

**DWITE Online Computer Programming Contest  
February 2005**

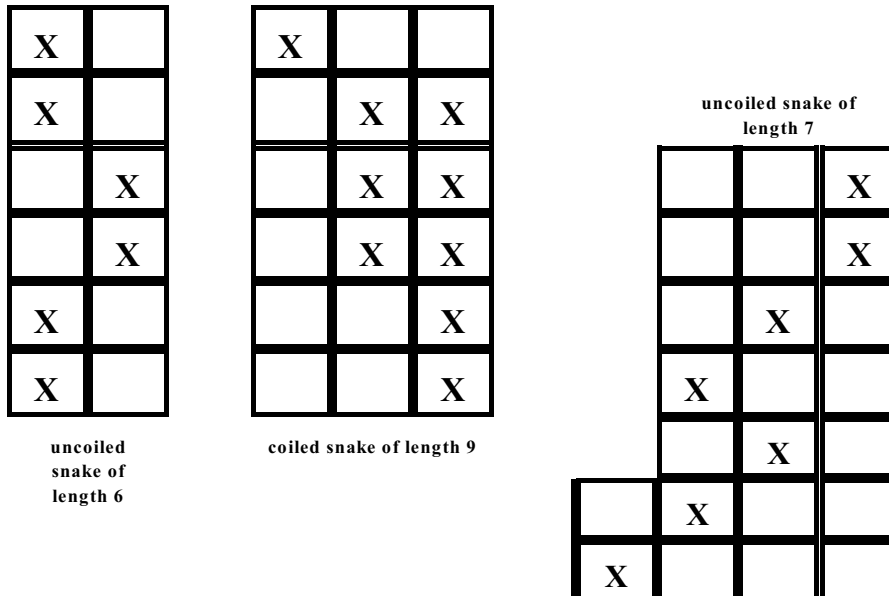
**Problem 2**

**Snakes**

In this particular problem, we will be considering snakes; two types of snakes in particular: coiled snakes and uncoiled snakes.

In this problem, the snakes are laid out on a grid. A snake, with its flexible body, can travel in any direction, N, S, E, W, NE, NW, SE or SW. A snake has a body width of one unit and has one head and one tail. A coiled snake will have its body wrapped with many parts of its body in contact with each other. An uncoiled snake is completely stretched with no parts of its body in contact with other parts.

In this problem, parts of the snake's body will be represented by the letter "X". Examples, of coiled and uncoiled snakes are as follows:



The input file (**DATA21.txt** for the first submission and **DATA22.txt** for the second submission) will contain 5 sets of data. Each set begins with a line with two integers,  $r$  and  $c$ , representing the size of the grid in rows and columns.  $3 \leq r, c \leq 50$ . For each set, the next  $r$  lines of data will contain  $c$  characters, that will represent the grid. An "X" character will represent a part of a snake's body. A period "." will represent an unused section on the grid. Several coiled and uncoiled snakes will be placed in the grid. At least one of each kind of snake will be placed in the grid.

The output file (**OUT21.txt** for the first submission and **OUT22.txt** for the second submission) will contain five lines of data. Each line will contain the length, in body parts, of the longest coiled snake in the grid and the longest uncoiled snake in the grid, in that order separated by a space.

**Sample Input (2 sets of data only)**

7 9  
X...X...X  
XX.X..X.X  
X....X..X  
X...X..XX  
.X..X..XX  
.X...X.XX  
.X.X....X  
5 4  
...X  
X.X.  
X..X  
XX..  
X...

**Sample Output**

10 5  
5 3