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1: #include <iostream>
2: #include <stdlib.h>
3: #include <conio.h>
4: using namespace std;
5: main (){
6:     float instrucao1, instrucao2, tempexec1, tempexec2, mips1, mips2, tx1, tx2, cpi1, cpi2;
7:     int op1;
8:     do {
9:         do {
10:             cout<<"\n\n\n Choose the options below: \n";
11:             cout<<"1 - Computer performance measurement.\n";
12:             cout<<"2 - Computer performance comparrison.\n";
13:             cout<<"3 - Exit.\n";
14:             cout<<"Choose your option: ";
15:             cin>>op1;
16:             if (op1<1 || op1>3){
17:                 cout<<"invalid option! choose between 1 to 3!\n";
18:                 getch();
19:             }
20:             system("cls");
21:         }
22:         while (op1<1 || op1>3);
23:         switch (op1){
24:             case 1:
25:                 cout<<"Computer performance measurement.\n";
26:                 cout<<"\n\n\n Enter instruction value 1: ";
27:                 cin>>instrucao1;
28:                 cout<<"Enter runtime value 1: ";
29:                 cin>>tempexec1;
30:                 cout<<"Enter the clock rate value 1: ";
31:                 cin>>tx1;
32:                 mips1=(instrucao1/tempexec1);
33:                 cpi1=tx1/mips1;
34:                 cout<<"PERFORMANCE MEASUREMENT\n";
35:                 cout<<"+++++\n";
36:                 cout<<"MIPS: "<<mips1<<"*10^6\n";
37:                 cout<<"Instruction per Clock: "<<cpi1<<"\n\n\n";
38:                 break;
39:             case 2:
40:                 cout<<"Computer performance comparrison.\n";
41:                 cout<<"\n\n\nEnter instruction value 1: ";
42:                 cin>>instrucao1;
43:                 cout<<"Enter runtime value 1: ";
44:                 cin>>tempexec1;
45:                 cout<<"Enter the clock rate value 1: ";
46:                 cin>>tx1;
47:                 cout<<"\n\nEnter instruction value 2: ";
48:                 cin>>instrucao2;
49:                 cout<<"Enter runtime value 2: ";
50:                 cin>>tempexec2;
51:                 cout<<"Enter the clock rate value 2: ";
52:                 cin>>tx2;
53:                 mips1=(instrucao1/tempexec1);
54:                 cpi1=tx1/mips1;
55:                 mips2=(instrucao2/tempexec2);
56:                 cpi2=tx2/mips2;
57:                 if (mips1>mips2){
58:                     if (cpi1<cpi2){
59:                         cout<<"\n\n\n+++++\n";
60:                         cout<<"Computer 1 ++++++ Computer 2\n";

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61:         cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
62:         cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
63:         cout<<"The Computer 1 has the best performance\n\n\n";
64:     }
65:     else if (cpi1==cpi2){
66:         if (tx1>tx2){
67:             cout<<"\n\n\n+++++\n";
68:             cout<<"Computer 1 ++++++ Computer 2\n";
69:             cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
70:             cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
71:             cout<<"The Computer 1 has the best performance\n\n\n";
72:         }
73:         else if (tx1==tx2){
74:             cout<<"\n\n\n+++++\n";
75:             cout<<"Computer 1 ++++++ Computer 2\n";
76:             cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
77:             cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
78:             cout<<"The Computer 1 has the best performance\n\n\n";
79:         }
80:     }
81: }
82: else if (mips2>mips1){
83:     if (cpi2<cpi1){
84:         cout<<"\n\n\n+++++\n";
85:         cout<<"Computer 1 ++++++ Computer 2\n";
86:         cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
87:         cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
88:         cout<<"The Computer 2 has the best performance\n\n\n";
89:     }
90:     else if (cpi2==cpi1){
91:         if (tx2>tx1){
92:             cout<<"\n\n\n+++++\n";
93:             cout<<"Computer 1 ++++++ Computer 2\n";
94:             cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
95:             cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
96:             cout<<"The Computer 2 has the best performance\n\n\n";
97:         }
98:         else if (tx2==tx1){
99:             cout<<"\n\n\n+++++\n";
100:             cout<<"Computer 1 ++++++ Computer 2\n";
101:             cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
102:             cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
103:             cout<<"The Computer 2 has the best performance\n\n\n";
104:         }
105:     }
106: }
107: else{
108:     if (cpi1<cpi2){
109:         cout<<"\n\n\n+++++\n";
110:         cout<<"Computer 1 ++++++ Computer 2\n";
111:         cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
112:         cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
113:         cout<<"The Computer 1 has the best performance\n\n\n";
114:     }
115:     else if (cpi2<cpi1){
116:         cout<<"\n\n\n+++++\n";
117:         cout<<"Computer 1 ++++++ Computer 2\n";
118:         cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
119:         cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
120:         cout<<"The Computer 2 has the best performance\n\n\n";

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121:     }
122:     else{
123:         if (tx1>tx2){
124:             cout<<"\n\n\n+++++\n";
125:             cout<<"Computer 1 ++++++ Computer 2\n";
126:             cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
127:             cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
128:             cout<<"The Computer 1 has the best performance\n\n\n";
129:         }
130:         else if (tx2>tx1){
131:             cout<<"\n\n\n+++++\n";
132:             cout<<"Computer 1 ++++++ Computer 2\n";
133:             cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
134:             cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
135:             cout<<"The Computer 2 has the best performance\n\n\n";
136:         }
137:         else{
138:             cout<<"\n\n\n+++++\n";
139:             cout<<"Computer 1 ++++++ Computer 2\n";
140:             cout<<"MIPS: "<<mips1<<"*10^6 ++++++ MIPS: "<<mips2<<"*10^6\n";
141:             cout<<"CPI: "<<cpi1<<" ++++++ CPI: "<<cpi2<<"\n";
142:             cout<<"Both computers have equal performance.\n\n\n";
143:         }
144:     }
145: }
146:     break;
147: }
148:     getch();
149:     system("cls");
150: }
151: while (op1 != 3);
152: cout<<"\n\n\nEnd\n";
153: }

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