**AT@ COUNTER**

**Lab Goal :** This lab was designed to teach you more about recursion while allowing you to review matrices and nested loops.

**Lab Description :** The constructor will randomly load @s and –s into the matrix. Take a provided row and col location and count how many @ signs connect to the original location. @ signs are connected if they are connected up, down, left, and right of one another. You must use a matrix.

**Files Needed ::**

**AtCounter.java**

**AtCounterRunner.java**

**Sample Data :**

0 0

2 5

5 0

9 9

**Assume this was randomly  
loaded in the constructor :**

@ - @ - - @ - @ @ @

@ @ @ - @ @ - @ - @

- - - - - - - @ @ @

- @ @ @ @ @ - @ - @

- @ - @ - @ - @ - @

@ @ @ @ @ @ - @ @ @

- @ - @ - @ - - - @

- @ @ @ - @ - - - -

- @ - @ - @ - @ @ @

- @ @ @ @ @ - @ @ @

3 9

**Sample Output :**

0 0 has 5 @s connected.

2 5 has 0 @s connected.

5 0 has 29 @s connected.

9 9 has 6 @s connected.

***algorithm help***

if ( r and c are in bounds and current spot is a @ )

mark spot as visited

bump up current count by one

4 recursive calls up down left right

Note that because the toString is called before countAts there is no need to preserve the original matrix.

3 9 has 16 @s connected.

**If checking 0 0, you would find 5 @s are connected.**

@ - @ - - @ - @ @ @

@ @ @ - @ @ - @ - @

- - - - - - - @ @ @

- @ @ @ @ @ - @ - @

- @ - @ - @ - @ - @

@ @ @ @ @ @ - @ @ @

- @ - @ - @ - - - @

- @ @ @ - @ - - - -

- @ - @ - @ - @ @ @

- @ @ @ @ @ - @ @ @