

```
Puzzlegame.cpp Ranking2.h
Week4_Homework2 (Global Scope)
1 #include "Ranking2.h"
2 #include <stdio.h>
3 #include <Windows.h>
4 #include <stdlib.h>
5 #include <conio.h>
6 #include <string.h>
7 #include <time.h>
8
9 #define DIM 3
10 #define NUM_MVP 10
11
12 enum Direction { Left = 75, Right = 77, Up = 72, Down = 80 };
13 static int DirKey[4] = { Left, Right, Up, Down };
14 static int map[DIM][DIM];
15 static int x, y;
16 static int nMove;
17 static clock_t tStart;
18
19 static void init()
20 {
21     for (int i = 0; i < DIM * DIM - 1; i++) map[i / DIM][i % DIM] = i + 65;
22     map[DIM - 1][DIM - 1] = 0;
23     x = DIM - 1;
24     y = DIM - 1;
25
26     srand(time(NULL));
27     tStart = clock();
28     nMove = 0;
29 }
30
31 static void display()
32 {
33     system("cls");
34     printf(" \t Puzzlegame(%d X %d) \n\t", DIM, DIM);
35     printf("-----\n\t");
36 }
```

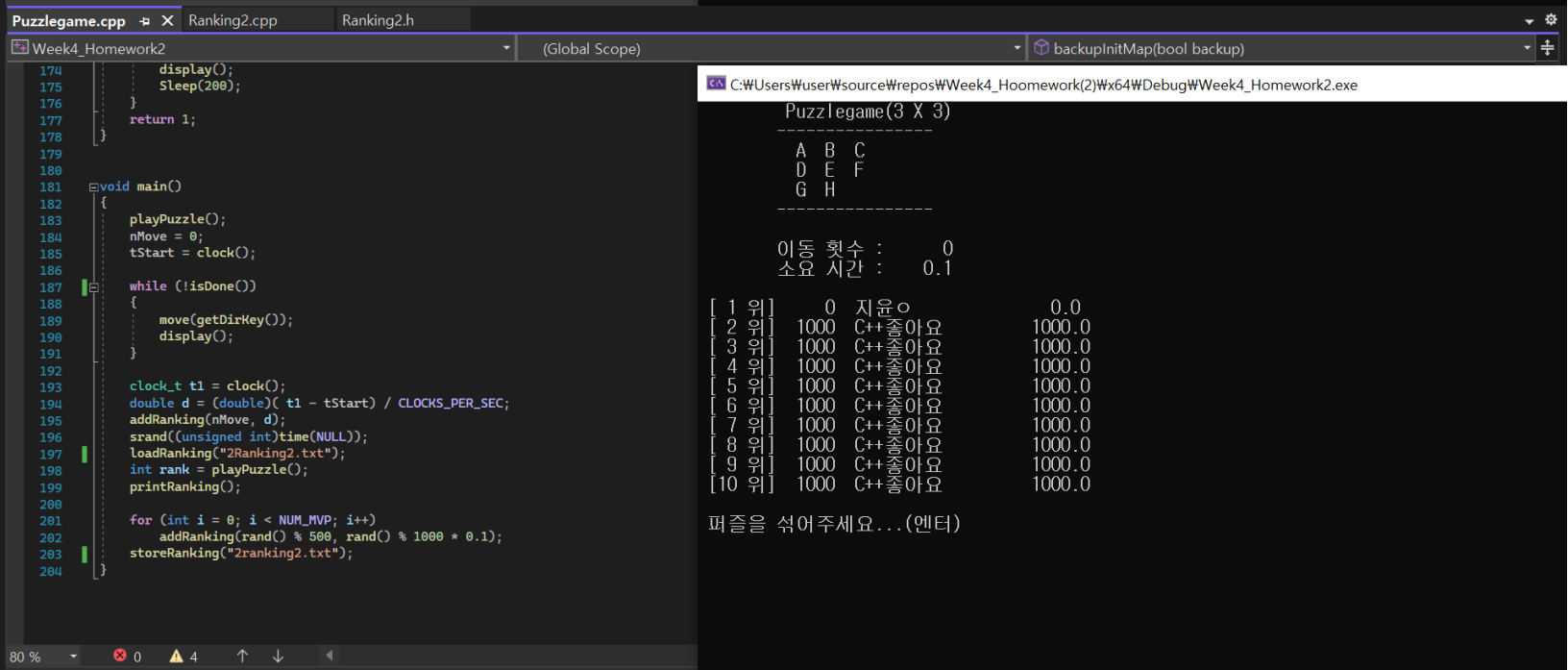
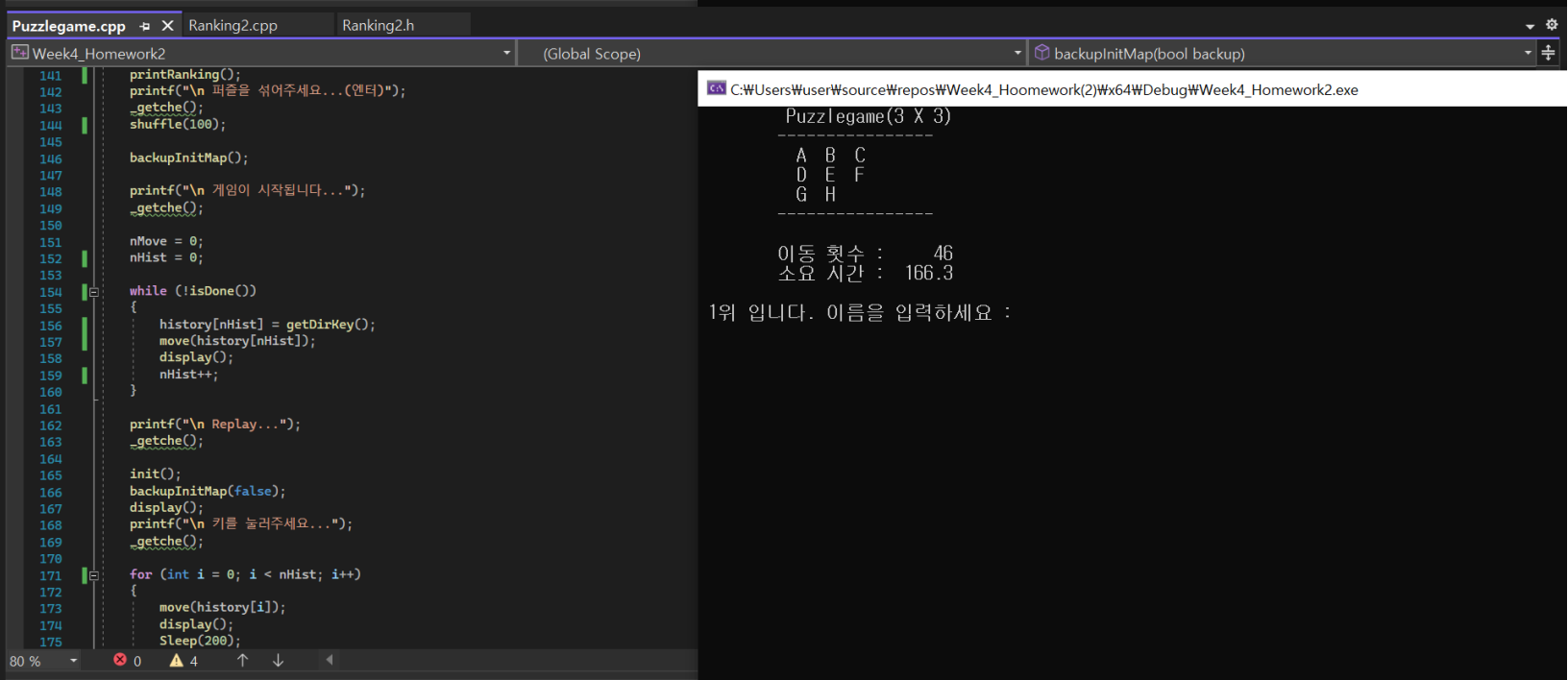
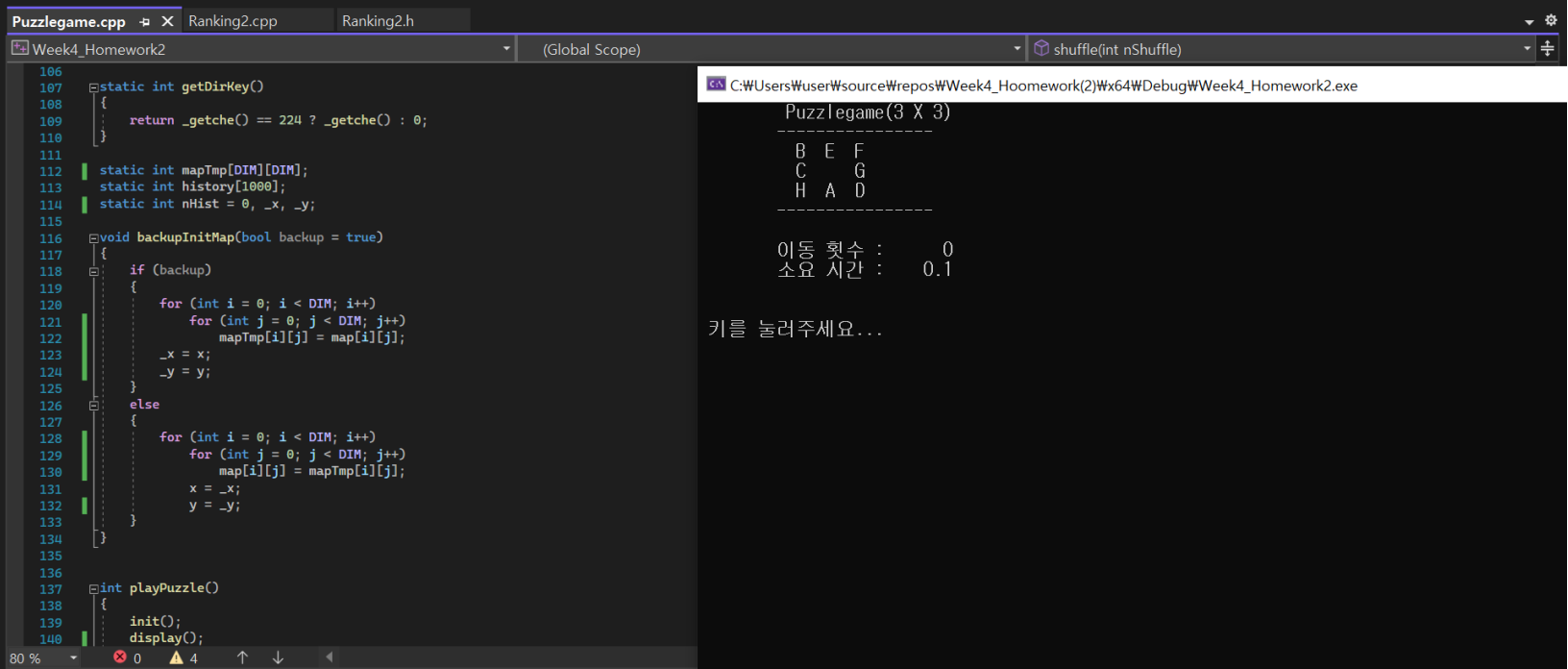
```
C:\Users\User\source\repos\Week4_Hoomework(2)\x64\Debug\Week4_Homework2.exe
Puzzlegame(3 X 3)
-----
A B C
D E F
G H
-----
이동 횟수 : 0
소요 시간 : 0.1
[ 1 위] 1000 C++중가요 1000.0
[ 2 위] 1000 C++중가요 1000.0
