Outlab4 – Searching a Maze

Due: submit by midnight, Mar 19

Objective
The objective of this out lab is to gain experience with recursive solutions to problems. In this case, the problem is finding a path through a maze. Your program should read in a text file containing a maze like the one on the left (the numbers in the first line specify the size of the maze). It should then recursively search the maze to find a path from the starting location 'S' to the destination location 'T'. Only horizontal and vertical moves are allowed. *Your program should also declare when 'T' is unreachable.*

Input:

```
10 10
**********
*       *T*
**  **** *
*     *  *
*****   **
*     *  *
*    *****
**** *   *
*S       *
**********
```

Output:

```
**********
*       *T*
**  ****+*
*     *++*
*****++***
*   ++*  *
*   +*****
****+*   *
*S+++    *
**********
```

Recursive idea: Try each exploring each direction (NSEW) in turn and drop 'b'readcrumbs as you search. Do not step on a 'b' or a '*' (wall).

Required (20 pts)

- A working recursive maze-solving program that takes input as specified. It should work on mazes of arbitrary sizes. Hint: implement a method called explore(int x, int y) that recursively explores (x,y) in the maze to see if a path to 'T' can be found from (x,y).
- *Also include a text capture of your program's output on a few sample mazes that you create.*

Optional (2 bonus pts)

- Write another maze-searching method that finds a shortest-path from 'S' to 'T'. (hint: use a queue to explore new locations in the maze) Demonstrate that it works.

What to Turn In
Use D2L to submit your Netbeans project. Running the main method in the project should launch your program.