

I saw these dogs



COMP1511 Week 5!

H13A: 1pm – 4pm

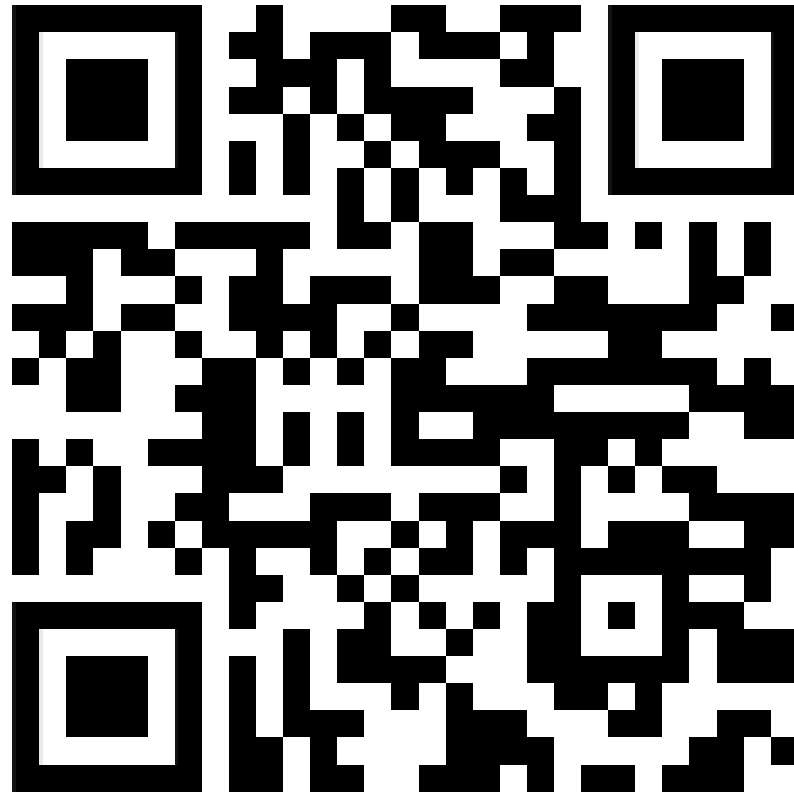
Tutors: Me + Vivian Zheng

My GitHub:



https://github.com/william-o-s/unsw_comp1511_tutoring

Course Homepage:



<https://cgi.cse.unsw.edu.au/~cs1511/23T3/>

The Agenda

2D Arrays Recap (10 mins)

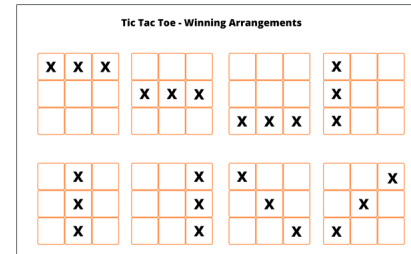
2D arrays are almost identical to 1D arrays

```
// 1D Array
int array_1d[3] = { 1, 2, 3 };
int array_1d_all_zeros[10] = { 0 };

// 2D Array
int array_2d[3][3] = { { 1, 2, 3 }, { 4, 5, 6 }, { 7, 8, 9 } };
int array_2d_all_zeros[10][20] = { 0 }; // yes, this is exactly the same
```

2D Arrays Practice (20 mins)

Let's play Tic-Tac-Toe!



Source: Geekflare

Arrays + Functions (10 mins)

Functions have their own 'scopes', or, are their own 'boxes'

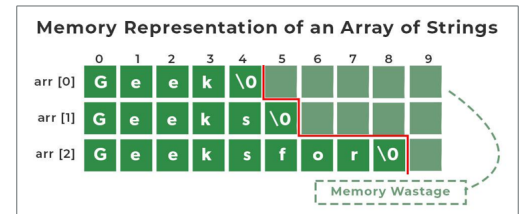
```
int main(void) {
    int x = 0;
    another_function();

    return 0;
}
```

```
void another_function() {
    int x = 1;
    // this doesn't affect the `x` in main()
}
```

String Functions (20 mins)

Lastly, strings are arrays



Source: GeeksforGeeks

2D arrays are almost identical to 1D arrays

// 1D Array

```
int array_1d[3] = { 1, 2, 3 };
```

```
int array_1d_all_zeros[10] = { 0 };
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// 2D Array