[ 3 위] 1000 C++중가요 1000.0
[ 4 위] 1000 C++중가요 1000.0
[ 5 위] 1000 C++중가요 1000.0
[ 6 위] 1000 C++중가요 1000.0
[ 7 위] 1000 C++중가요 1000.0
[ 8 위] 1000 C++중가요 1000.0
[ 9 위] 1000 C++중가요 1000.0
[10 위] 1000 C++중가요 1000.0
퍼즐을 섞어주세요...(엔터)
```

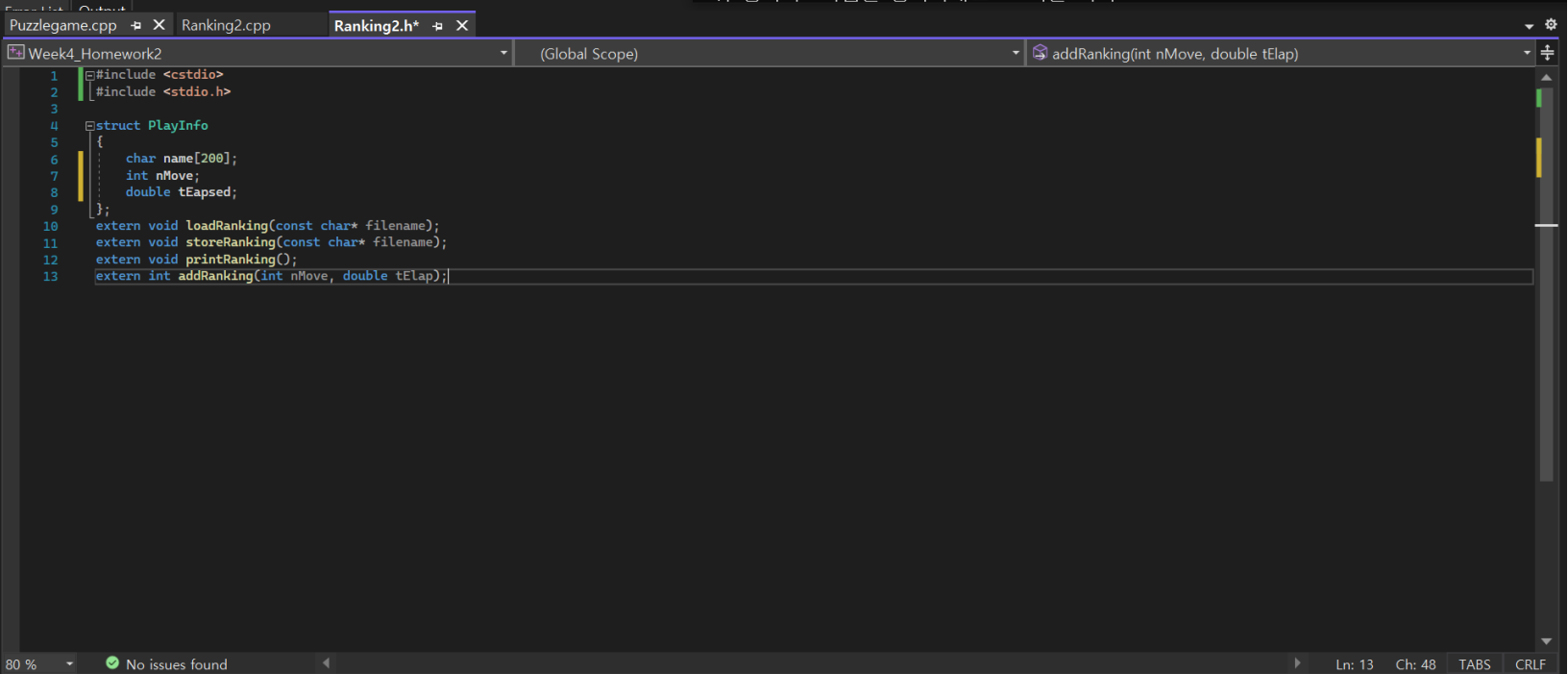
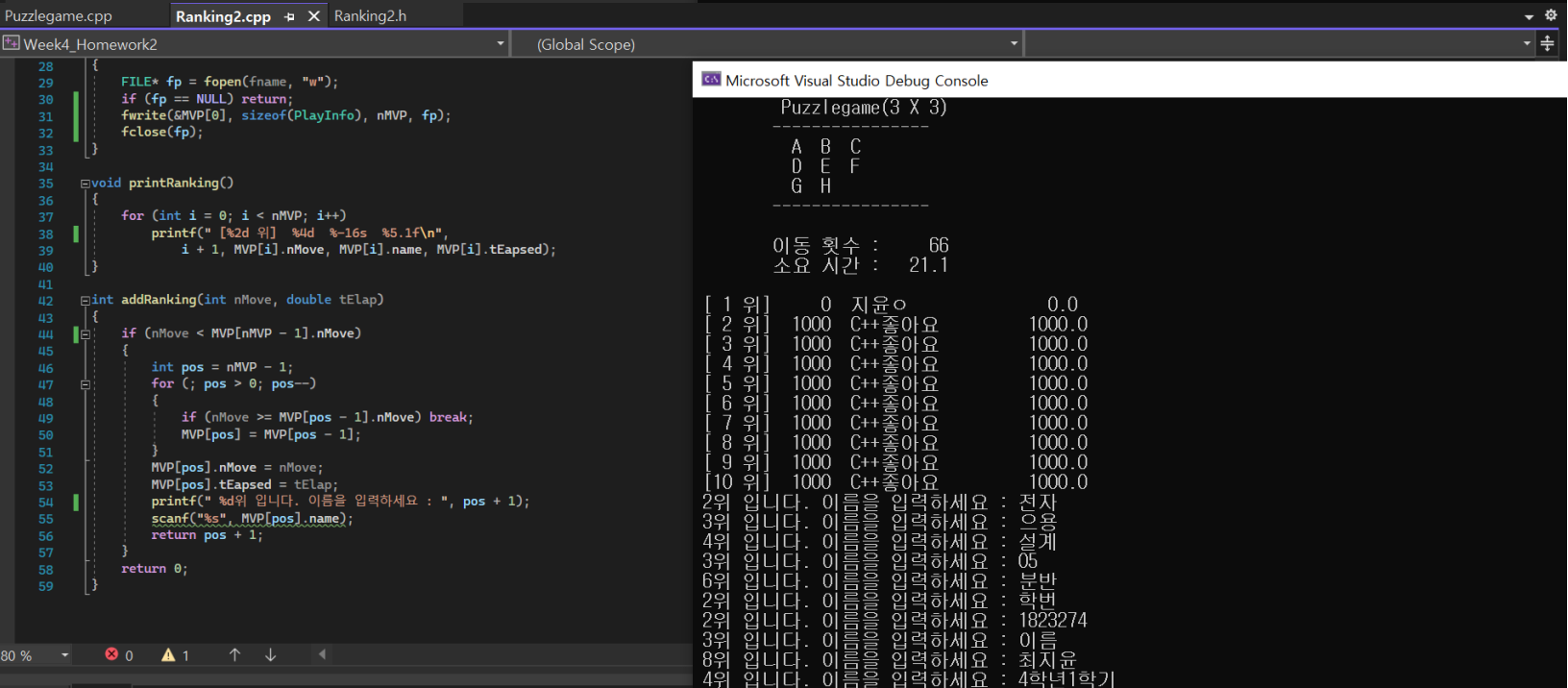
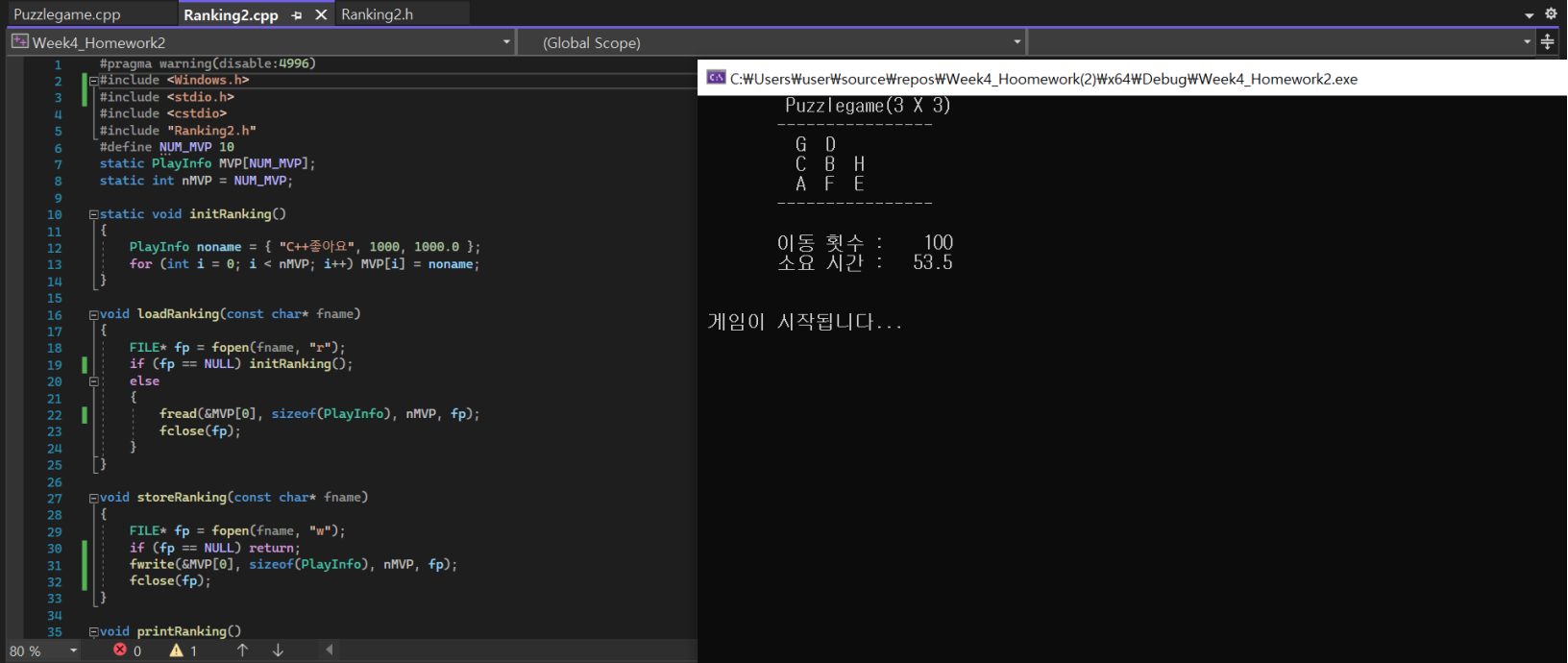
```
Puzzlegame.cpp Ranking2.cpp Ranking2.h
Week4_Homework2 (Global Scope)
36 for (int r = 0; r < DIM; r++)
37 {
38     for (int c = 0; c < DIM; c++)
39     {
40         if (map[r][c] > 0) printf("%3c", map[r][c]);
41         else printf(" ");
42     }
