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1 /*Косейкина Анна Сергеевна, группа IO-91
2     лаб№ 7. Поток в библиотеке MPI
3     F1: 1.15 d = MAX(A + B + C)
4     F2: 2.27 MD = MA*MB*TRANS(MC)
5     F3: 3.21 W = SORT(B*MD)*(MA*MB)*/
6 #include "stdafx.h"
7 #include "funcs.h"
8 #include <iostream>
9 #include <fstream>
10 #include <mpi.h>
11 using std::cout;
12 using std::endl;
13
14
15 void Thread_F1(){
16     std::cout << "T1 started" << std::endl;
17     int val = 1;
18     int A[N], B[N], C[N];
19     for(int i = 0; i < N; i++){
20         A[i] = val;
21         B[i] = val;
22         C[i] = val;
23     }
24     F1(A, B, C);
25     std::cout << "T1 finished" << std::endl;
26 }
27 void Thread_F2(){
28     std::cout << "T2 started" << std::endl;
29     int val = 1;
30     Matrix MA, MB, MC;
31     for(int i = 0; i < N; i++){
32         for(int j = 0; j < N; j++){
33             MA.mas[i][j]=1;
34             MB.mas[i][j]=1;
35             MC.mas[i][j]=1;
36         }
37     }
38     F2(MA, MB, MC);
39     std::cout << "T2 finished" << std::endl;
40 }
41 void Thread_F3(){
42     std::cout << "T3 started" << std::endl;
43     int val = 1;
44     Vector B;
45     Matrix MA;
46     Matrix MB;
47     Matrix MD;
48     for(int i = 0; i < N; i++){
49         for(int j = 0; j < N; j++){
50             MA.mas[i][j]=1;
51             MB.mas[i][j]=1;
52             MD.mas[i][j]=1;
53         }
54         B.mas[i] = val;
55     }
56     F3(MA, MB, MD, B);
57     std::cout << "T3 finished" << std::endl;
58 }
59
60 int _tmain(int argc, char* argv[])
61 {
62     cout << "lab started"<< endl;
63     #pragma comment(linker, "/STACK:599999999")
64     MPI_Init(&argc, &argv);
65     int rankOfProcess;
66     MPI_Comm_rank(MPI_COMM_WORLD, &rankOfProcess);
67     switch (rankOfProcess) {
68         case 0: Thread_F1(); break;
69         case 1: Thread_F2(); break;
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69         case 2: Thread_F3(); break;
70     }
71     MPI_Finalize();
72     cout << "lab finished"<< endl;
73     return 0;
74 }
75
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