

Practical-03

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#include <iostream>
#include <vector>
#include <omp.h>
#include <time.h>

using namespace std;

int main() {

    const int size = 1000;
    vector<int> data(size);
    srand(time(0));
    for (int i = 0; i < size; ++i) {
        data[i] = rand() % 100;
    }

    int min_value = data[0];
    #pragma omp parallel for reduction(min:min_value)
    for (int i = 0; i < size; ++i) {
        if (data[i] < min_value) {
            min_value = data[i];
        }
    }

    int max_value = data[0];
    #pragma omp parallel for reduction(max:max_value)
    for (int i = 0; i < size; ++i) {
        if (data[i] > max_value) {
            max_value = data[i];
        }
    }

    int sum = 0;
    #pragma omp parallel for reduction(+:sum)
    for (int i = 0; i < size; ++i) {
        sum += data[i];
    }

    float average = 0.0;
    #pragma omp parallel for reduction(+:average)
    for (int i = 0; i < size; ++i) {
        average += static_cast<float>(data[i]) / size;
    }

    cout << "Minimum value: " << min_value << endl;
    cout << "Maximum value: " << max_value << endl;
    cout << "Sum of values: " << sum << endl;
    cout << "Average of values: " << average << endl;

    return 0;
}
```

*****OUTPUT*****

Minimum value: 0

Maximum value: 99

Sum of values: 48149

Average of values: 48.149