43     printf("\n\t");
44
45     printf("-----\n\t");
46     clock_t t1 = clock();
47     double d = (double)(t1 - tStart) / CLOCKS_PER_SEC;
48     printf("\n\t이동 횟수 : %6d\n\t소요 시간 : %6.1f\n\n", nMove, d);
49 }
50
51 static bool move(int dir)
52 {
53     if (dir == Right && x > 0)
54     {
55         map[y][x] = map[y][x - 1];
56         map[y][--x] = 0;
57     }
58     else if (dir == Left && x < DIM - 1)
59     {
60         map[y][x] = map[y][x + 1];
61         map[y][++x] = 0;
62     }
63     else if (dir == Up && y < DIM - 1)
64     {
65         map[y][x] = map[y + 1][x];
66         map[++y][x] = 0;
67     }
68     else if (dir == Down && y > 0)
69     {
70         map[y][x] = map[y - 1][x];
71     }
72 }
```

```
C:\Users\User\source\repos\Week4_Hoomework(2)\x64\Debug\Week4_Homework2.exe
Puzzlegame(3 X 3)
-----
B E F
C G
H A D
-----
이동 횟수 : 100
소요 시간 : 62.3
게임을 시작합니다...
```

```
Puzzlegame.cpp Ranking2.cpp Ranking2.h
Week4_Homework2 (Global Scope)
71     map[--y][x] = 0;
72
73     else return false;
74
75     nMove++;
76     return true;
77 }
78
79 static void shuffle(int nShuffle)
80 {
81     for (int i = 0; i < nShuffle; i++)
82     {
83         int key = DirKey[rand() % 4];
84         if (move(key) == false)
85         {
86             i--;
87             continue;
88         }
89         display();
90         Sleep(50);
91     }
92 }
93
94 static bool isDone()
95 {
96     for (int r = 0; r < DIM; r++)
97     {
98         for (int c = 0; c < DIM; c++)
99         {
100             if (map[r][c] != r * DIM + c + 65)
101                 return (r == DIM - 1) && (c == DIM - 1);
102         }
103     }
104     return true;
105 }
```

```
C:\Users\User\source\repos\Week4_Hoomework(2)\x64\Debug\Week4_Homework2.exe
Puzzlegame(3 X 3)
-----
A B C
D E F
G H
-----
이동 횟수 : 46
소요 시간 : 226.9
Replay...
