**CS 115 - Lab #1 Notes**

Picobot

* Syntax
  + You can **comment** code using “**#**” 🡪 anything you type, it will be there without being complied
  + Start with a **state** or a number: 0 – 99
    - These are conditions you can apply to it
  + After, you have the **four directions:** “**NEWS**” (North, East, West, South) or location to help make the statement fit the condition of the bot
    - Following, you have identifiers:
      * **“\*”** = *wildcard* 🡪 anything can be in front of the bot, and it’ll fit that condition (don’t care)
      * “X” = *nothing in that direction*
      * “NEWS” = *letter in that direction*
  + After, you have the **arrow**: “->”
    - Following, you have a cardinal direction
    - A **new state**
* Code
  + 0 \*\*\*X -> S 0 🡪 Move to the bottom of the map
  + 0 \*\*\*S -> E 0 🡪 Move all the way to the east
  + 0 \*X\*S -> E 0 🡪 Move all the way to the east and stop with there’s something there
* Always make your code **generalized**
* Map #1:
  + # states are from 0 - 99
  + # NEWS
  + # \*
  + # X
  + # [N]
  + # ->
  + # {cardinal direction}
  + # New State
  + # State 0: Starting Position
  + 0 \*\*\*X -> S 0
  + 0 \*X\*S -> E 0
  + 0 \*E\*S -> N 1
  + # State 1: Bot is going North
  + 1 X\*\*\* -> N 1
  + 1 N\*\*\* -> W 2
  + # State 2: Bot is going South
  + 2 \*\*\*X -> S 2
  + 2 \*\*\*S -> W 1 # goes to State 1 to go back North
* How do you solve mazes? Just **hug the left side (left hand rule**) and keep going.
* Map #2:
  + If you’re following the right, you have to look towards to your right no matter what
    - 0 XEWX -> N 0 # goes North
    - 0 NEWX -> S 3 # goes south 1
    - 3 XEWX -> S 3 # goes South
    - 3 XXWS -> E 1 # goes east 1
    - 1 NXXX -> E 1 # goes East (1)
    - 1 NXXS -> E 1 # goes East
    - 1 XEXS -> N 0 # goes North
    - 0 NEXX -> W 2 # goes west 1
    - 2 NXXS -> W 2 # goes West
    - 2 NXWX -> S 3 # goes South
    - 3 XEWS -> N 0 # goes North
    - 0 NXWX -> E 1 # goes East
    - 1 NEXX -> S 3 # goes South
    - 3 XEXS -> W 2 # goes West
    - 2 NXXX -> S 3 # goes South
    - 3 XXXS -> E 1 # goes East