COMP 250

Assignment 3 overview

Prepared by Héctor
hector.leosmendoza@mcgill.ca

Goal

- Get you familiar with recursion

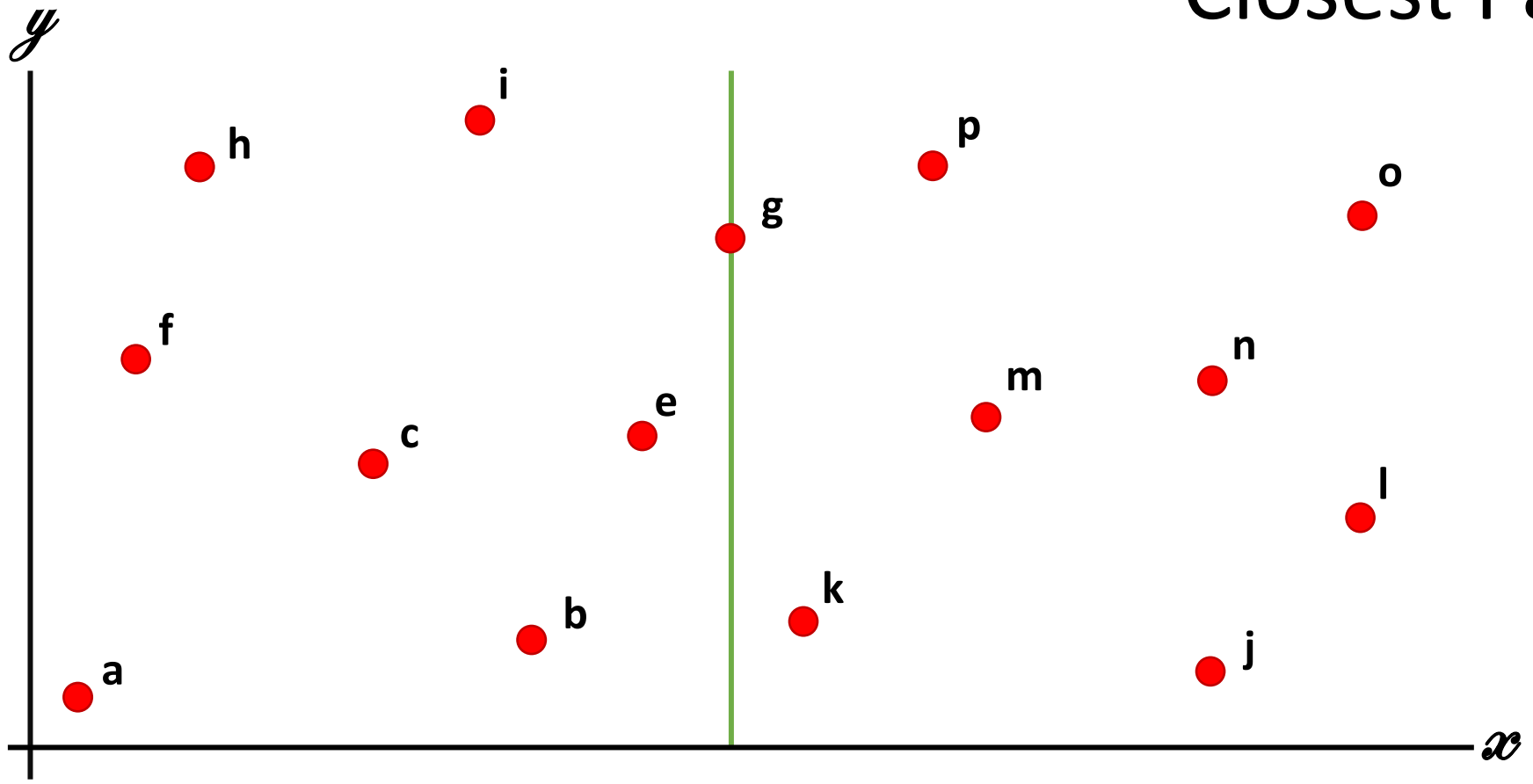
PART I: CLOSEST ANTENNA PAIR

Closest Pair

low: 0

high: 14

mid: 7



pointsSortedByX = {a,f,h,c,i,b,e,g,k,p,m,j,n,l,o}

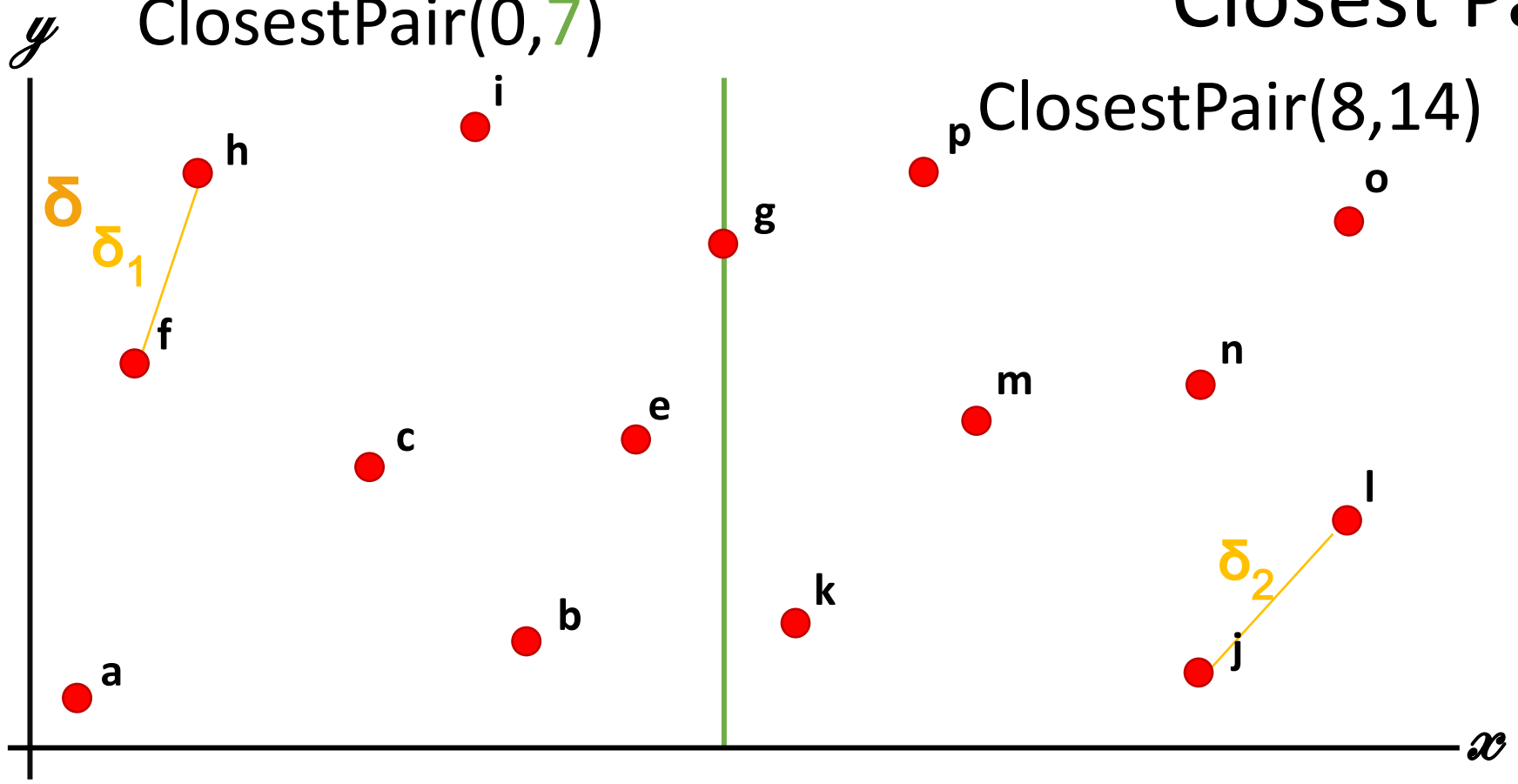
(Ties broken by y value)

Closest Pair

low: 0

high: 14

mid: 7



pointsSortedByX = {a,f,h,c,i,b,e,g,k,p,m,j,n,l,o}

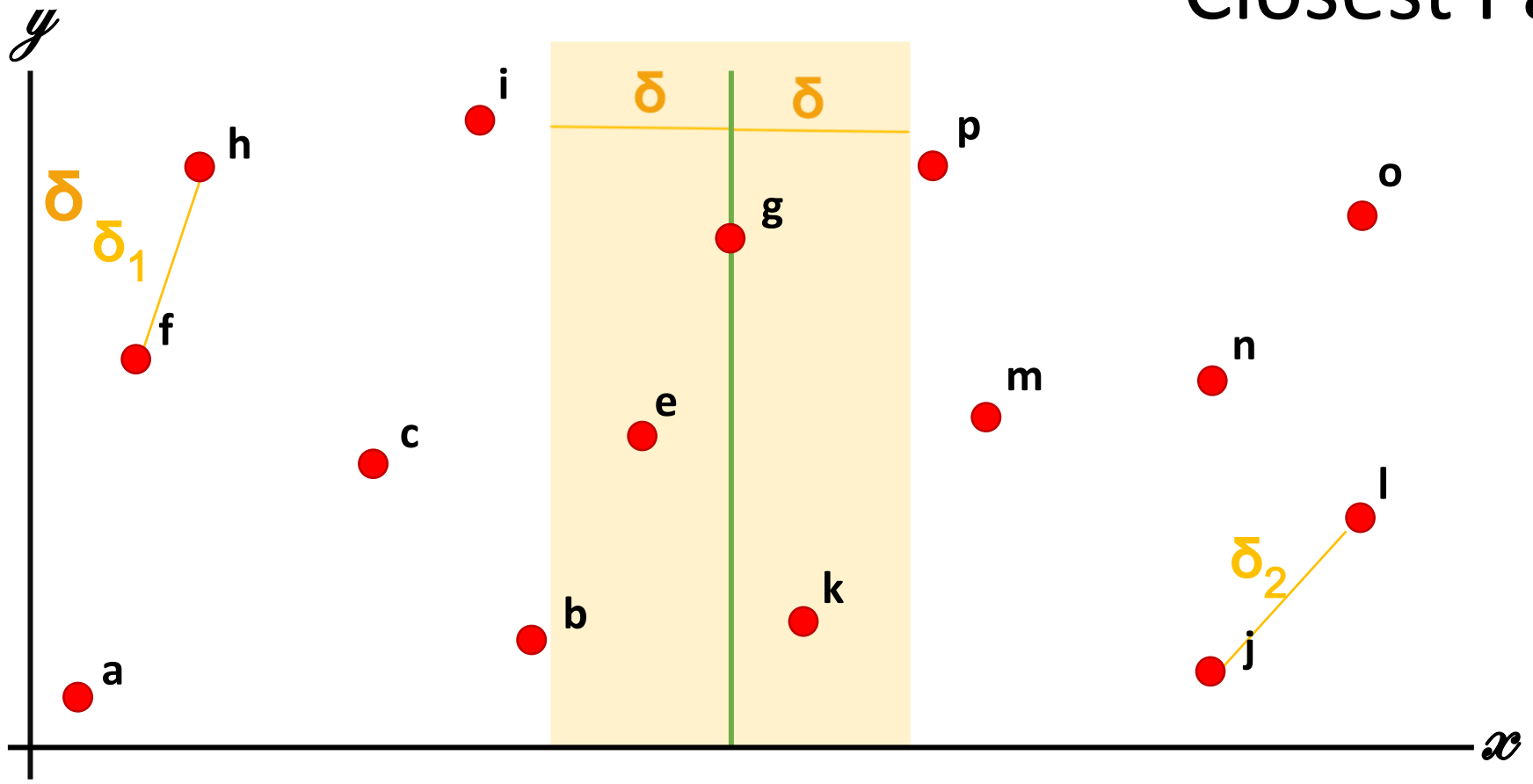
pointsSortedByY = {a,b,c,e,f,g,h,i,j,k,l,m,n,o,p}