```





```
Puzzlegame.cpp  Ranking2.cpp  Ranking2.h
Week4_Homework2 (Global Scope)
1 #include "Ranking2.h"
2 #include <stdio.h>
3 #include <windows.h>
4 #include <stdlib.h>
5 #include <conio.h>
6 #include <string.h>
7 #include <time.h>
8
9 #define DIM 5
10 #define NUM_MVP 10
11
12 enum Direction { Left = 75, Right = 77, Up = 72, Down = 80 };
13 static int DirKey[4] = { Left, Right, Up, Down };
14 static int map[DIM][DIM];
15 static int x, y;
16 static int nMove;
17 static clock_t tStart;
18
19 static void init()
20 {
21     for (int i = 0; i < DIM * DIM - 1; i++) map[i / DIM][i % DIM] = i + 65;
22     map[DIM - 1][DIM - 1] = 0;
23     x = DIM - 1;
24     y = DIM - 1;
25
26     srand(time(NULL));
27     tStart = clock();
28     nMove = 0;
29 }
30
31 static void display()
32 {
33     system("cls");
34     printf(" \t Puzzlegame(%d X %d) \n\t", DIM, DIM);
35     printf("-----\n\t");
36 }
37
38 80 % 0 4 ↑ ↓ ←
```

```
C:\Users\Wuser\source\repos\Week4_Homework2\Wx64\Debug\Week4_Homework2.exe
Puzzlegame(5 X 5)
A B C D E
F G H I J
K L M N O
P Q R S T
U V W X
-----
이동 횟수 : 0
소요 시간 : 0.1
[ 1 위] 1000 C++ 좋아요 1000.0
[ 2 위] 1000 C++ 좋아요 1000.0
[ 3 위] 1000 C++ 좋아요 1000.0
[ 4 위] 1000 C++ 좋아요 1000.0
[ 5 위] 1000 C++ 좋아요 1000.0
[ 6 위] 1000 C++ 좋아요 1000.0
[ 7 위] 1000 C++ 좋아요 1000.0
[ 8 위] 1000 C++ 좋아요 1000.0
[ 9 위] 1000 C++ 좋아요 1000.0
[10 위] 1000 C++ 좋아요 1000.0
퍼즐을 섞어주세요...(엔터)
```

```
Puzzlegame.cpp  Ranking2.cpp  Ranking2.h
Week4_Homework2 (Global Scope)
36 for (int r = 0; r < DIM; r++)
37 {
38     for (int c = 0; c < DIM; c++)
39     {
40         if (map[r][c] > 0) printf("%3c", map[r][c]);
41         else printf(" ");
42     }
43     printf("\n\t");
44     printf("-----\n\t");
45     clock_t t1 = clock();
46     double d = (double)(t1 - tStart) / CLOCKS_PER_SEC;
47     printf("\n\t이동 횟수 : %6d\n\t소요 시간 : %6.1f\n\t", nMove, d);
48 }
49
50 static bool move(int dir)
51 {
52     if (dir == Right && x > 0)
53     {
54         map[y][x] = map[y][x - 1];
55         map[y][--x] = 0;
56     }
57     else if (dir == Left && x < DIM - 1)
58     {
59         map[y][x] = map[y][x + 1];
60         map[y][++x] = 0;
61     }
62     else if (dir == Up && y < DIM - 1)
63     {
64         map[y][x] = map[y + 1][x];
65         map[++y][x] = 0;
66     }
67     else if (dir == Down && y > 0)
68     {
69         map[y][x] = map[y - 1][x];
70     }
71 }
72
73 80 % 0 4 ↑ ↓ ←
```

```
C:\Users\Wuser\source\repos\Week4_Homework2\Wx64\Debug\Week4_Homework2.exe
Puzzlegame(5 X 5)
B C M D
A H I J E
F P N R O
U G X W S
K L V Q T
-----
이동 횟수 : 100
소요 시간 : 78.2
게임이 시작됩니다...
```

```
Puzzlegame.cpp  Ranking2.cpp  Ranking2.h
Week4_Homework2 (Global Scope)
71 map[--y][x] = 0;
72 }
73 else return false;
74
75 nMove++;
76 return true;
77 }
78
79 static void shuffle(int nShuffle)
80 {
81     for (int i = 0; i < nShuffle; i++)
82     {
83         int key = DirKey[rand() % 4];
84         if (move(key) == false)
85         {
86             i--;
87             continue;
88         }
89         display();
90         Sleep(50);
91     }
92 }
93
94 static bool isDone()
95 {
96     for (int r = 0; r < DIM; r++)
97     {
98         for (int c = 0; c < DIM; c++)
99         {
100             if (map[r][c] != r * DIM + c + 65)
101                 return (r == DIM - 1) && (c == DIM - 1);
102         }
103     }
104     return true;
105 }
```

```
C:\Users\Wuser\source\repos\Week4_Homework2\Wx64\Debug\Week4_Homework2.exe
Puzzlegame(5 X 5)
A B C D E
F G H I J
K L M N O
P Q R S T
U V W X
-----
이동 횟수 : 234
소요 시간 : 362.8
Replay...
```

