
1- write a program to Add the elements 5, 9, 200, and -3 to a vector.

اكتب برنامجًا لإضافة العناصر 5، 9، 200، و-3 إلى vector.

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x;
    x.push_back(5);
    x.push_back(9);
    x.push_back(200);
    x.push_back(-3);
    return 0;
}
< sum;
    return 0;
}
```

2- write a program to Add the elements 5, 9, 200, and -3 to a vector Print the first and last elements of a vector.

اكتب برنامجًا لإضافة العناصر 5، 9، 200، و-3 إلى vector اطبع العنصرين الأول والأخير من المتجه.

Output

```
5
-3
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x;
    x.push_back(5);
    x.push_back(9);
    x.push_back(200);
    x.push_back(-3);

    cout << x[0] << endl;
    cout << x[x.size() - 1] << endl;
    return 0;
}
```

3- write a program to Add the elements 5, 9, 200, and -3 to a vector Print all elements of a vector using a loop.

اكتب برنامجًا لإضافة العناصر 5، 9، 200، و-3 إلى vector، اطبع جميع عناصر vector باستخدام الحلقة.

Output

```
5
9
200
-3
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x;
    x.push_back(5);
    x.push_back(9);
    x.push_back(200);
    x.push_back(-3);

    for (int i = 0; i < x.size(); i++) {
        cout << x[i] << endl;
    }
    return 0;
}
```

4- write a program to Add the elements 5, 9, 200, and -3 to a vector and Copy elements from one vector to another.

اكتب برنامجًا لإضافة العناصر 5 و9 و200 و-3 إلى vector ونسخ العناصر من vector إلى آخر.

Output

```
5
9
200
-3
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x;
    vector<int> y;

    x.push_back(5);
    x.push_back(9);
    x.push_back(200);
    x.push_back(-3);

    y = x;

    for (int i = 0; i < y.size(); i++) {
        cout << y[i] << endl;
    }
    return 0;
}
```

5- write a program to Add the elements 5, 9, 200, and -3 to a vector and Clear all elements from a vector.

اكتب برنامجًا لإضافة العناصر 5 و9 و200 و-3 إلى vector ومسح كافة العناصر من vector.

Output

```
0
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x;

    x.push_back(5);
    x.push_back(9);
    x.push_back(200);
    x.push_back(-3);

    x.clear();

    cout << x.size() << endl;
    return 0;
}
```

6- Write a program and Check if a vector is empty.

اكتب برنامجًا وتحقق مما إذا كان vector فارغًا.

Output

```
Vector is empty.
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x;

    if (x.empty()) {
        cout << "Vector is empty." << endl;
    } else {
        cout << "Vector is not empty." << endl;
    }
    return 0;
}
```

7- Create a vector and find the sum of its elements
{3, 7, 2, 10, -5}

قم بإنشاء vector وإيجاد مجموع عناصره {3، 7، 2، 10، -5}

Output

```
Sum of elements: 17
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x = {3, 7, 2, 10, -5};

    int sum = 0;
    for (int i = 0; i < x.size(); i++) {
        sum += x[i];
    }

    cout << "Sum of elements: " << sum << endl;
    return 0;
}
```

8- Create two vectors and concatenate them into a third vector
x = {1, 2, 3}; y = {4, 5, 6};

أنشئ two vectors وقم بربطهما في vector ثالث

x = {1, 2, 3}
y= {4، 5، 6}

Output

```
1
2
3
4
5
6
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x = {1, 2, 3};
    vector<int> y = {4, 5, 6};

    vector<int> z;

    for (int i = 0; i < x.size(); i++) {
        z.push_back(x[i]);
    }

    for (int i = 0; i < y.size(); i++) {
        z.push_back(y[i]);
    }

    for (int i = 0; i < z.size(); i++) {
        cout << z[i] << endl;
    }

    return 0;
}
```

9- Create a vector of floating-point numbers and find the average numbers = {2.5, 3.0, 5.5, 1.8, 4.2};

أنشئ متجهًا لأرقام floating-point وأوجد المتوسط numbers= {2.5، 3.0، 5.5، 1.8، 4.2}؛

Output

```
Average: 3.4
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<double> numbers = {2.5, 3.0, 5.5, 1.8, 4.2};

    double sum = 0;
    for (int i = 0; i < numbers.size(); i++) {
        sum += numbers[i];
    }

    double average = sum / numbers.size();

    cout << "Average: " << average << endl;
    return 0;
}
```

10- Create a vector and find the minimum element
x = {8, 3, 12, 5, 7}

قم بإنشاء vector وابحث عن الحد الأدنى للعنصر

x = {8, 3, 12, 5, 7}

Output

```
Minimum element: 3
```

Solution

```cpp
// www.gammal.tech

#include <iostream>
#include <vector>
using namespace std;

int main() {
    vector<int> x = {8, 3, 12, 5, 7};

    int minElement = x[0];
    for (int i = 1; i < x.size(); i++) {
        if (x[i] < minElement) {
            minElement = x[i];
        }
    }

    cout << "Minimum element: " << minElement << endl;
    return 0;
}
```