Closest Pair

low: 0

high: 14

mid: 7

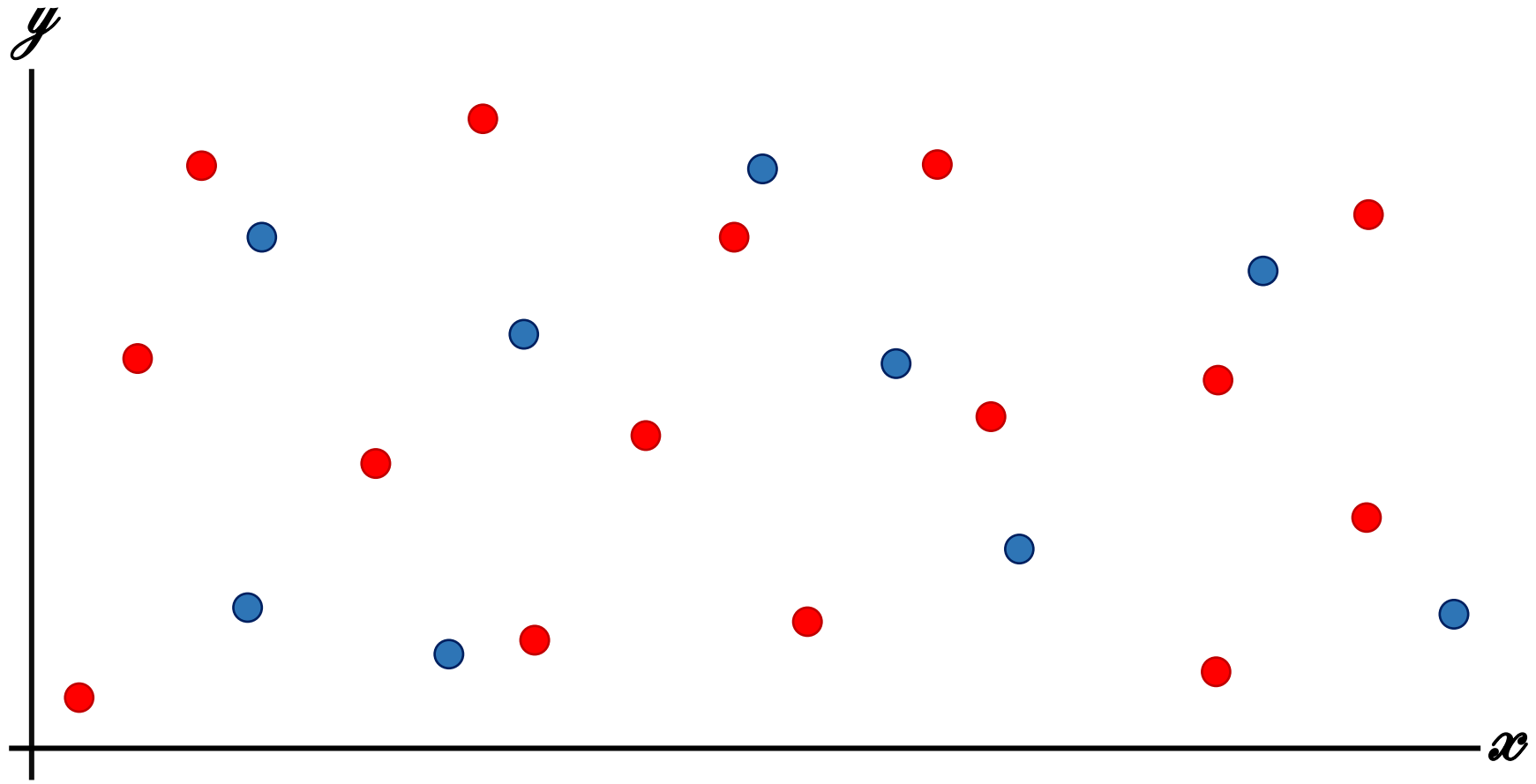


pointsSortedByX = {a,f,h,c,i,b,e,g,k,p,m,j,n,l,o}

MERGE pointsSortedByY = {a,j,b,k,l,c,e,m,n,f,g,o,p,h,i,}

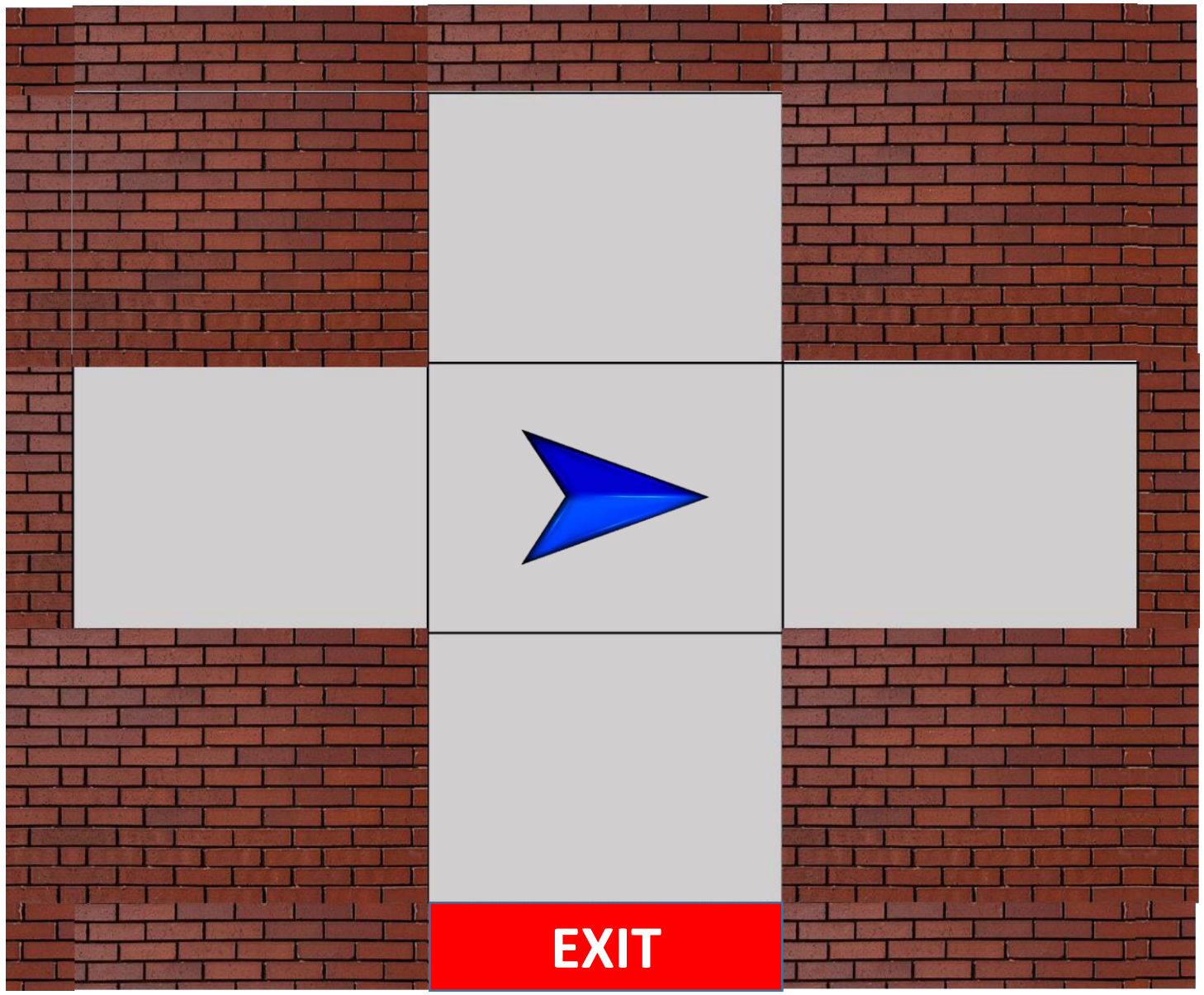
(Ties broken by x value, didn't check in this example)

