





```
MonsterWorldGame92.cpp  MonsterWorld92.h  VariousMonsters92.h  Monster92.h  Matrix92.h  Canvas92.h
Week9_Homework2  Siangshi  move(int ** map, int maxx, int maxy)
106     } eat(map);
107 }
108 }
```

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```
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Week9_Homework2  Monster
1  #pragma once
2  #include "Canvas92.h"
3  #define DIM 40
4
5  class Monster
6  {
7  public:
8      string name, icon;
9      int x, y, nItem;
10
11      void clip(int maxx, int maxy) {
12          if (x < 0) x = 0;
13          if (x >= maxx) x = maxx - 1;
14          if (y < 0) y = 0;
15          if (y >= maxy) y = maxy - 1;
16      }
17      void eat(int** map) {
18          if (map[y][x] == 1)
19          {
20              map[y][x] = 0;
21              nItem++;
22          }
23      }
24  public:
25      Monster(string n = "나괴물", string i = "*", int px = 0, int py = 0)
26          : name(n), icon(i), x(px), y(py), nItem(0) { }
27      ~Monster() { cout << "\t" << name << icon << "물러갑니다~~~\n"; }
28
29      void draw(Canvas& canvas) { canvas.draw(x, y, icon); }
30      void move(int** map, int maxx, int maxy) {
31          switch (rand() % 8)
32          {
33              case 0: y--; break;
34              case 1: x++; y--; break;
35              case 2: x++; break;
36              case 3: x++; y++; break;
37              case 4: y++; break;
38              case 5: x--; y++; break;
39              case 6: x--; break;
40              case 7: x--; y--; break;
41          }
42          clip(maxx, maxy);
43          eat(map);
44      }
45      void print() { cout << "\t" << name << icon << ":" << nItem << endl; }
46  }
```

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35      case 2: x++; break;
36      case 3: x++; y++; break;
37      case 4: y++; break;
38      case 5: x--; y++; break;
39      case 6: x--; break;
40      case 7: x--; y--; break;
41  }
42  clip(maxx, maxy);
43  eat(map);
44  }
45  void print() { cout << "\t" << name << icon << ":" << nItem << endl; }
46  }
```

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Week9_Homework2Matrix

```
1  #pragma once
2  #include <iostream>
3  #include <iomanip>
4  using namespace std;
5
6  class Matrix
7  {
8  public:
9      int rows, cols;
10     int** mat;
11     Matrix(int r = 0, int c = 0) : rows(r), cols(c), mat(NULL) {
12         mat = new int*[rows];
13         for (int i = 0; i < rows; i++) mat[i] = new int[cols];
14     }
15     ~Matrix() {
16         if (mat != NULL)
17         {
18             for (int i = 0; i < rows; i++)
19                 delete[] mat[i];
20             delete[] mat;
21         }
22     }
23     int& elem(int x, int y) { return mat[y][x]; }
24     int Rows() { return rows; }
25     int Cols() { return cols; }
26     int** Data() { return mat; }
27     void print(const char* str = "Mat") {
28         cout << str << " " << rows << "x" << cols << endl;
29         for (int i = 0; i < rows; i++)
30         {
31             for (int j = 0; j < cols; j++)
32                 cout << setw(4) << mat[i][j];
33             cout << "\n";
34         }
35     }
36     void setRand(int val = 100) {
37         if (mat != NULL)
38         {
39             for (int i = 0; i < rows; i++)
40                 for (int j = 0; j < cols; j++)
41                     mat[i][j] = (rand() % val);
42         }
43     }
44 }
```

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Week9_Homework2Matrix

```
34 }
35 }
36 void setRand(int val = 100) {
37     if (mat != NULL)
38     {
39         for (int i = 0; i < rows; i++)
40             for (int j = 0; j < cols; j++)
41                 mat[i][j] = (rand() % val);
42     }
43 }
44 }
```

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Week9_Homework2Canvas

```
1  #pragma once
2  #include <iostream>
3  #include <string>
4  #define MAXLINES 100
5  using namespace std;
6
7  class Canvas
8  {
9  public:
10     string line[MAXLINES];
11     int xMax, yMax;
12     Canvas(int nx = 10, int ny = 10) : xMax(nx), yMax(ny) {
13         for (int y = 0; y < yMax; y++)
14             line[y] = string(xMax * 2, ' ');
15     }
16     void draw(int x, int y, string val) {
17         if (x >= 0 && y >= 0 && x < xMax && y < yMax)
18             line[y].replace(x * 2, 2, val);
19     }
20     void clear(string val = " ") {
21         for (int y = 0; y < yMax; y++)
22             for (int x = 0; x < xMax; x++)
23                 draw(x, y, val);
24     }
25     void print(const char* title = "<My Canvas>") {
26         system("cls");
27         cout << title << endl;
28         for (int y = 0; y < yMax; y++)
29             cout << line[y] << endl;
30         cout << endl;
31     }
32 }
```

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