Отчёт по выполнению 3 лабораторной работы на C++

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

```cpp
#include <iostream>
#include <cstdlib>
using namespace std;
int main()
{
    int len = 0;
    int sum = 0;
    int array[10];
    for (int i = 0; i < 10; i++)
    {
        array[i] = rand() % 10;
        cout << array[i] << " ";
        sum += array[i];
        len += 1;
    }
    cout << endl;
    int max = array[0];
    int min = array[0];
    int n = 0;
    for (n; n != len; n++)
    {
        if (array[n] > max)
        {
            max = array[n];
        }
        if (array[n] < min)
        {
            min = array[n];
        }
    }
    cout << "Max el: " << max << endl;
    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;
```

```cpp
#include <iostream>
#include <cstdlib>
#include <algorithm>
using namespace std;
int main()
{
    int len = 0;
    int array[5];
    for (int i = 0; i < 5; i++)
    {
        array[i] = rand() % 10;
        cout << array[i] << " ";
        len += 1;
    }
    cout << endl;
    int len1 = 0;
    int array1[5];
    for (int i = 0; i < 5; i++)
    {
        array1[i] = rand() % 10;
        cout << array1[i] << " ";
        len1 += 1;
    }
    cout << endl;
    int array2[10];
    for (int j = 0; j != 5; j++)
    {
        array2[j] = array[j];
    }
```

```
        array2[j] = array[j];
    }
    for (int j = 0; j != 5; j++)
    {
        array2[j + 5] = array1[j];
    }
    cout << endl;
    cout << "arr1+arr2:" << endl;
    for (int i = 0; i < 10; i++)
    {
        cout << array2[i] << " ";
    }
    cout << endl;
    cout << endl;
    cout << "array1" << endl;
    int array3[5];
    for (int i = 0; i < 5; i++)
    {
        cout << array1[i] << " ";
    }
    cout << endl;
    cout << "reversed array1:" << endl;
    for (int i = len1 - 1, j = 0; i != 0, j != len1; j++, i--)
    {
        array3[j] = array1[i];
    }
    for (int i = 0; i < 5; i++)
    {
        cout << array3[i] << " ";
    }
    cout << endl;
    cout << endl;
```

```
    cout << "reversed array1:" << endl;
    for (int i = len1 - 1, j = 0; i != 0, j != len1; j++, i--)
    {
        array3[j] = array1[i];
    }
    for (int i = 0; i < 5; i++)
    {
        cout << array3[i] << " ";
    }
    cout << endl;
    cout << endl;
    cout << "unique array(sum array1+array2):" << endl;
    auto res = unique(begin(array2), end(array2));
    for_each(begin(array2), res, [](int a)
        {
            cout << a << " ";
        });
    return 0;
}
```

```cpp
#include <iostream>
using namespace std;
int main()
{
    setlocale(LC_ALL, "ru");
    const int rows = 4;
    const int column = 4;
    int arr[rows][column];
    int sum = 0;
    int max = 0;
    int min = 0;
    for (int i = 0; i < rows; i++)
    {
        for (int j = 0; j < column; j++)
        {
            arr[i][j] = rand()%10;
            sum += arr[i][j];
            if (arr[i][j] > max)
            {
                max = arr[i][j];
            }
            if (arr[i][j] <  min)
            {
                min = arr[i][j];
            }

        }
    }
    for (int i = 0; i < rows; i++)
    {
        for (int j = 0; j < column; j++)
        {
```

```
            cout << arr[i][j] << " ";
        }
        cout << endl;
    }
    cout << endl;
    cout << "sum" << " " << "min" << " " << "max" << endl;
    cout << sum << "  " << min << "  " << max << endl;
    for (int i = 0; i < rows; i++)
    {
        int summa = 0;
        for (int j = 0; j < column; j++)
        {
            cout << arr[i][j] << " ";
            summa += arr[i][j];
        }
        cout << " average arifmetic this row: " << summa/4;
        cout << endl;
    }
    cout << endl;
    cout << "Elements of main diagonal:" << endl;
    if ((rows % 2 == 0) && (column % 2 == 0))
    {
        for (int i = 0; i < rows; i++)
        {
            cout << arr[i][i] << " ";
        }
    }
    cout << endl;
    cout << endl;
    for (int i = 0; i < rows; i++)
    {
        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  }
```

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Github: https://github.com/Qubicool/lab_c