Max product of three in C++

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

int maxProduct(vector<int>& nums) {
    int min1 = INT_MAX, min2 = INT_MAX;
    int max1 = INT_MIN, max2 = INT_MIN,
max3 = INT_MIN;

    for (int val : nums) {
        if (val > max1) {
            max3 = max2;
            max2 = max1;
            max1 = val;
        } else if (val > max2) {
            max3 = max2;
            max2 = val;
        } else if (val > max3) {
            max3 = val;
        }

        if (val < min1) {
            min2 = min1;
            min1 = val;
        } else if (val < min2) {
            min2 = val;
        }
    }

    return max(min1 * min2 * max1, max1 *
max2 * max3);
}

int main() {
    vector<int> nums = {2, 4, 6, 7};
    int result = maxProduct(nums);
    cout << result << endl;
    return 0;
}
```

Input:

nums = {2, 4, 6, 7}

🔍 Variables Tracked:

Iteration	val	max1	max2	max3	min1	min2
1	2	2	INT_MIN	INT_MIN	2	INT_MAX
2	4	4	2	INT_MIN	2	4
3	6	6	4	2	2	4
4	7	7	6	4	2	4

✔ Computed Products:

- min1 * min2 * max1 = 2 * 4 * 7 = 56
- max1 * max2 * max3 = 7 * 6 * 4 = 168

🧠 Output:

return max(56, 168); // → 168

168