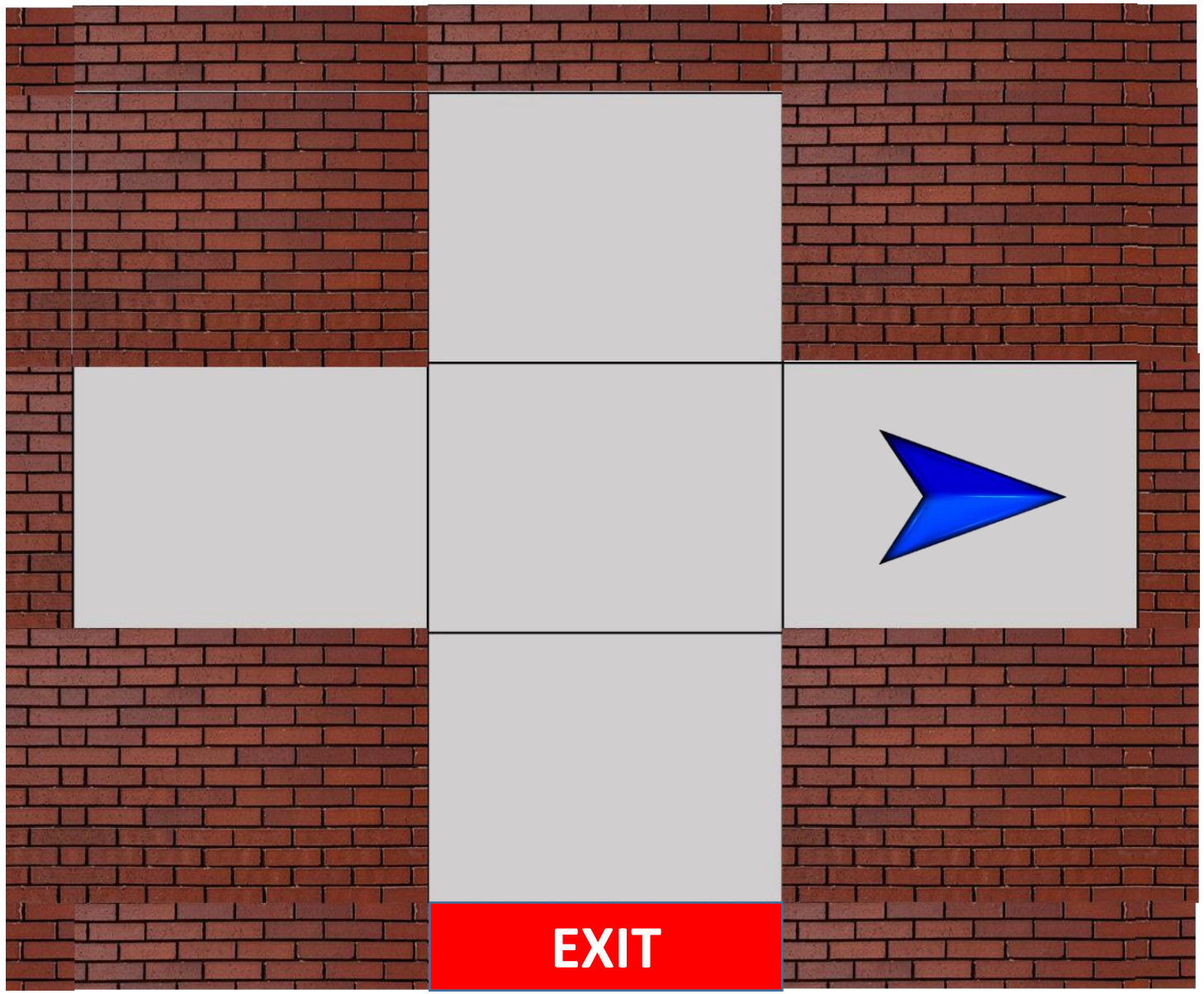
Closest Antenna Pair

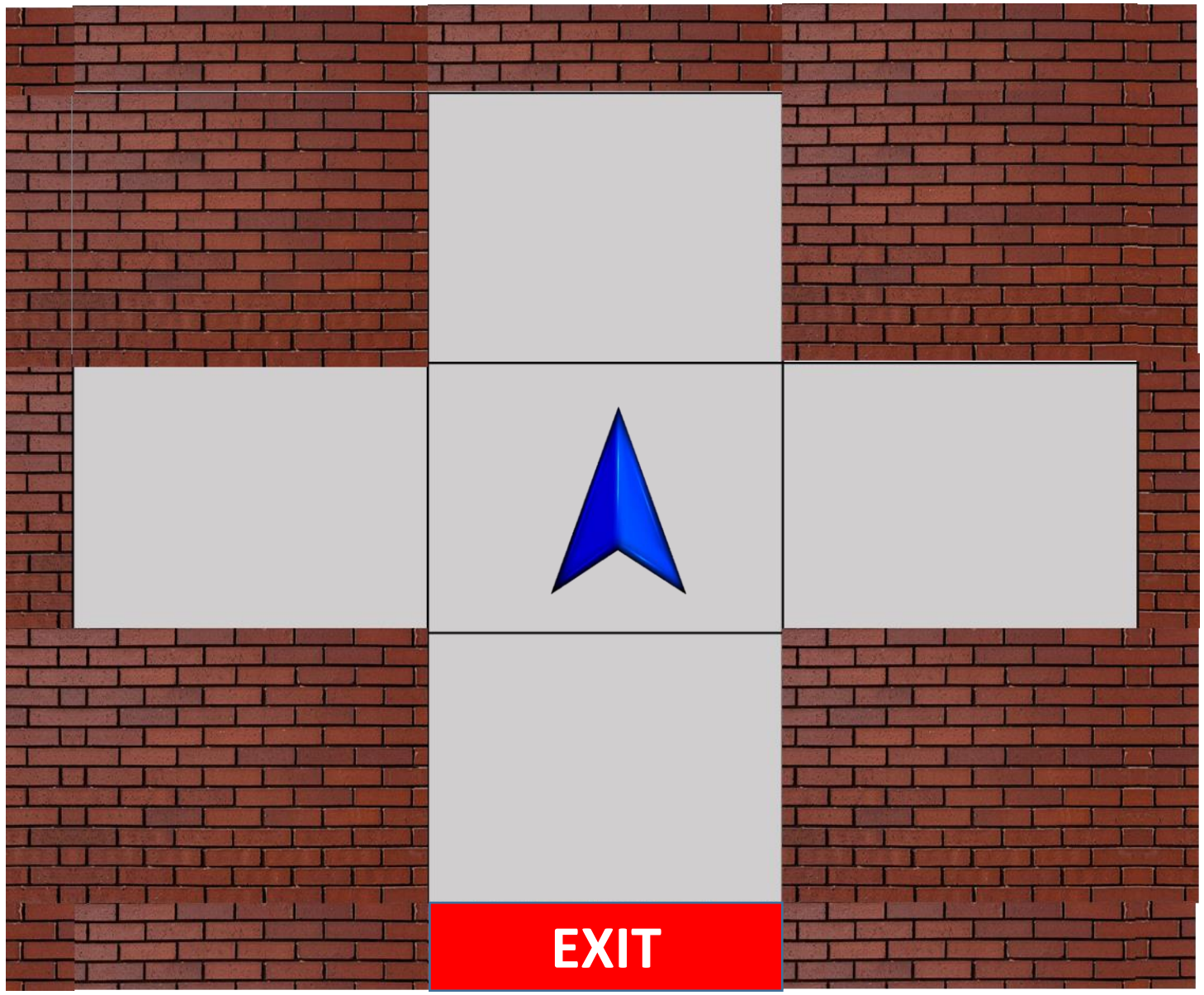


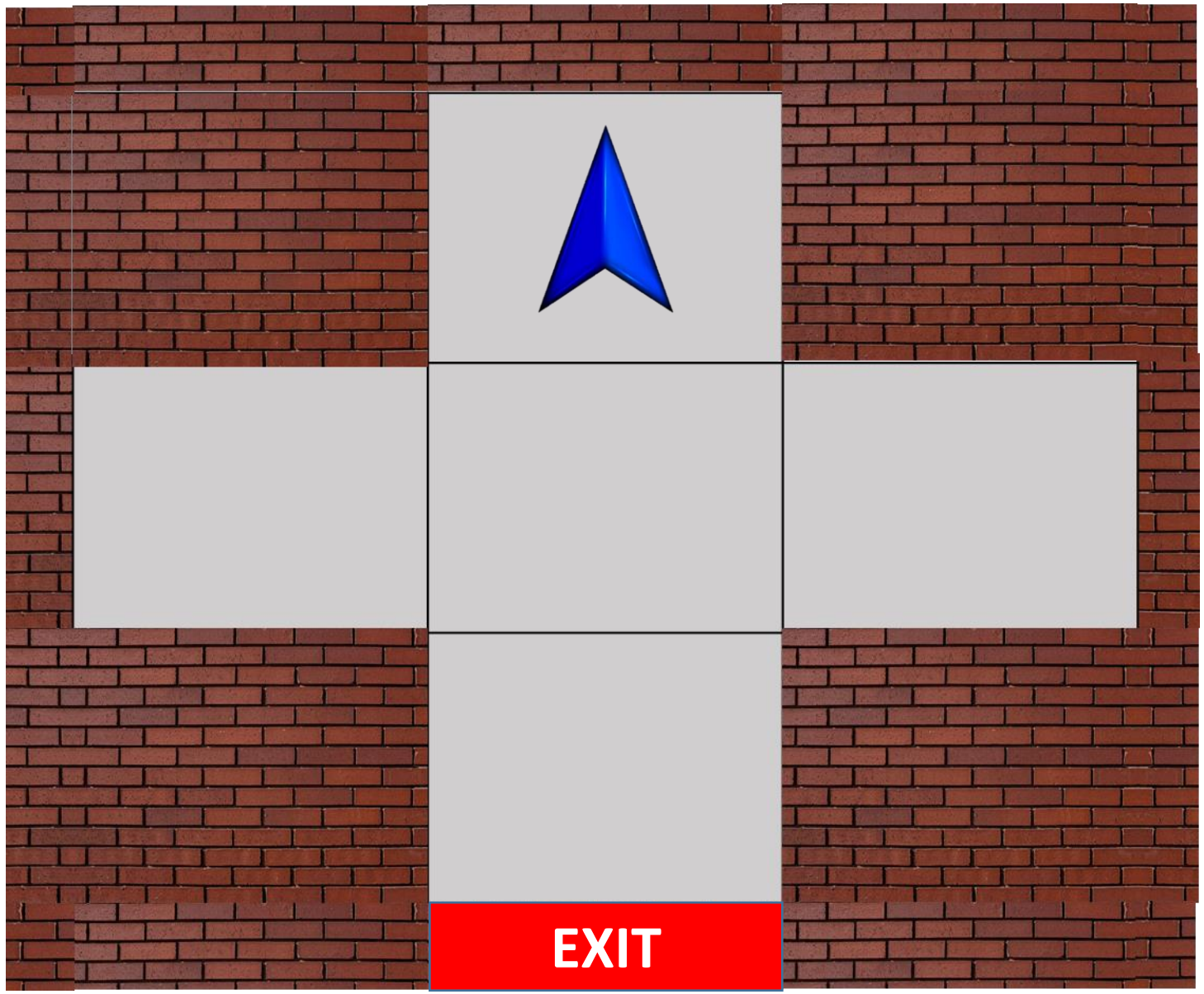
Questions?

