {
52         array3[j] = array1[i];
53     }
54     for (int i = 0; i < 5; i++)
55     {
56         cout << array3[i] << " ";
57     }
58     cout << endl;
59     cout << endl;
60     cout << "unique array(sum array1+array2):" << endl;
61     auto res = unique(begin(array2), end(array2));
62     for_each(begin(array2), res, [](int a)
63     {
64         cout << a << " ";
65     });
66     return 0;
67 }
```

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      setlocale(LC_ALL, "ru");
6      const int rows = 4;
7      const int column = 4;
8      int arr[rows][column];
9      int sum = 0;
10     int max = 0;
11     int min = 0;
12     for (int i = 0; i < rows; i++)
13     {
14         for (int j = 0; j < column; j++)
15         {
16             arr[i][j] = rand()%10;
17             sum += arr[i][j];
18             if (arr[i][j] > max)
19             {
20                 max = arr[i][j];
21             }
22             if (arr[i][j] < min)
23             {
24                 min = arr[i][j];
25             }
26         }
27     }
28 }
29 for (int i = 0; i < rows; i++)
30 {
31     for (int j = 0; j < column; j++)
32     {
```

```

33         cout << arr[i][j] << " ";
34     }
35     cout << endl;
36 }
37 cout << endl;
38 cout << "sum" << " " << "min" << " " << "max" << endl;
39 cout << sum << " " << min << " " << max << endl;
40 for (int i = 0; i < rows; i++)
41 {
42     int summa = 0;
43     for (int j = 0; j < column; j++)
44     {
45         cout << arr[i][j] << " ";
46         summa += arr[i][j];
47     }
48     cout << " average arifmetic this row: " << summa/4;
49     cout << endl;
50 }
51 cout << endl;
52 cout << "Elements of main diagonal:" << endl;
53 if ((rows % 2 == 0) && (column % 2 == 0))
54 {
55     for (int i = 0; i < rows; i++)
56     {
57         cout << arr[i][i] << " ";
58     }
59 }
60 cout << endl;
61 cout << endl;
62 for (int i = 0; i < rows; i++)
63 {
64     int summa = 0;

```

```

60     cout << endl;
61     cout << endl;
62     for (int i = 0; i < rows; i++)
63     {
64         int summa = 0;
65         for (int j = 0; j < column; j++)
66         {
67             cout << arr[i][j] << " ";
68             summa += arr[i][j];
69         }
70         cout << " sum this row: " << summa;
71         cout << endl;
72     }
73     cout << endl;
74     for (int i = 0; i < rows; i++)
75     {
76         int maxcolumn = 0;
77         for (int j = 0; j < column; j++)
78         {
79             if (arr[j][i] > maxcolumn)
80             {
81                 maxcolumn = arr[j][i];
82             }
83         }
84         cout << "max el in column " << i << ": " << maxcolumn << endl;
85     }
86     cout << endl;
87     return 0;
88 }

```

Выполнил: Чаплышкин С.А., ОмГТУ, АТП-221.

Github: [https://github.com/Qubicool/lab\\_c](https://github.com/Qubicool/lab_c)