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Computing Index Using Pointers Returned By STL Functions in C++

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Many inbuilt functions in C++ return the pointers to the position in memory which gives an address of the desired number but has no relation with the actual index in a container of the computed value. For example, to find the maximum element in a code, we use `std::max_element()`, which returns the address in memory, not the index of the desired element. Sometimes, we need the index corresponding to that address, so the following example demonstrates how we can do that,

CPP

```
// C++ code to demonstrate return value of
// max_element()
#include <bits/stdc++.h>
using namespace std;

int main()
{
    // initializing vector
    vector<int> vi = { 1, 4, 5, 6, 3 };

    // printing max element
    cout << "The max element is : "
         << (*max_element(vi.begin(), vi.end()));

    // printing position
    // prints position in memory
    cout << "\nThe position of maximum element is : ";
    printf("%d", max_element(vi.begin(), vi.end()));
}
```

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The max element is : 6

The position of maximum element is : 3

Using `distance()` is also another alternative to compute the desired position, bypassing the **1st iterator as the first argument** and the **desired position as the 2nd argument**.

CPP

```
// C++ code to demonstrate ways to print exact
// position using distance()
#include <bits/stdc++.h>
using namespace std;

// Driver Code
int main()
{
    // initializing vector
    vector<int> vi = { 1, 4, 5, 6, 3 };

    // printing max element
    cout << "The max element is : "
         << (*max_element(vi.begin(), vi.end()));

    // printing position
    // prints wanted position
    cout << "\nThe position of maximum element is : ";
    cout << distance(vi.begin(), max_element(vi.begin(), vi.end()));
    return 0;
}
```

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Output

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