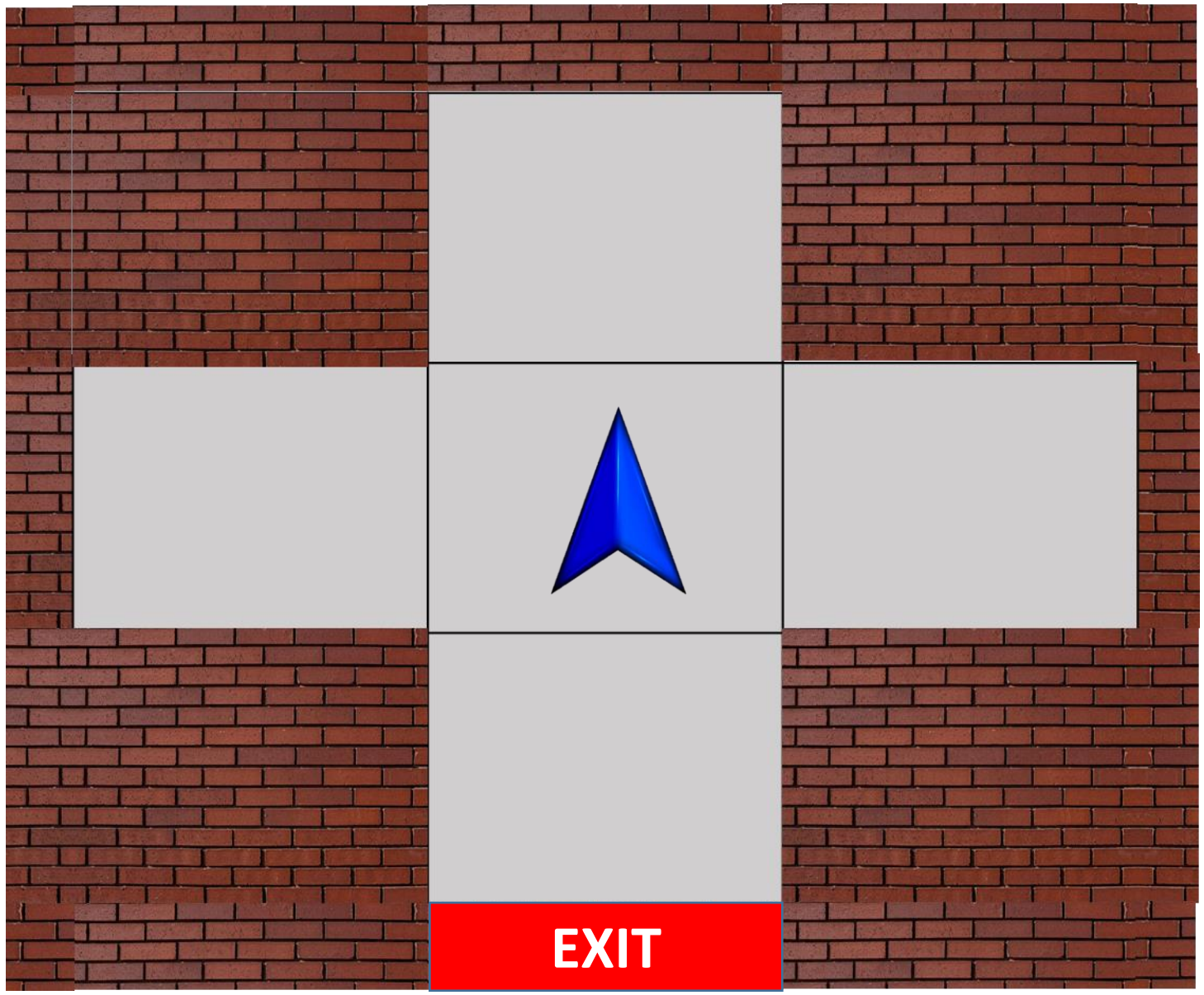
PART II: MAZE SOLVER

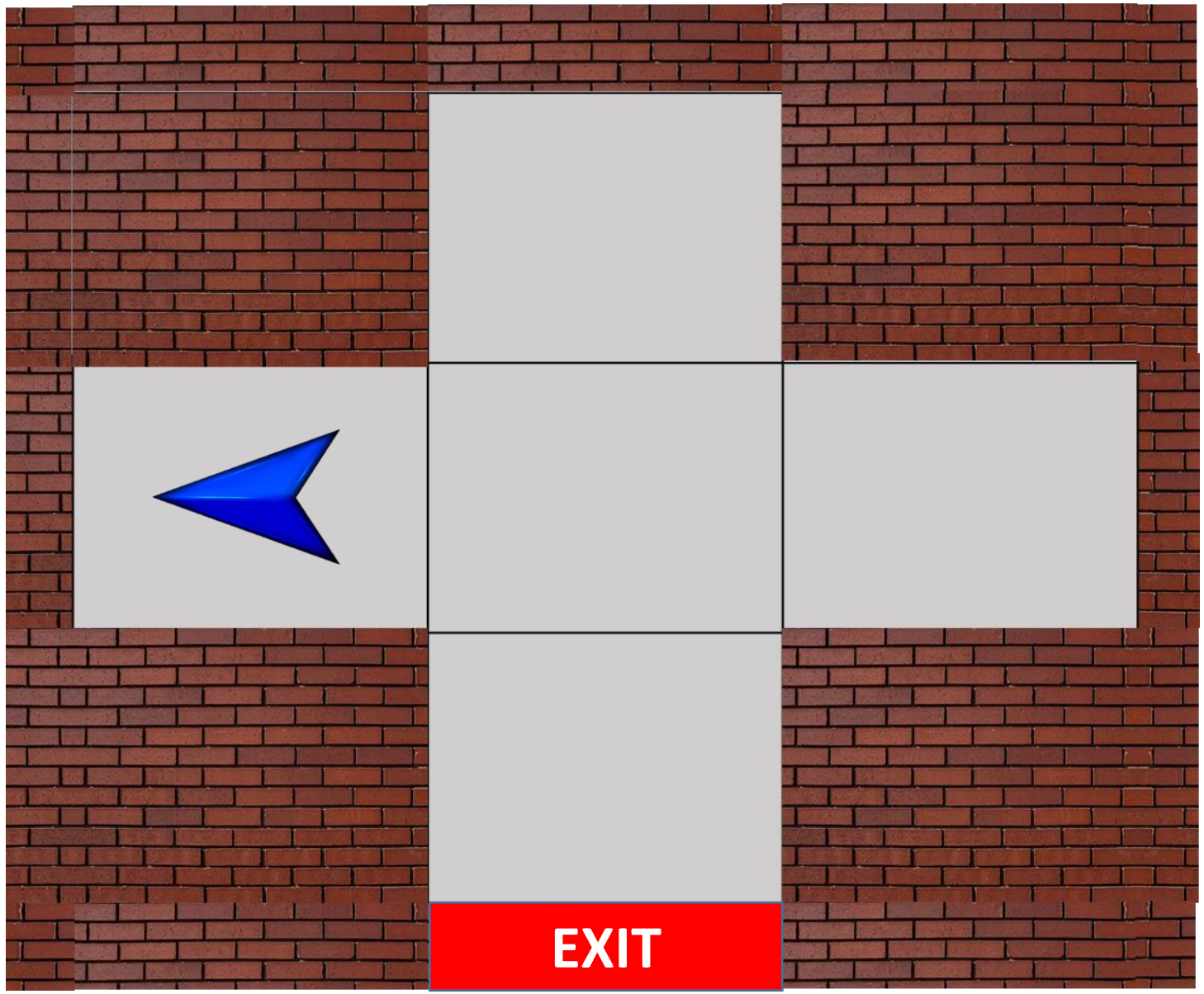

EXIT

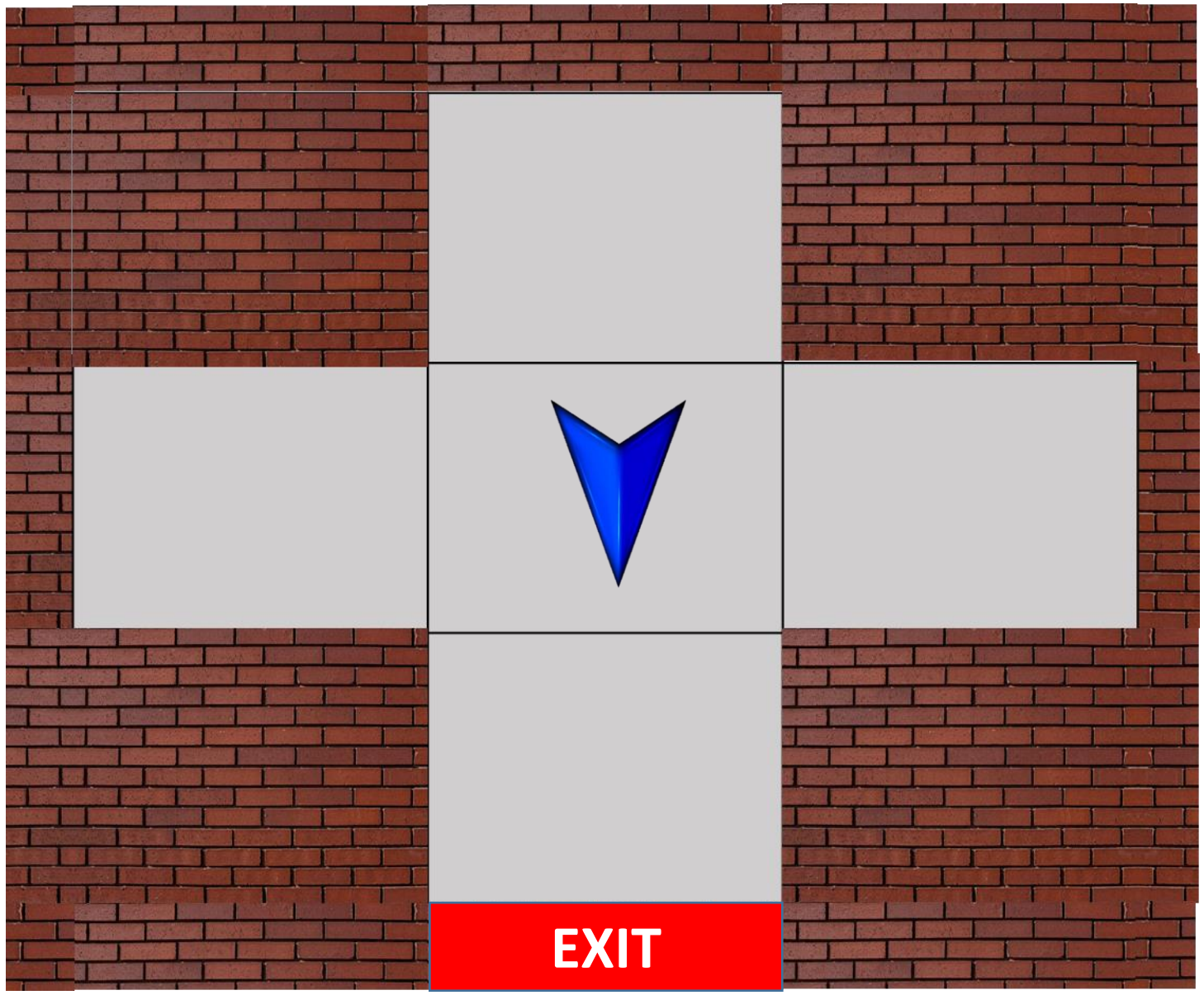

EXIT

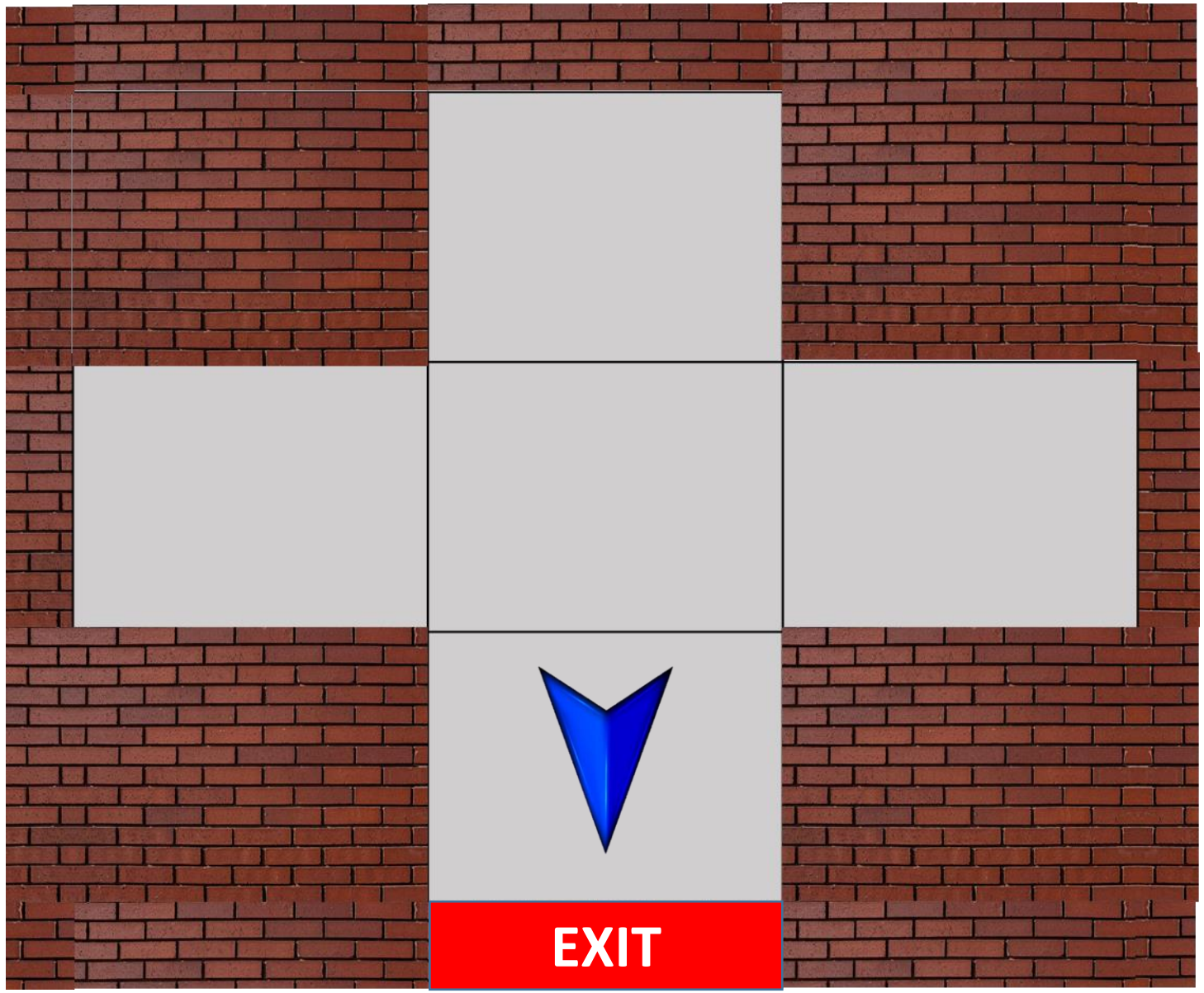

