

## Tic Tac Toe

Game
- Win/Lose
- Turn Control
- 1 board
- 1 AI, 1 Player

→ also controls  
Prompts

### Board

Data

2d array

0 = empty

1 = player

2 = AI

### Functions

- get - cell(x, y)

return - converts x, y coords into index for the board + returns what's stored

- set - cell(x, y)

return - T/F cell was able to be set

### Board Render

- Takes a board + draws it to the screen (using ASCII)

<sup>(0,0)</sup> 0	<sup>(0,1)</sup> x	<sup>(0,2)</sup> 0
<sup>(1,0)</sup> 0	<sup>(1,1)</sup> x	<sup>(1,2)</sup> 0
<sup>(2,0)</sup> 0	<sup>(2,1)</sup> x	<sup>(2,2)</sup> 0

→ Draw lines if time allows

## Finding a Win

Recursive, path finding?

~~Start top left, march until find something not empty, if something is found, then recursive path find~~

Loop over the rows + <sup>multiply</sup> add up to get the totals

Then check column totals

Then check diagonals

1 = player 1 win

2 = player 2 win

0 = no win in row

Total checks: 8  $O(n)$   $n$  = board size!

## AI

MVP - Random placement

Improvement: Use solved strategy

## To do

### Game

- Set up prompts ✓
- Turns ✓
- Play again ✓
- Gameplay loop ✓
- Input ✓

### Board

- 2D array
- get
- set
- Find win

### Board Render

- Draws board  
to screen

### AI

Randomly choosing a cell