



comp1511 week 5

starting ~5 past the hour

announcements

- no tute/lab next week (flex week)
- assignment 1 exists :)

what's happening today?

- 2D Arrays
- Introduction to Pointers (with Nicole!)
- Valid Functions

2D Arrays

<https://playtictactoe.org/>

score[4][5]

col →

0 1 2 3 4

row
↓

0					
1					
2					
3					

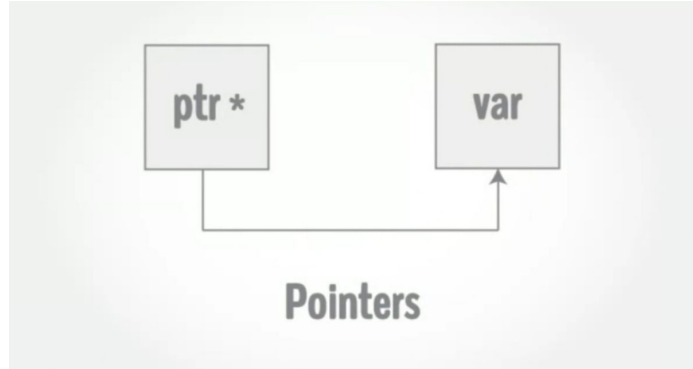
grid ↓

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

grid[1] contains

4	5	6
---	---	---

grid[1][0] contains 4



Pointers

variables that hold memory addresses
of other variables

declaring and initialising a pointer

code: pointers.c

common error: null.c

**why did we have to always include the &
symbol in our argument given to scanf?**



why did we have to always include the & symbol in our argument given to scanf?

Non-pointer variables in C are pass by value

- Eg. Giving a regular variable to scanf without the & symbol
- scanf can't change that value

The & symbol gives the address of the variable instead to scanf

- scanf can directly access that piece of **memory** that the variable occupies and directly modify the variable
- this behaviour is called **pass by reference**

passing in variables vs pointers



Microsoft Word

essay_actual_final_v5.docx

collaborative document



Google Docs

pointer syntax: what happens when each of the following statements are executed in order?

<https://cgi.cse.unsw.edu.au/~cs1511/22T1/tut/05/questions>

```
int n = 42;  
int *p;  
int *q;  
p = &n;  
*p = 5;  
*q = 17;  
q = p;  
*q = 8;
```

code demos

- changing the original variable from the function
 - `sum_nums.c`
- dereferencing NULL
 - `null.c`

trying to learn pointer syntax:



Which of the following functions are possible to write.

If they are not possible to write, what would you do to make them work?

1. `int array_length(int nums[]);`

which returns the number of elements in the array `nums`.

2. `int test_all_positive(int nums[]);`

which returns 1 if all elements of array `nums` are positive, otherwise returns 0.

3. `int test_all_initialized(int length, int nums[]);`

which returns 1 if all elements of array `nums` are initialized, otherwise returns 0.

4. `int test_all_positive(int length, int nums[]);`

which returns 1 if all elements of array `nums` are positive, otherwise returns 0.

Assignment 1: CS Explorer

- How are you going? Are there any questions or lessons learned from the first week of it being out?
- What do you think are some **common style mistakes** seen in COMP1511 assignments?