EXIT

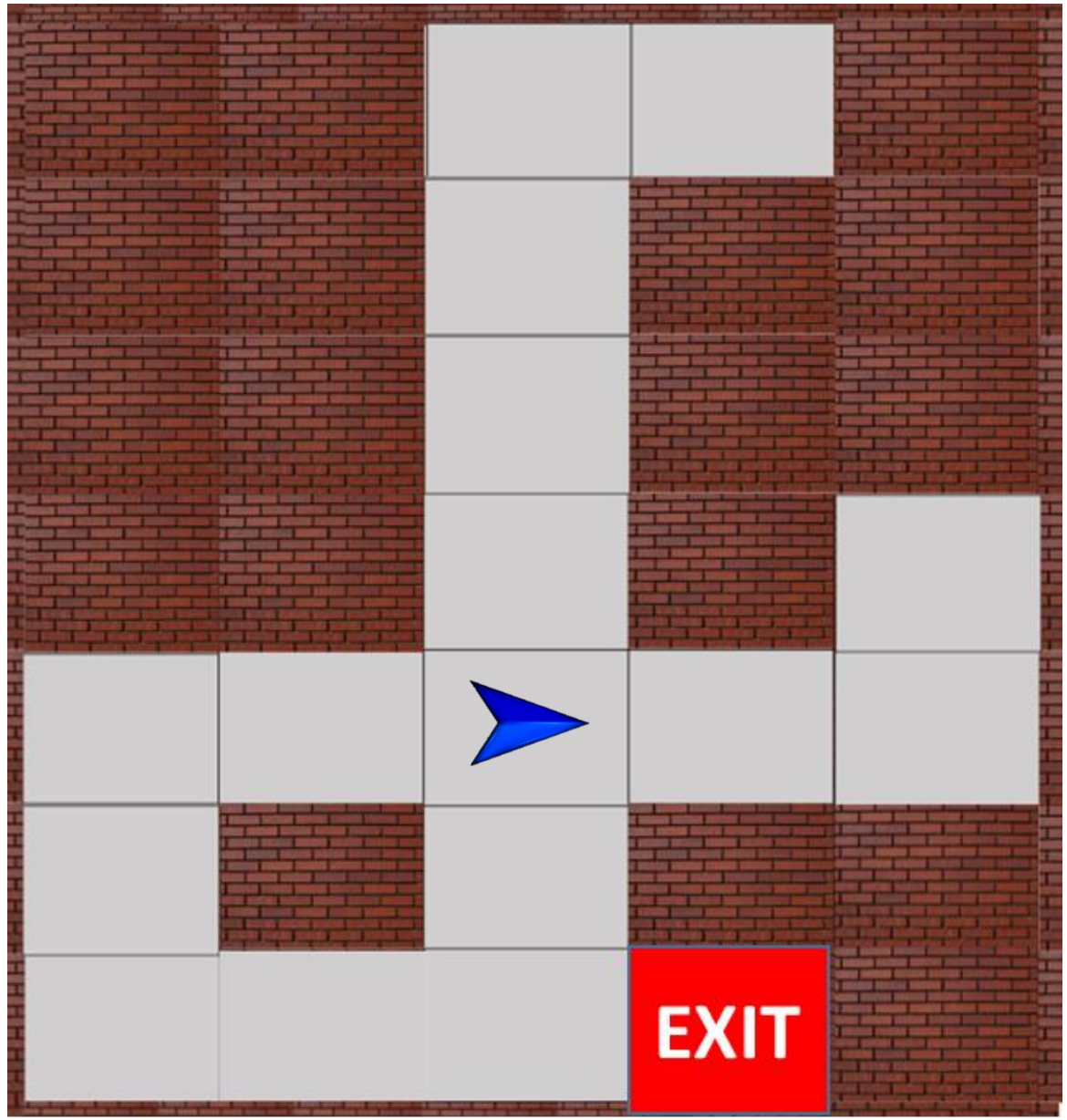

EXIT


EXIT

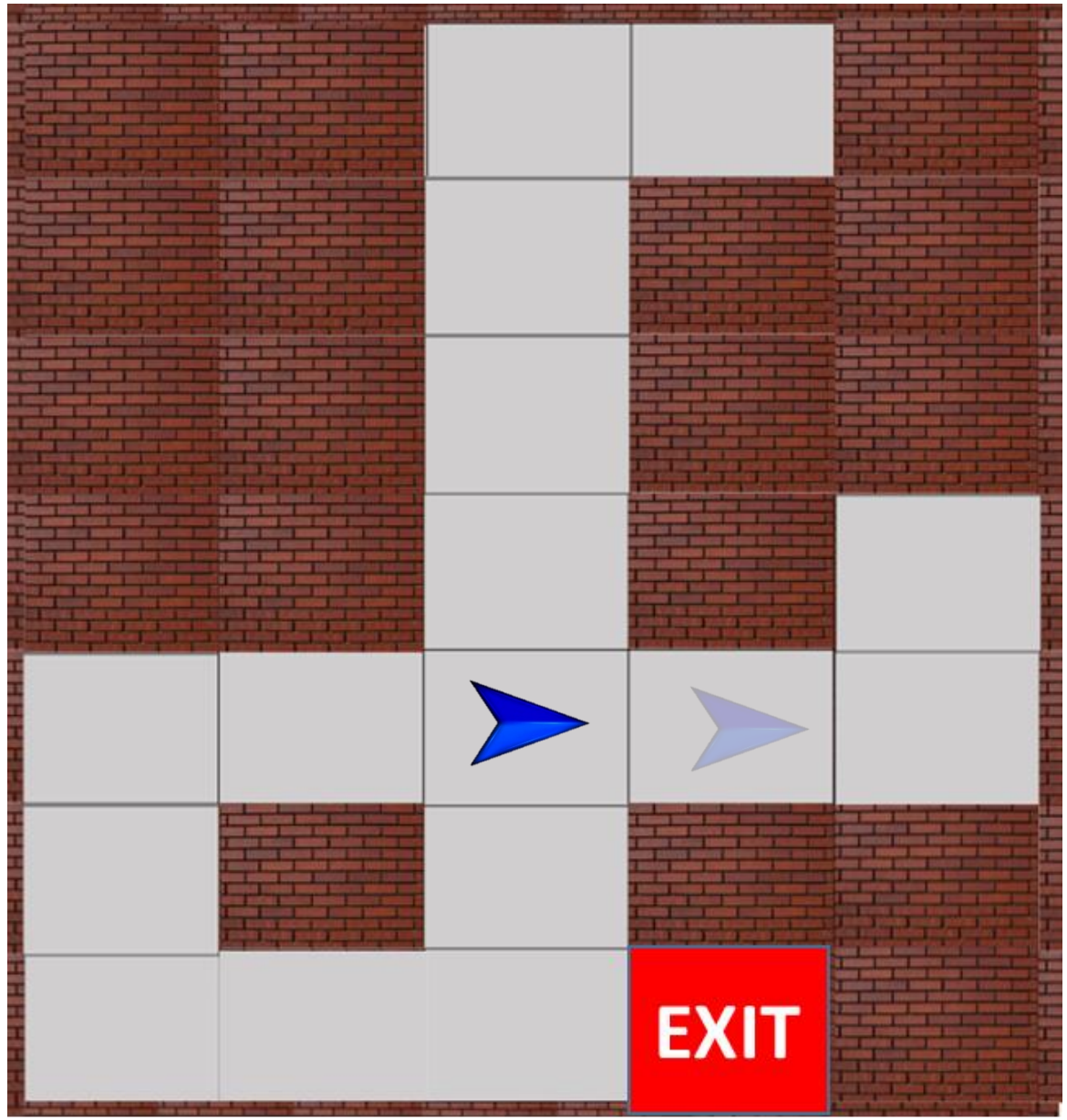

EXIT

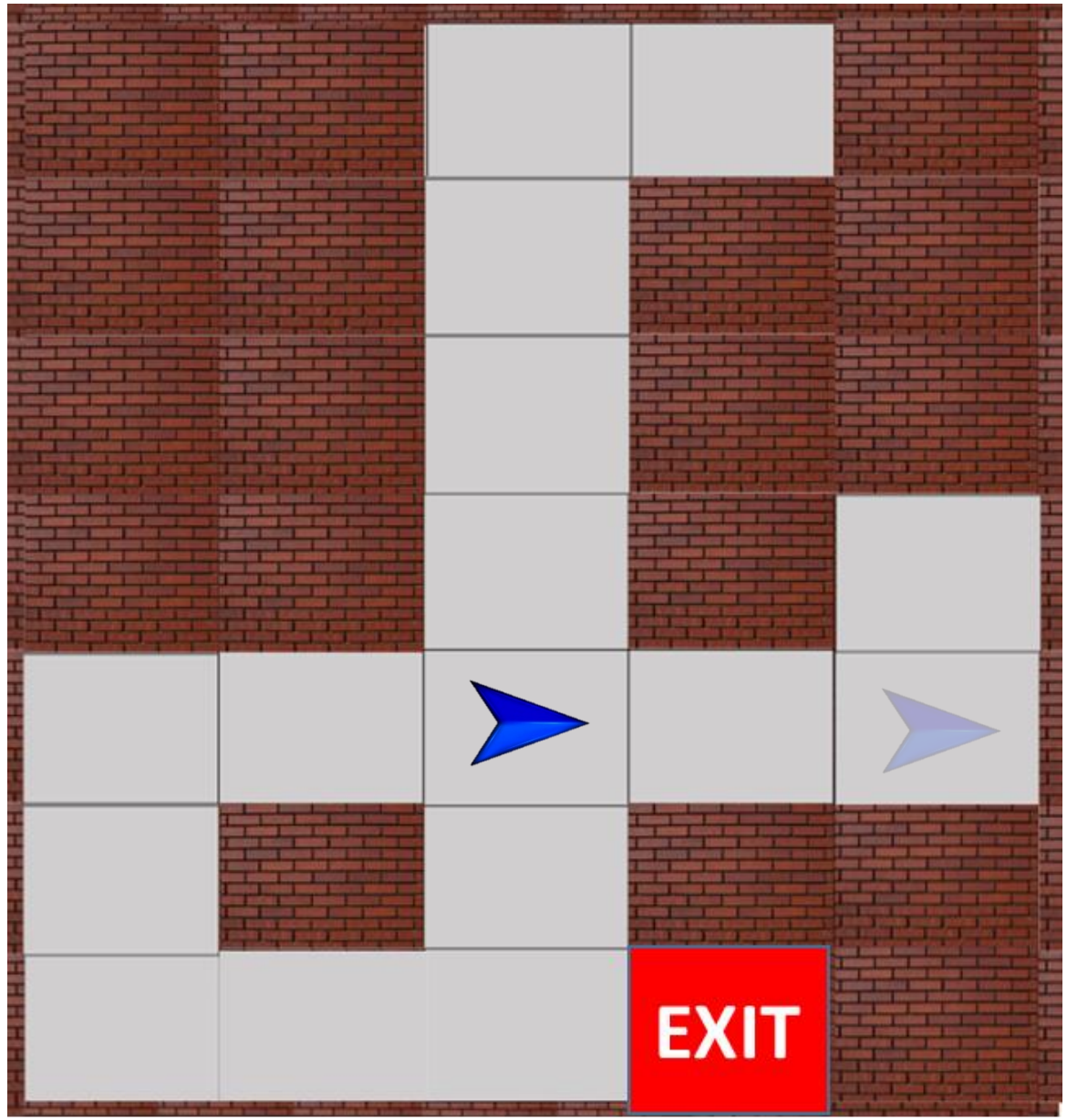

EXIT

