

~\Desktop\Outputs\HPC\3.cpp

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```
1  #include <iostream>
2  #include <omp.h>
3  #include <climits>
4  using namespace std;
5
6  void min_reduction(int arr[], int n) {
7      int min_value = INT_MAX;
8      #pragma omp parallel for reduction(min: min_value)
9      for (int i = 0; i < n; i++) {
10         if (arr[i] < min_value) {
11             min_value = arr[i];
12         }
13     }
14     cout << "Minimum value: " << min_value << endl;
15 }
16
17 void max_reduction(int arr[], int n) {
18     int max_value = INT_MIN;
19     #pragma omp parallel for reduction(max: max_value)
20     for (int i = 0; i < n; i++) {
21         if (arr[i] > max_value) {
22             max_value = arr[i];
23         }
24     }
25     cout << "Maximum value: " << max_value << endl;
26 }
27
28 void sum_reduction(int arr[], int n) {
29     int sum = 0;
30     #pragma omp parallel for reduction(+: sum)
31     for (int i = 0; i < n; i++) {
32         sum += arr[i];
33     }
34     cout << "Sum: " << sum << endl;
35 }
36
37 void average_reduction(int arr[], int n) {
38     int sum = 0;
39     #pragma omp parallel for reduction(+: sum)
40     for (int i = 0; i < n; i++) {
41         sum += arr[i];
42     }
43     cout << "Average: " << (double)sum / n << endl;
44 }
45
46 int main() {
47     int *arr, n;
48     cout << "\nEnter total number of elements: ";
```

```
49     cin >> n;
50     arr = new int[n];
51     cout << "\nEnter elements: ";
52     for (int i = 0; i < n; i++) {
53         cin >> arr[i];
54     }
55
56     min_reduction(arr, n);
57     max_reduction(arr, n);
58     sum_reduction(arr, n);
59     average_reduction(arr, n);
60
61     return 0;
62 }
63
64 /*
65
66 Output:
67
68 Enter total number of elements: 5
69 Enter elements: 3 5 7 2 8
70 Minimum value: 2
71 Maximum value: 8
72 Sum: 25
73 Average: 5
74
75 */
```