

# 2015 자료구조 실습과제 6

## 1. 연결된 스택을 이용한 괄호 검사 프로그램

지난주에 구현한 괄호 검사 프로그램을 연결된 스택을 이용해 구현하시오.

- (1) CElement 클래스와 CNode 클래스를 구현한다.
- (2) CLinkedStack 클래스를 완성한다.
- (3) CLinkedStack을 이용하여 CBracketChecker를 구현한다.
- (4) 지난주 실행 결과와 동일하게 처리되는지 확인한다.

## 2. 미로탐색 프로그램을 위한 클래스의 입력/출력 기능 구현

- (1) 미로탐색을 위한 CMaze 클래스 구현
- (2) 미로 클래스와 주 함수는 다음과 같이 일부만 구현
  - 미로 파일을 읽어들이는 함수 구현
  - 2차원 배열을 동적으로 할당 / 해제하는 함수
  - 미로 데이터를 보기 좋게 화면에 출력하는 함수

```
class CMaze
{
    int    m_w;           // 미로의 width
    int    m_h;           // 미로의 height
    int**  m_maze;        // 미로의 각 항목 값을 저장
public:
    CMaze() { Init( 0, 0 ); }
    ~CMaze(){ Reset(); }
    void Init(int w, int h) {...} // 이차원 배열을 동적으로 할당
    void Reset(int w, int h) {...} // 이차원 배열을 동적으로 해제
    void Load( char *fname = NULL); // 파일/키보드 에서 Maze정보를 읽어옴
    void Print( );                  // 현재 Maze를 화면에 출력
};

void main()
{
    CMaze    maze;
    maze.Load("maze.txt");
    maze.Print();
}
```


미로 파일 예:

0(벽), 1(길), 5(입구), 9(출구)

[illegible]

미로 데이터의 화면 출력 예:

전체 미로의 크기 = 20 x 10



A 20x10 grid maze. The start is at (1, 1) and the end is at (19, 9). The maze is composed of black walls and white paths. The walls are located at the following coordinates (row, column): (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (1, 7), (1, 8), (1, 9), (1, 10), (1, 11), (1, 12), (1, 13), (1, 14), (1, 15), (1, 16), (1, 17), (1, 18), (1, 19), (1, 20), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (2, 7), (2, 8), (2, 9), (2, 10), (2, 11), (2, 12), (2, 13), (2, 14), (2, 15), (2, 16), (2, 17), (2, 18), (2, 19), (2, 20), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (3, 7), (3, 8), (3, 9), (3, 10), (3, 11), (3, 12), (3, 13), (3, 14), (3, 15), (3, 16), (3, 17), (3, 18), (3, 19), (3, 20), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (4, 7), (4, 8), (4, 9), (4, 10), (4, 11), (4, 12), (4, 13), (4, 14), (4, 15), (4, 16), (4, 17), (4, 18), (4, 19), (4, 20), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (5, 7), (5, 8), (5, 9), (5, 10), (5, 11), (5, 12), (5, 13), (5, 14), (5, 15), (5, 16), (5, 17), (5, 18), (5, 19), (5, 20), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6), (6, 7), (6, 8), (6, 9), (6, 10), (6, 11), (6, 12), (6, 13), (6, 14), (6, 15), (6, 16), (6, 17), (6, 18), (6, 19), (6, 20), (7, 1), (7, 2), (7, 3), (7, 4), (7, 5), (7, 6), (7, 7), (7, 8), (7, 9), (7, 10), (7, 11), (7, 12), (7, 13), (7, 14), (7, 15), (7, 16), (7, 17), (7, 18), (7, 19), (7, 20), (8, 1), (8, 2), (8, 3), (8, 4), (8, 5), (8, 6), (8, 7), (8, 8), (8, 9), (8, 10), (8, 11), (8, 12), (8, 13), (8, 14), (8, 15), (8, 16), (8, 17), (8, 18), (8, 19), (8, 20), (9, 1), (9, 2), (9, 3), (9, 4), (9, 5), (9, 6), (9, 7), (9, 8), (9, 9), (9, 10), (9, 11), (9, 12), (9, 13), (9, 14), (9, 15), (9, 16), (9, 17), (9, 18), (9, 19), (9, 20), (10, 1), (10, 2), (10, 3), (10, 4), (10, 5), (10, 6), (10, 7), (10, 8), (10, 9), (10, 10), (10, 11), (10, 12), (10, 13), (10, 14), (10, 15), (10, 16), (10, 17), (10, 18), (10, 19), (10, 20), (11, 1), (11, 2), (11, 3), (11, 4), (11, 5), (11, 6), (11, 7), (11, 8), (11, 9), (11, 10), (11, 11), (11, 12), (11, 13), (11, 14), (11, 15), (11, 16), (11, 17), (11, 18), (11, 19), (11, 20), (12, 1), (12, 2), (12, 3), (12, 4), (12, 5), (12, 6), (12, 7), (12, 8), (12, 9), (12, 10), (12, 11), (12, 12), (12, 13), (12, 14), (12, 15), (12, 16), (12, 17), (12, 18), (12, 19), (12, 20), (13, 1), (13, 2), (13, 3), (13, 4), (13, 5), (13, 6), (13, 7), (13, 8), (13, 9), (13, 10), (13, 11), (13, 12), (13, 13), (13, 14), (13, 15), (13, 16), (13, 17), (13, 18), (13, 19), (13, 20), (14, 1), (14, 2), (14, 3), (14, 4), (14, 5), (14, 6), (14, 7), (14, 8), (14, 9), (14, 10), (14, 11), (14, 12), (14, 13), (14, 14), (14, 15), (14, 16), (14, 17), (14, 18), (14, 19), (14, 20), (15, 1), (15, 2), (15, 3), (15, 4), (15, 5), (15, 6), (15, 7), (15, 8), (15, 9), (15, 10), (15, 11), (15, 12), (15, 13), (15, 14), (15, 15), (15, 16), (15, 17), (15, 18), (15, 19), (15, 20), (16, 1), (16, 2), (16, 3), (16, 4), (16, 5), (16, 6), (16, 7), (16, 8), (16, 9), (16, 10), (16, 11), (16, 12), (16, 13), (16, 14), (16, 15), (16, 16), (16, 17), (16, 18), (16, 19), (16, 20), (17, 1), (17, 2), (17, 3), (17, 4), (17, 5), (17, 6), (17, 7), (17, 8), (17, 9), (17, 10), (17, 11), (17, 12), (17, 13), (17, 14), (17, 15), (17, 16), (17, 17), (17, 18), (17, 19), (17, 20), (18, 1), (18, 2), (18, 3), (18, 4), (18, 5), (18, 6), (18, 7), (18, 8), (18, 9), (18, 10), (18, 11), (18, 12), (18, 13), (18, 14), (18, 15), (18, 16), (18, 17), (18, 18), (18, 19), (18, 20), (19, 1), (19, 2), (19, 3), (19, 4), (19, 5), (19, 6), (19, 7), (19, 8), (19, 9), (19, 10), (19, 11), (19, 12), (19, 13), (19, 14), (19, 15), (19, 16), (19, 17), (19, 18), (19, 19), (19, 20), (20, 1), (20, 2), (20, 3), (20, 4), (20, 5), (20, 6), (20, 7), (20, 8), (20, 9), (20, 10), (20, 11), (20, 12), (20, 13), (20, 14), (20, 15), (20, 16), (20, 17), (20, 18), (20, 19), (20, 20).