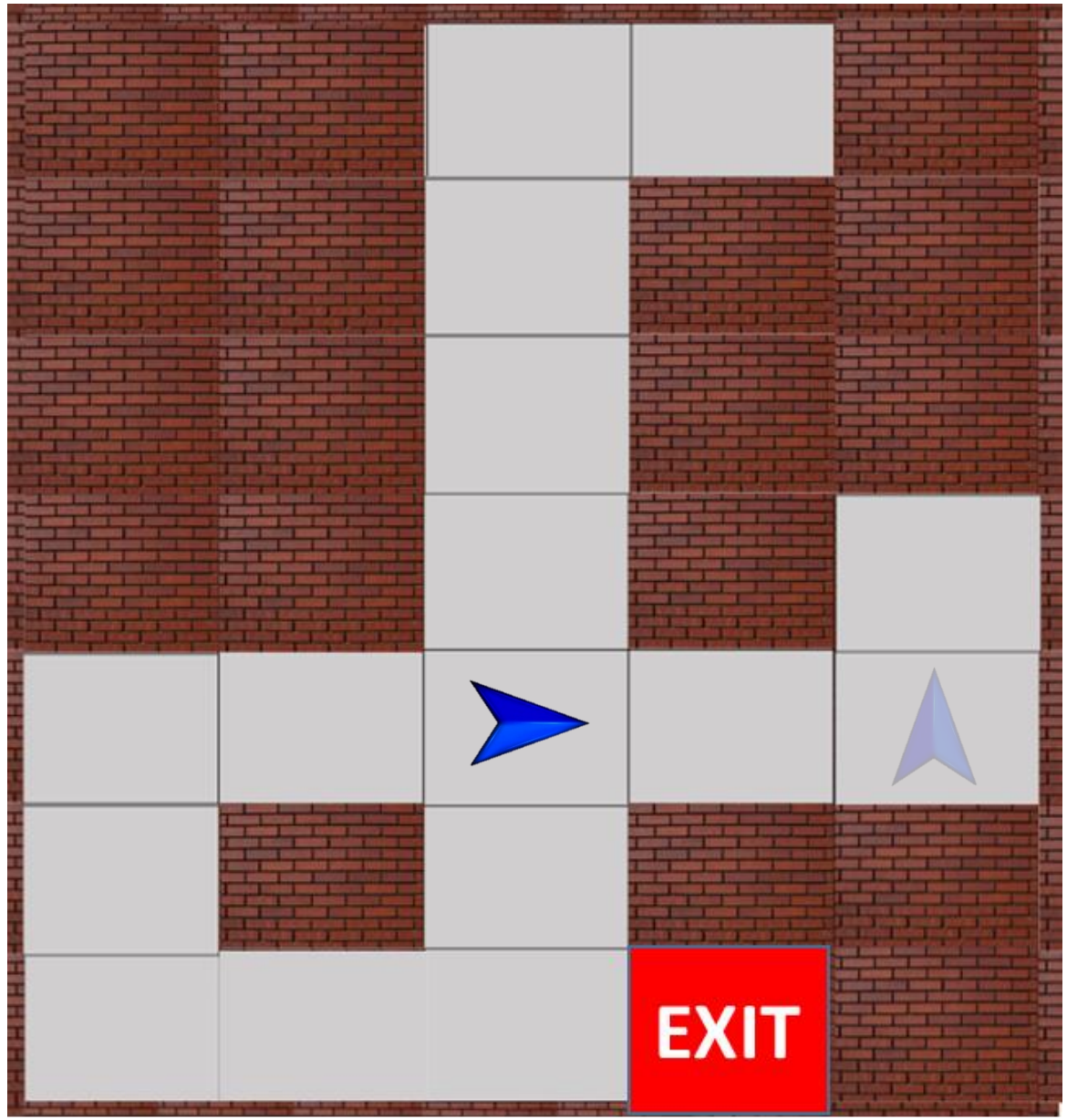

EXIT

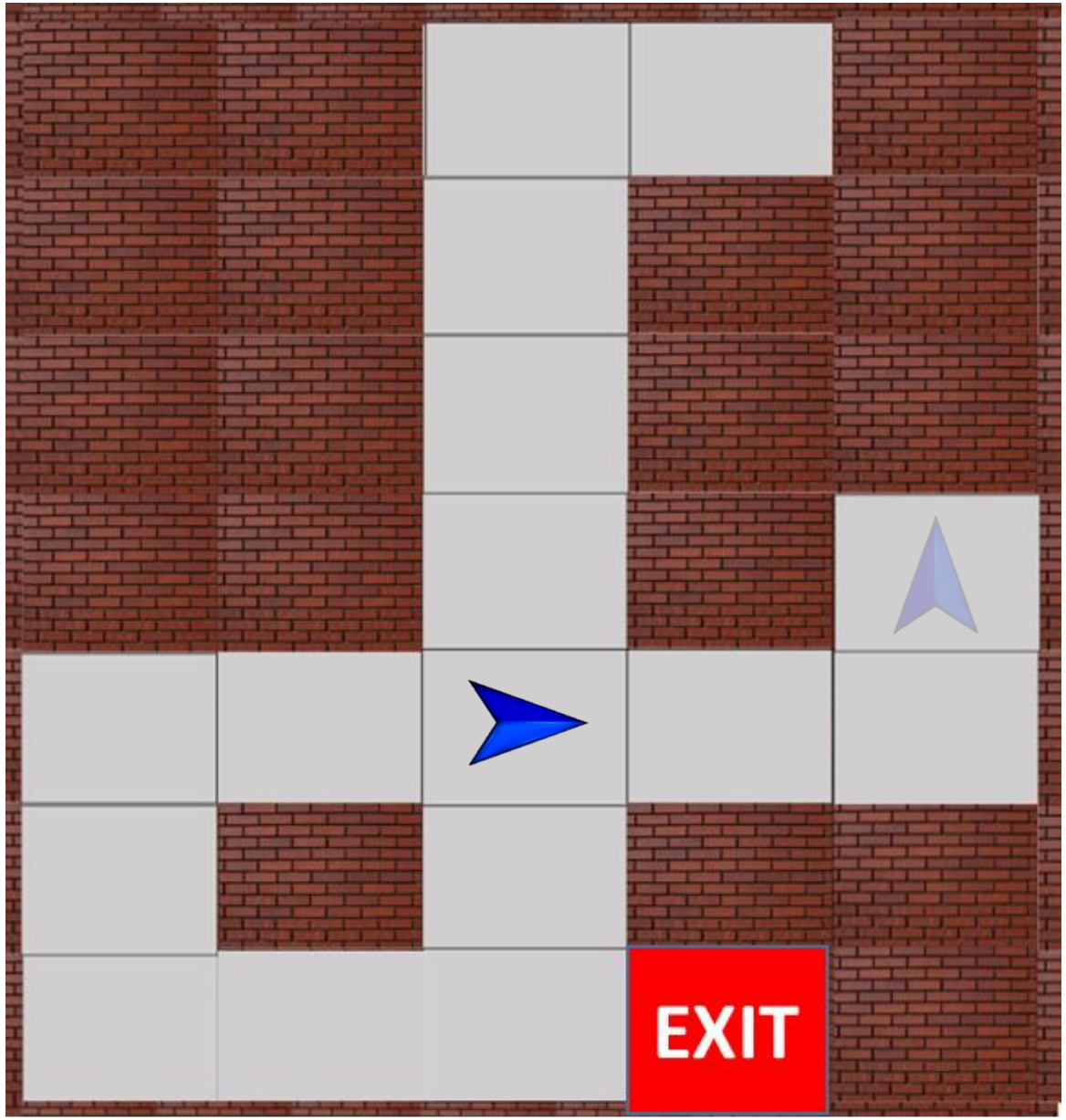

EXIT


I looked forward in this maze, I saw 14,000,605 possible paths
How many paths lead to the exit ?
One.