```
int array_2d[3][3] = { { 1, 2, 3 }, { 4, 5, 6 }, { 7, 8, 9 } };
```

```
int array_2d_all_zeros[10][20] = { 0 };    // yes, this is exactly the same
```

...including array indexing...

	Col1	Col2	Col3	Col4
Row1	Arr[0][0]	Arr[0][1]	Arr[0][2]	Arr[0][3]	
Row2	Arr[1][0]	Arr[1][1]	Arr[1][2]	Arr[1][3]	
Row3	Arr[2][0]	Arr[2][1]	Arr[2][2]	Arr[2][3]	
Row4	Arr[3][0]	Arr[3][1]	Arr[3][2]	Arr[3][3]	
⋮					

...or reading then printing...

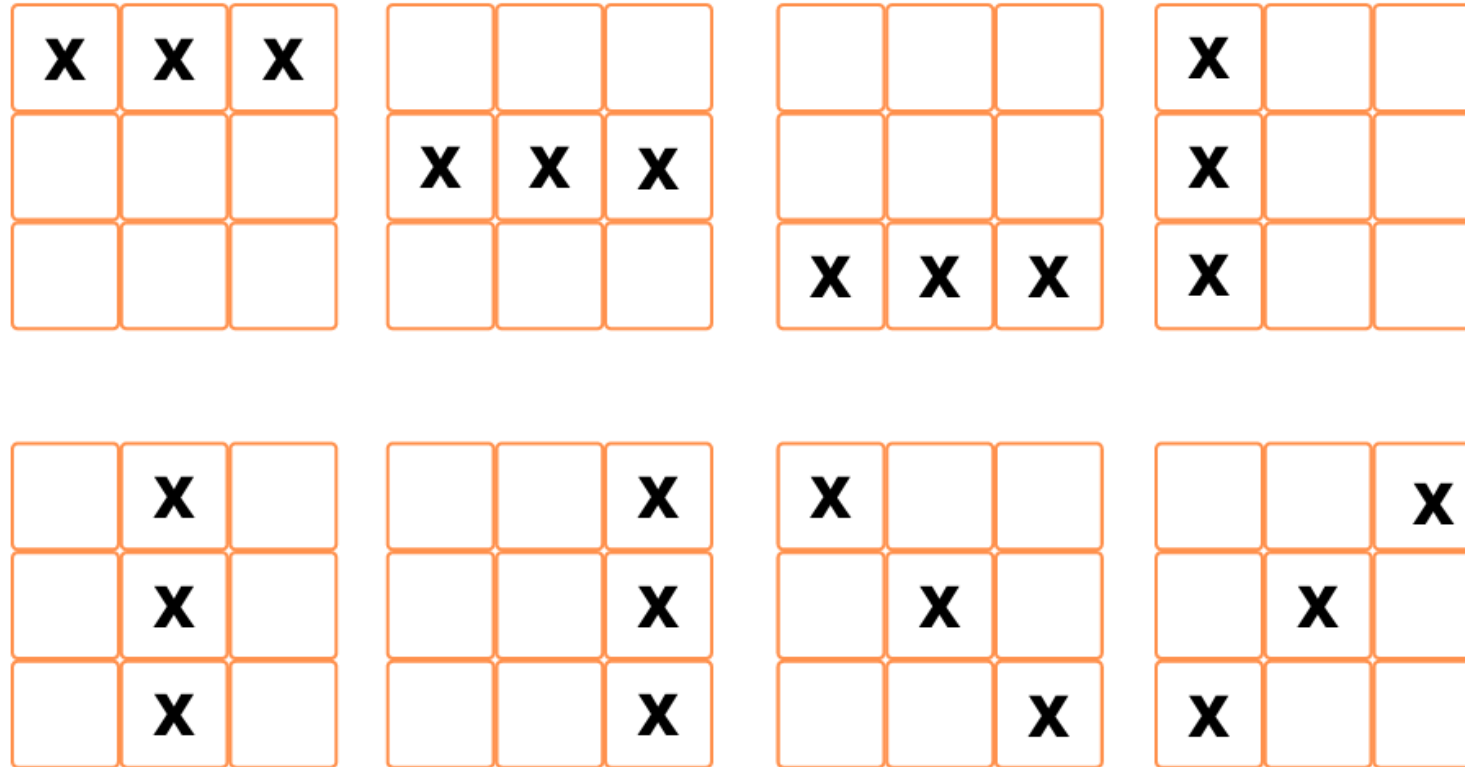
```
// Reading and printing the first element  
printf("%d", array_1d[0]);  
printf("%d", array_2d[0][0]);
```


...or writing to an index

