

1- Write a program using the range-based for loop to iterate through a vector of integers and print their values. Provide the program code and the output.

اكتب برنامجًا باستخدام range-based for loop إلى النطاق للتكرار عبر vector للأعداد الصحيحة وطباعة قيمها.

Output

```
5 3 6 9 8 7 4
```

Solution

```
// www.gammal.tech

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

int main() {
    vector<int> x {5, 3, 6, 9, 8, 7, 4};
    for (int i : x) {
        cout << i << " ";
    }
    return 0;
}
```

2- Write a program to use a range-based for loop to iterate through a vector of strings and print their values.

اكتب برنامجًا لاستخدام range-based for loop إلى النطاق للتكرار عبر vector of strings وطباعة قيمها.

Output

```
www  
gammal  
tech
```

Solution

```
● ● ●  
  
// www.gammal.tech  
  
#include<iostream>  
#include<vector>  
using namespace std;  
  
int main() {  
    vector<string> y = {"www", "gammal", "tech"};  
    for (string i : y) {  
        cout << i << endl;  
    }  
    return 0;  
}
```

3- Create a program that uses a range-based for loop to iterate through a list of strings without the need for a vector.

أنشئ برنامجًا يستخدم range-based for loop إلى النطاق للتكرار عبر قائمة من strings دون الحاجة إلى vector.

Output

```
www  
gammal  
tech
```

Solution

```
● ● ●  
  
// www.gammal.tech  
  
#include<iostream>  
using namespace std;  
  
int main() {  
    for (string i : {"www", "gammal", "tech"}) {  
        cout << i << endl;  
    }  
    return 0;  
}
```

4- Write a program that utilizes a range-based for loop to iterate through a set of numbers and print their values without using vector

اكتب برنامجًا يستخدم range-based for loop إلى النطاق للتكرار عبر مجموعة من الأرقام وطباعة قيمها دون استخدام vector

Output

```
5 3 6 9 8 7 4
```

Solution

```
// www.gammal.tech

#include<iostream>
using namespace std;

int main() {
    for (int i : {5, 3, 6, 9, 8, 7, 4}) {
        cout << i << " ";
    }
    return 0;
}
```

5- Create a program that uses a range-based for loop to iterate through a map of strings and integers and print their values

قم بإنشاء برنامج يستخدم range-based for loop إلى النطاق للتكرار عبر map of string والأعداد الصحيحة وطباعة قيمها

Output

```
gammal 100
tech 50
www 200
```

Solution

```
// www.gammal.tech

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

int main() {
    map<string, int> m = {{ "www", 200}, {"gammal", 100}, {"tech", 50}};
    for (auto i : m) {
        cout << i.first << " " << i.second << endl;
    }
    return 0;
}
```

6- Write a program that uses a range-based for loop to iterate through an array of integers and print their values.

اكتب برنامجًا يستخدم range-based for loop على النطاق للتكرار عبر array من الأعداد الصحيحة وطباعة قيمها.

Output

```
3 4 5 8 20 2 1 6
```

Solution

```
// www.gammal.tech

#include<iostream>
using namespace std;

int main() {
    int a[] = {3, 4, 5, 8, 20, 2, 1, 6};
    for (auto i : a) {
        cout << i << " ";
    }
    return 0;
}
```

7- Write a program that uses a range-based for loop with an iterator to iterate through a vector of characters and print their values.

اكتب برنامجًا يستخدم range-based for loop قائمة على النطاق مع مكرر للتكرار عبر vector من الأحرف وطباعة قيمها.

Output

```
a b c d e
```

Solution

```
// www.gammal.tech
#include<iostream>
#include<vector>
using namespace std;

int main() {
    vector<char> characters = {'a', 'b', 'c', 'd', 'e'};
    for (auto it = characters.begin(); it != characters.end(); ++it) {
        cout << *it << " ";
    }
    return 0;
}
```

8- Write a program that uses a range-based for loop to iterate through a vector of integers in reverse order and print their values.

اكتب برنامجًا يستخدم range-based for loop مبنية على النطاق للتكرار عبر vector للأعداد الصحيحة بترتيب عكسي وطباعة قيمها.

Output

```
2 4 6 8 10
```

Solution

```
// www.gammal.tech

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

int main() {
    vector<int> numbers = {10, 8, 6, 4, 2};
    for (auto it = numbers.rbegin(); it != numbers.rend(); ++it) {
        cout << *it << " ";
    }
    return 0;
}
```

9- Write a program that uses a range-based for loop to iterate through a vector of integers and prints their values until a certain condition is met.

اكتب برنامجًا يستخدم range-based for loop مبنية على النطاق للتكرار عبر vector للأعداد الصحيحة وطباعة قيمها حتى يتم وجود شرط معين.

Output

```
3 7 2 9 Condition met. Stopping loop.
```

Solution

```
// www.gammal.tech

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

int main() {
    vector<int> values = {3, 7, 2, 9, 4, 1, 6};
    for (auto val : values) {
        if (val == 4) {
            cout << "Condition met. Stopping loop." << endl;
            break;
        }
        cout << val << " ";
    }
    return 0;
}
```

10- Write a program using the range-based for loop to input five integers from the user and print their values.

اكتب برنامجًا يستخدم range-based for loop إلى النطاق لإدخال خمسة أعداد صحيحة من المستخدم وطباعة قيمها.

Input

```
Enter five integers: 1 2 3 4 5
```

Output

```
Entered numbers: 1 2 3 4 5
```

Solution

```
// www.gammal.tech

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

int main() {
    vector<int> numbers;
    cout << "Enter five integers: ";

    for (int i = 0; i < 5; ++i) {
        int num;
        cin >> num;
        numbers.push_back(num);
    }

    cout << "Entered numbers: ";
    for (int n : numbers) {
        cout << n << " ";
    }

    return 0;
}
```