

# Practice with Arrays and Scope

Lecture 10 - Spring 2020

Have open [PollEv.com/compunc](https://pollEv.com/compunc) on your phone and have out paper / pencil!

# On the Horizon

- Review Session - **Tonight from 5-6pm in Peabody 104**
- PS Mancala - Due Sunday at 11:59pm
  - GREAT Practice with Arrays and Loops in preparation for quiz.
  - **START EARLY** - Expect office hours on Friday and Sunday to be swamped.

# CQ0: Draw an Environment Diagram & Respond to PollEv

```
3  export let main = async () => {
4
5      let twoD: string[][] = [];
6
7      let r0: string[] = ["a", "b", "c"];
8
9      let r1: string[] = ["d", "e", "f"];
10
11     twoD[0] = r0;
12     twoD[1] = r1;
13
14     print(twoD[1][2]);
15
16 };
17
18 main();
```

# CQ1: Draw q1's Heap Diagram & Respond to PollEv

```
3  ✓ export let main = async () => {  
4  
5  ✓   let q1: string[][] = [  
6      ["a", "b"],  
7      ["c", "d"],  
8      ["e", "f"]  
9      ];  
10  
11     // 1. Draw q1's heap diagram  
12  
13     // 2. Print the element w/ value "f"  
14  
15     // 3. Print the number of "columns"  
16  
17 };
```

```
3  ✓ let dayTable: number[][] = [
4    [ 0, 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31 ],
5    [ 0, 31, 29, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31 ]
6  ];
7
8  ✓ export let main = async () => {
9    print(daysInMonth(2020, 2));
10   print(daysInMonth(2100, 2));
11  };
12
13  ✓ let daysInMonth = (year: number, month: number) => {
14    let leapYear = year % 4 === 0;
15    let century = year % 100 === 0;
16    let centuryLeapYear = year % 400 === 0;
17
18    let row = 0;
19
20  ✓   if ((leapYear && !century) || centuryLeapYear) {
21     |   row = 1;
22     | }
23
24     return dayTable[row][month];
25  };
26
27  main();
```

```
3 let jen = "Lawrence";
4
5 export let main = async () => {
6     from("block");
7     from("idol");
8     from("friends");
9 };
10
11 let from = (where: string): void => {
12     if (where === "block") {
13         let jen = "Lopez";
14         print(jen);
15     } else {
16         let jen = "Aniston";
17         if (where === "idol") {
18             idol("Hudson");
19         }
20     }
21     print(jen);
22 };
23
24 let idol = (who: string): void => {
25     jen = who;
26 };
27
28 main();
```

## CQ4: Code writing.

- Write a function named **checkerboard** that you can give a requested number of rows and columns. It should return a 2D array of numbers. The array should be filled in a "checkerboard" fashion such that 0s and 1s alternate between each row and column. Example return value for checkerboard(3, 4):

0	1	0	1
1	0	1	0
0	1	0	1