```
// Writing into the first element  
array_1d[0] = 7;  
array_2d[0][0] = 7;
```

Let's play Tic-Tac-Toe!

Tic Tac Toe - Winning Arrangements



If you're interested, learn the minimax algorithm



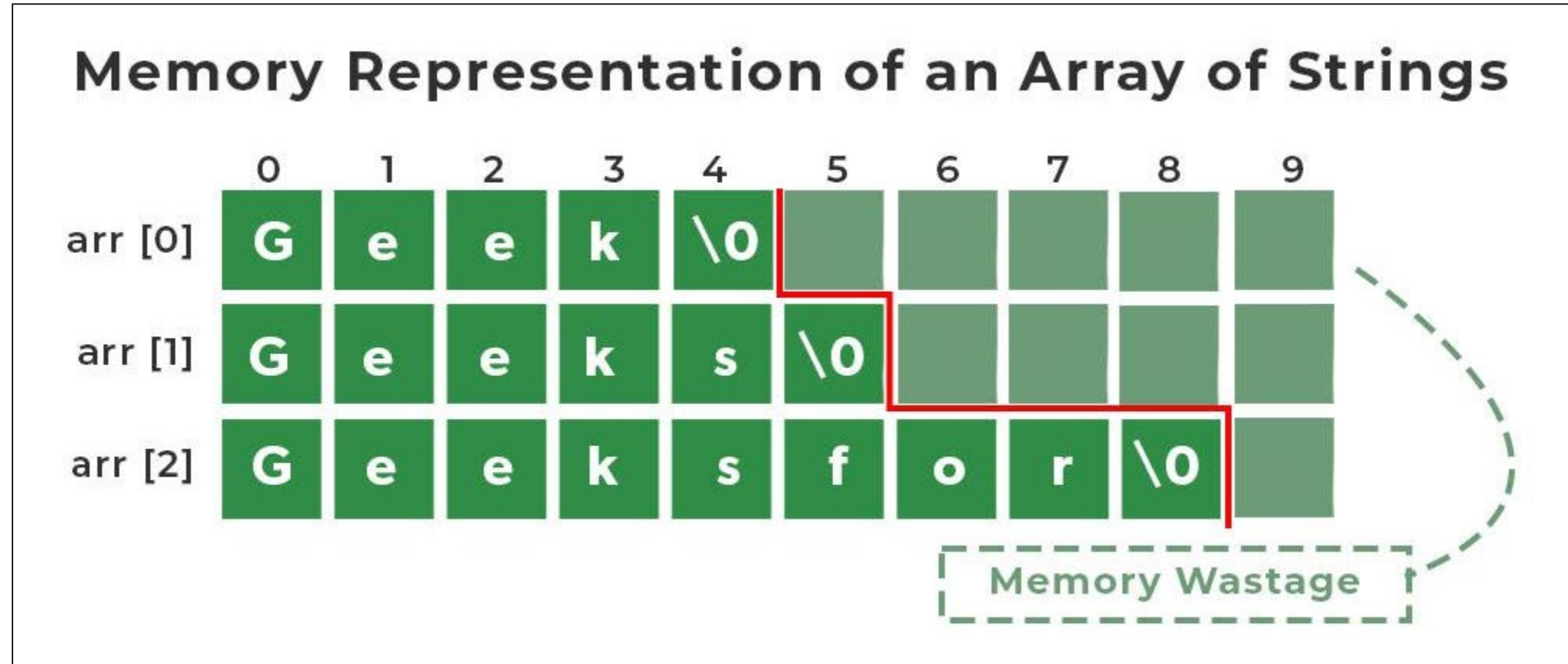
Functions have their own 'scopes', or, are their own 'boxes'

invisible wall

```
int main(void) {  
    int x = 0;  
    another_function();  
  
    return 0;  
}
```

```
void another_function() {  
    int x = 1;  
    // this doesn't affect the `x` in main()  
}
```

Lastly, strings are arrays



VSCode Shortcuts

- Start with Ctrl+Shift+P
 - "Toggle Multi-Cursor Editor"
 - Convert text casing: (highlight text) → Ctrl + Shift + P → "Transform to ..."
- Multiple Cursors: Ctrl + Click anywhere
 - Cursor over multiple lines vertically: Shift + Alt + Click on line
- Duplicate Line: Ctrl + Shift + Alt + Up/Down Arrow
- Move Lines: Alt + Up/Down Arrow
- Change All Occurrences: Ctrl + Shift + L or Ctrl + D
- Indentation: (Highlight line/lines) → Ctrl + Left/Right Square Bracket
- Find and Replace: Ctrl + F → (click dropdown) → Replace next