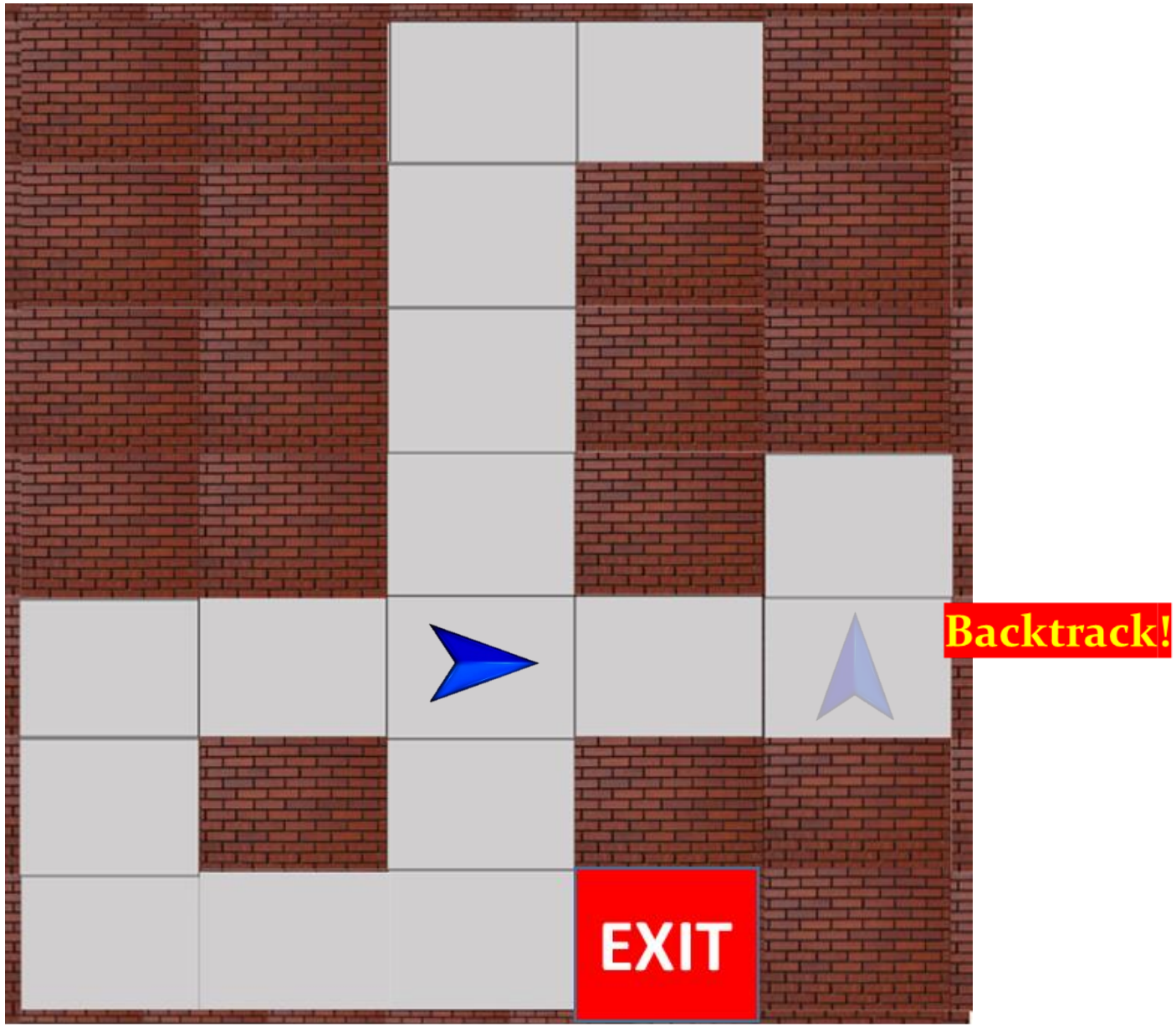

EXIT

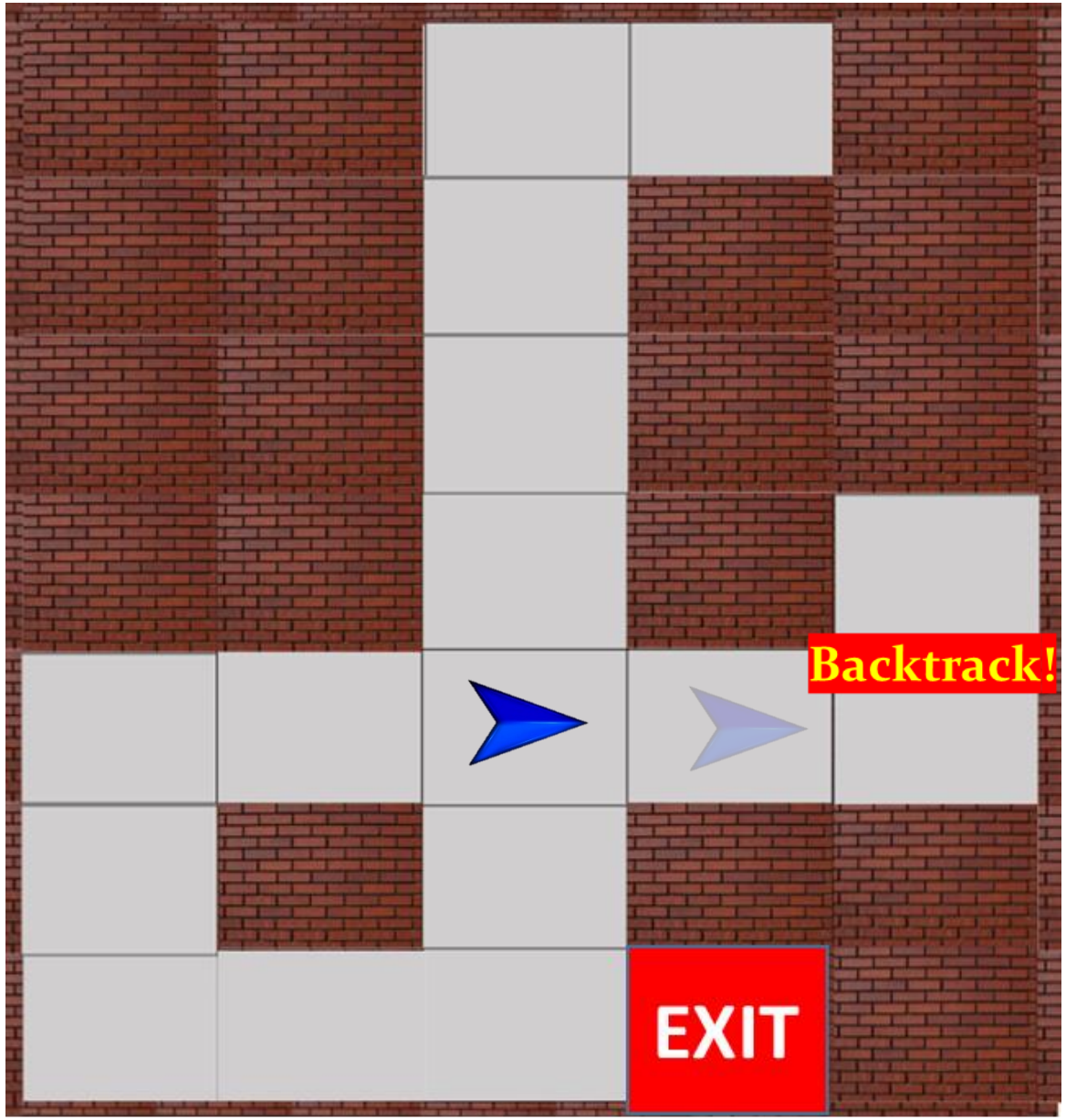

EXIT

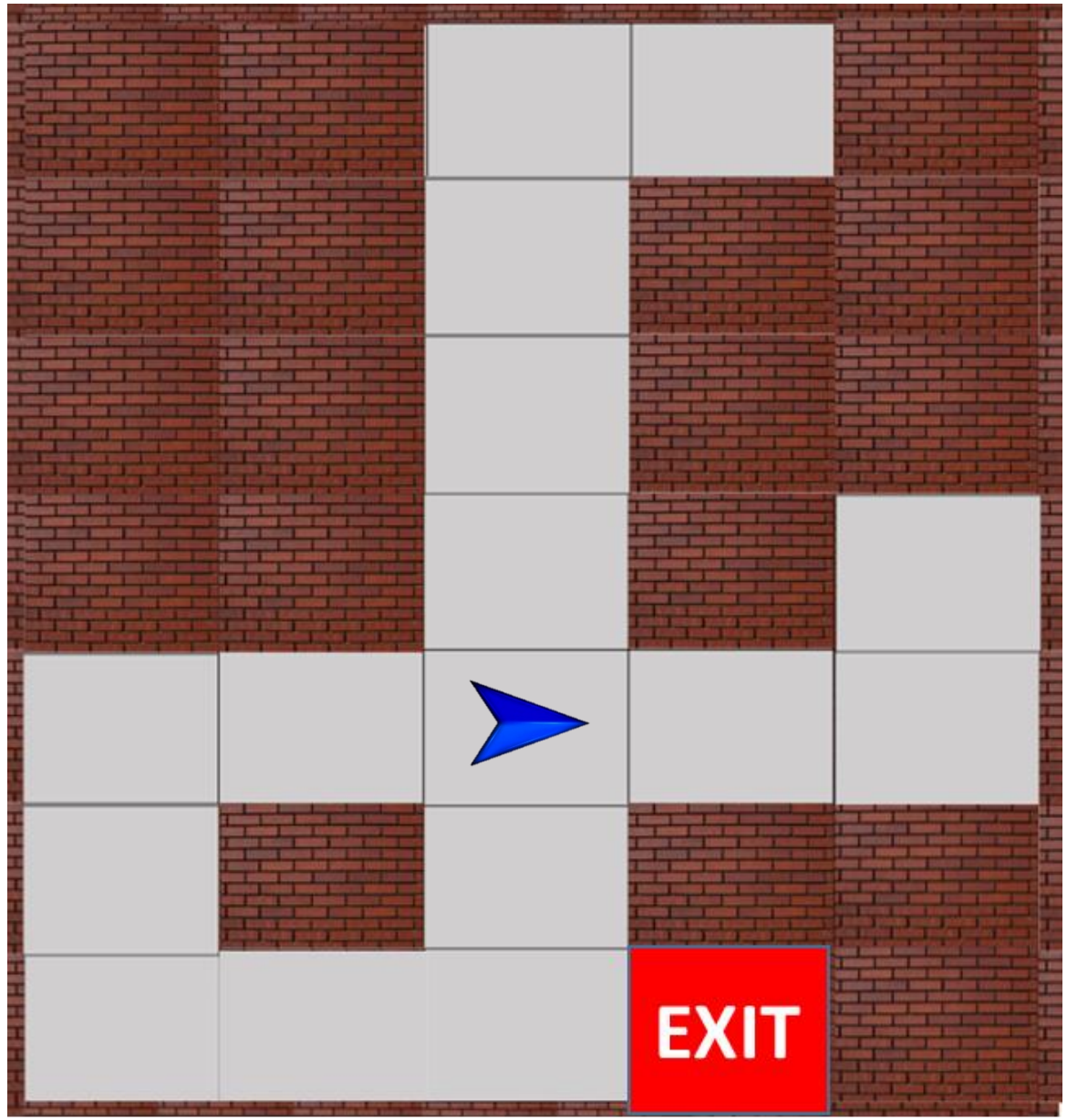

EXIT

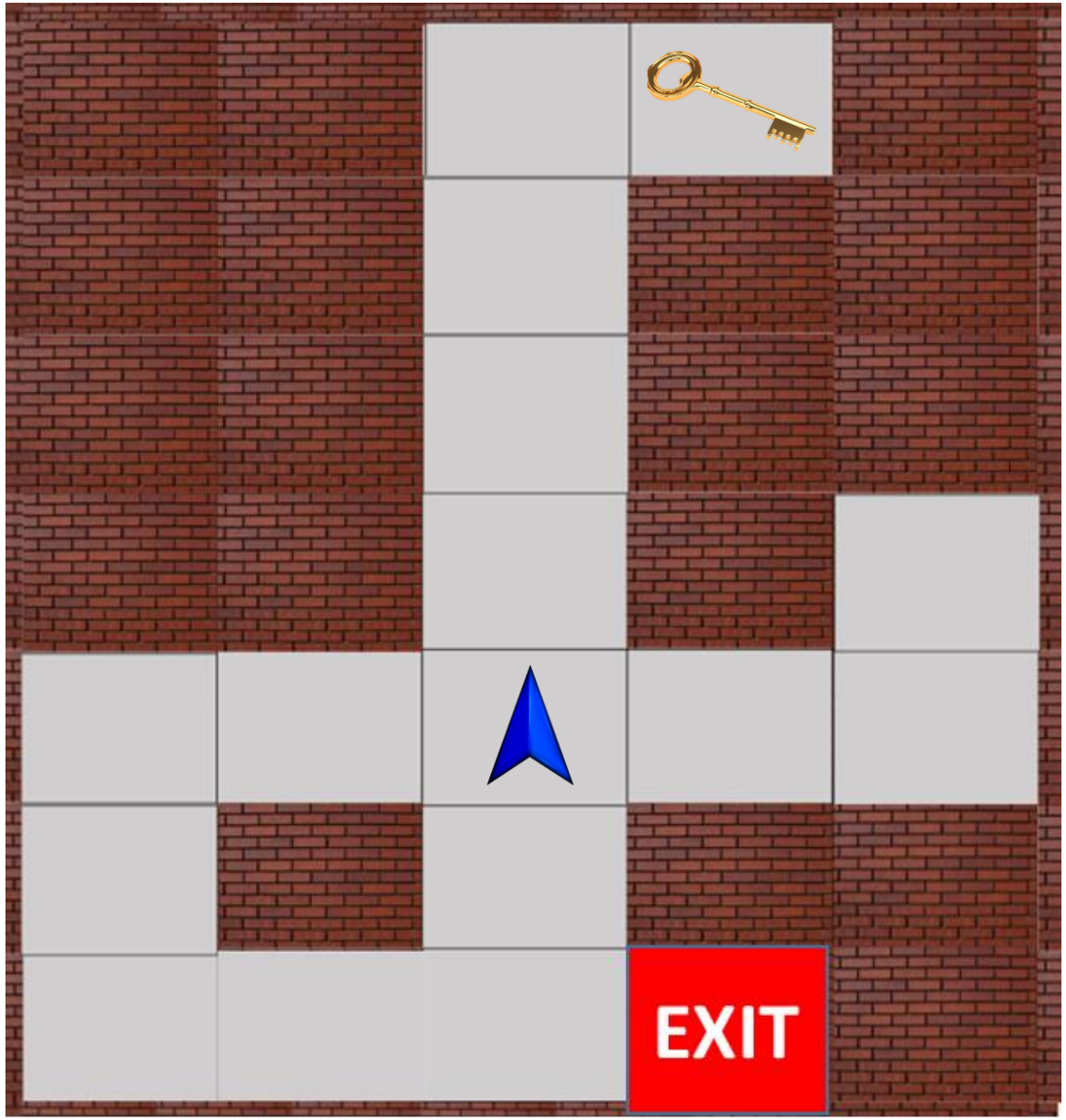


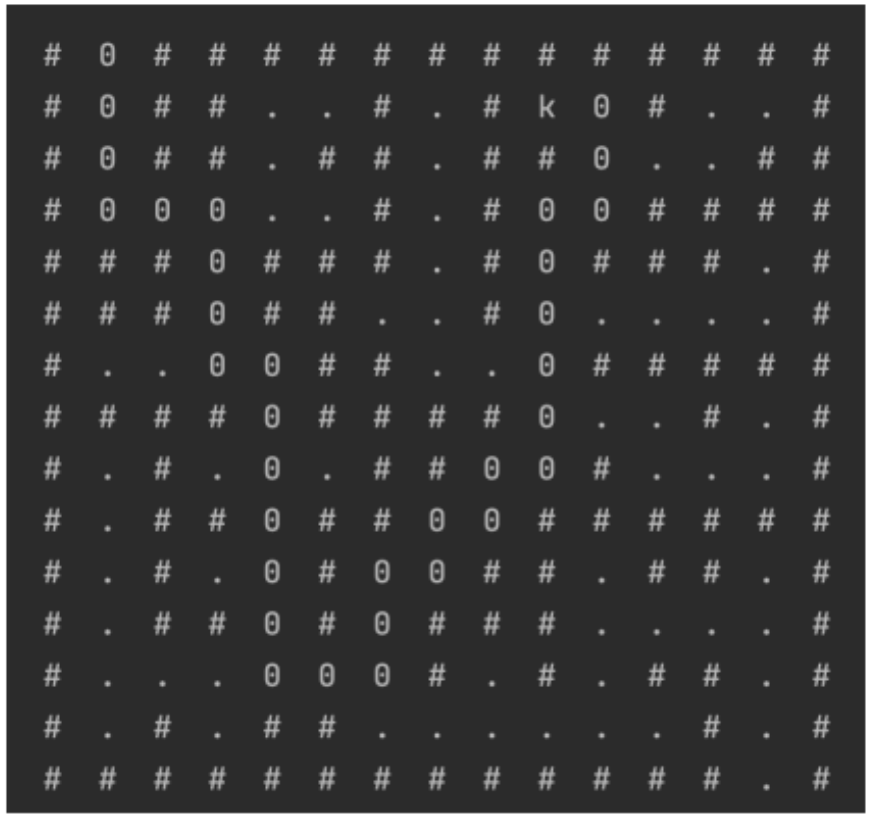
Backtrack!


EXIT
Backtrack!

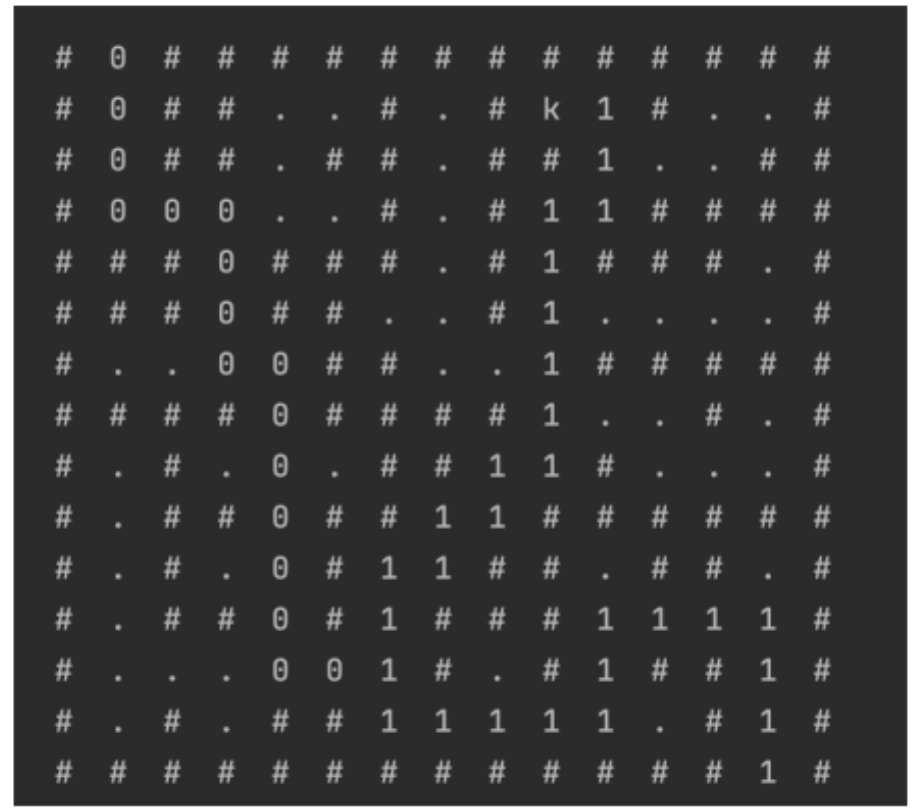

Backtrack!
EXIT


EXIT


EXIT



(a) Path to key is marked



(b) Both paths are marked

Questions?

Some pieces of advice…

Antenna Pair

- Spend most of the time understanding the Closest Pair code before starting coding for Closest Antenna Pair.

Maze Solver

- Start by coming up with a solution that goes straight to the exit.
- First find your base cases, then work on the recursive calls.
- The solution is simple, what's challenging is figuring out the correct sequence of steps and accounting for the key.
- Have fun!

Good luck!

Any questions about the slides please contact me at hector.leosmendoza@mcgill.ca. General questions about the assignment should be posted on Ed.