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1 // [追蹤試算表中的儲存格/Spreadsheet Tracking](1/3)
2 #define IN "P12IN.txt"
3 #define OUT "P12OUT.txt"
4 //*****
5 #include <iostream>
6 #include <ctime>
7 using namespace std;
8 void redir(void);
9 //*****
10 /* Work Space*/
11 #include <vector>
12 typedef struct command{
13     char c[3]; // "EX", "DC", "DR", "IC", "IR"
14     int r1, c1, r2, c2;
15     int a;
16     int x[10]; //依題意
17 }CMD;
18 vector<CMD> cmd;
19
20 int r, c, n;
21 int simulate(int *r0, int *c0);
22 //*****
23 int main(void)
24 {
25     redir(); //redirection
26 //*****
27 /* Work Space*/
28     int i, j;
29     int kase = 0;
30     int q;
31     int r0, c0;
32
33     while(scanf("%d%d%d", &r, &c, &n) == 3){
34         for(i=0; i<n; i++){
35             cmd.resize(cmd.size()+1);
36             scanf("%s", cmd[i].c);
37             if(cmd[i].c[0] == 'E'){
38                 scanf("%d%d%d%d", &cmd[i].r1, &cmd[i].c1, &cmd[i].r2, &cmd[i].c2);
39             }else{
40                 scanf("%d", &cmd[i].a);
41                 for(j=0; j<cmd[i].a; j++){
42                     scanf("%d", &cmd[i].x[j]);
43                 }
44             }
45         }
46
47         if(kase > 0){
48             printf("\n");
49         }
50         printf("Spreadsheet #d\n", ++kase);
51
52         scanf("%d", &q);
53         while(q--){
54             scanf("%d%d", &r0, &c0);
55             printf("Cell data in (%d, %d) ", r0, c0);
56             if(!simulate(&r0, &c0)){
57                 printf("GONE\n");
58             }else{
59                 printf("moved to (%d, %d)\n", r0, c0);
60             }
61         }
62     }
63 //*****

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64 //[追蹤試算表中的儲存格/Spreadsheet Tracking](2/3)
65     freopen("CON", "r", stdin); //取消重新導向
66     freopen("CON", "w", stdout);
67
68     printf("Time used = %.2f\n", (double)clock()/CLK_TCK); //傳回程式目前為止執行的時間
69
70     system("pause");
71     return 0; //the end...
72 }
73
74 void redir(void)
75 {
76     freopen(IN, "r", stdin);
77     freopen(OUT, "w", stdout);
78 }
79 //*****
80 /* Work Space*/
81 //操作指令
82 int simulate(int *r0, int *c0)
83 {
84     int i;
85     int j;
86     int x;
87     int dr, dc; //列變化量, 行變化量
88
89     for(i=0; i<n; i++){
90         if(cmd[i].c[0] == 'E'){ //"EX"
91             if(cmd[i].r1 == *r0 && cmd[i].c1 == *c0){
92                 *r0 = cmd[i].r2;
93                 *c0 = cmd[i].c2;
94             }else if(cmd[i].r2 == *r0 && cmd[i].c2 == *c0){
95                 *r0 = cmd[i].r1;
96                 *c0 = cmd[i].c1;
97             }
98         }else{//計算列變化量, 行變化量
99             dr = dc = 0;
100             for(j=0; j<cmd[i].a; j++){
101                 x = cmd[i].x[j];
102                 if(cmd[i].c[0] == 'I'){
103                     if(cmd[i].c[1] == 'R' && *r0 >= x) dr++; //"IR"
104                     if(cmd[i].c[1] == 'C' && *c0 >= x) dc++; //"IC"
105                 }else{//cmd[i].c[0] == 'D'
106                     if(cmd[i].c[1] == 'R' && *r0 == x) return 0; //"DR" : 所在列被刪除
107                     if(cmd[i].c[1] == 'C' && *c0 == x) return 0; //"DC" : 所在欄被刪除
108                     if(cmd[i].c[1] == 'R' && *r0 > x) dr--; //"DR"
109                     if(cmd[i].c[1] == 'C' && *c0 > x) dc--; //"DC"
110                 }
111             }
112             *r0 += dr; //更新
113             *c0 += dc;
114         }
115     }
116     return 1;
117 }
118
119
120
121
122
123
124
125
126

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127 //[追蹤試算表中的儲存格/Spreadsheet Tracking](3/3)
128 //Input(IN) Sample
129 /*
130 7 9
131 5
132 DR 2 1 5
133 DC 4 3 6 7 9
134 IC 1 3
135 IR 2 2 4
136 EX 1 2 6 5
137 4
138 4 8
139 5 5
140 7 8
141 6 5
142 0 0
143 */
144
145 //Output(OUT)
146 /*
147 Spreadsheet #1
148 Cell data in (4, 8) moved to (4, 6)
149 Cell data in (5, 5) GONE
150 Cell data in (7, 8) moved to (7, 6)
151 Cell data in (6, 5) moved to (1, 2)
152 */
```