



```
Ranking.h FifteenPuzzle.cpp Ranking.cpp
Week4_Homework (Global Scope) move(int dir)
106 }
107
108 static int getDirKey()
109 {
110     return _getche() == 224 ? _getche() : 0;
111 }
112
113 int playFifteenPuzzle()
114 {
115     init();
116     display();
117     printRanking();
118     printf("\n 퍼즐을 섞어주세요(enter)..");
119     _getche();
120     shuffle(100);
121
122     printf("\n 게임이 시작됩니다...");
123     _getche();
124
125     nMove = 0;
126     tStart = clock();
127     while (!isDone())
128     {
129         move(getDirKey());
130         display();
131     }
132     clock_t t1 = clock();
133     double d = (double)(t1 - tStart) / CLOCKS_PER_SEC;
134     return addRanking(nMove, d);
135 }
136
137 extern int playFifteenPuzzle();
138
139 void main()
140 {
```

```
Ranking.h FifteenPuzzle.cpp Ranking.cpp
Week4_Homework (Global Scope) move(int dir)
139 void main()
140 {
141     readRanking("ranking.txt");
142     int rank = playFifteenPuzzle();
143     printRanking();
144     storeRanking("ranking.txt");
145 }
```

```
Ranking.h FifteenPuzzle.cpp Ranking.cpp
Week4_Homework (Global Scope)
1 #include <stdio>
2
3 typedef struct PlayInfo
4 {
5     char name[200];
6     int nMove;
7     double tElapsed;
8 };
9
10 extern void readRanking(const char* filename);
11 extern void storeRanking(const char* filename);
12 extern void printRanking();
13 extern int addRanking(int nMove, double tElap);
```

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```
Ranking.h FifteenPuzzle.cpp Ranking.cpp X
Week4_Homework (Global Scope)
1 #pragma warning(disable:4996)
2 #include "Ranking.h"
3 #include <Windows.h>
4 #include <stdio.h>
5 #define NUM_MVP 5
6 static PlayInfo MVP[NUM_MVP];
7 static int nMVP = NUM_MVP;
8
9 static void initRanking()
10 {
11     PlayInfo noname = { "C++중요", 1000, 1000.0 };
12     for (int i = 0; i < nMVP; i++)
13         MVP[i] = noname;
14 }
15
16 void readRanking(const char* fname)
17 {
18     FILE* fp = fopen(fname, "r");
19     if (fp == NULL) initRanking();
20     else
21     {
22         for (int i = 0; i < nMVP; i++)
23             fscanf(fp, "%d / %s / %lf", &MVP[i].nMove, MVP[i].name, &MVP[i].tElapsed);
24         fclose(fp);
25     }
26 }
27
28 void storeRanking(const char* fname)
29 {
30     FILE* fp = fopen(fname, "w");
31     if (fp == NULL) return;
32     for (int i = 0; i < nMVP; i++)
33         fprintf(fp, "%d / %-16s / %-5.1f\n", MVP[i].nMove, MVP[i].name, MVP[i].tElapsed);
34     fclose(fp);
35 }
```

```
Ranking.h FifteenPuzzle.cpp Ranking.cpp X
Week4_Homework (Global Scope)
28 void storeRanking(const char* fname)
29 {
30     FILE* fp = fopen(fname, "w");
31     if (fp == NULL) return;
32     for (int i = 0; i < nMVP; i++)
33         fprintf(fp, "%d / %-16s / %-5.1f\n", MVP[i].nMove, MVP[i].name, MVP[i].tElapsed);
34     fclose(fp);
35 }
36
37 void printRanking()
38 {
39     for (int i = 0; i < nMVP; i++)
40         printf("[%2d위] %d %-16s %5.1f\n", i + 1, MVP[i].nMove, MVP[i].name, MVP[i].tElapsed);
41 }
42
43 int addRanking(int nMove, double tElap)
44 {
45     if (nMove < MVP[nMVP - 1].nMove)
46     {
47         int pos = nMVP - 1;
48         for (; pos > 0; pos--)
49         {
50             if (nMove >= MVP[pos - 1].nMove) break;
51             MVP[pos] = MVP[pos - 1];
52         }
53         MVP[pos].nMove = nMove;
54         MVP[pos].tElapsed = tElap;
55         printf("%d위 입니다. 이름을 입력하세요: ", pos + 1);
56         scanf("%s", MVP[pos].name);
57         return pos + 1;
58     }
59     return 0;
60 }
```

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