

# COMP1511

## WEEK 10

Starting at 9:10am



# Congrats for making it to Week 10!

- Any reflections on the course / term?
- Favourite parts?
- Things that weren't so good?
- What are you grateful for?

# Questions from the course?

- **Today**

- ADTs and Stacks
- A bit on recursion
- Anything you want me to go over
- Labs this week/final exam

# Week 10 Lab

- Exam Environment
  - Part 1 (Short Answer/Multiple Choice Questions)
    - Not worth marks today
    - 20 questions in the final exam
  - Part 2 (Programming Questions)
    - First 3 lab exercises for this week found [here](#)
    - 8 questions in the final exam
- Normal lab exercises
  - 1 standard and 1 challenge exercise

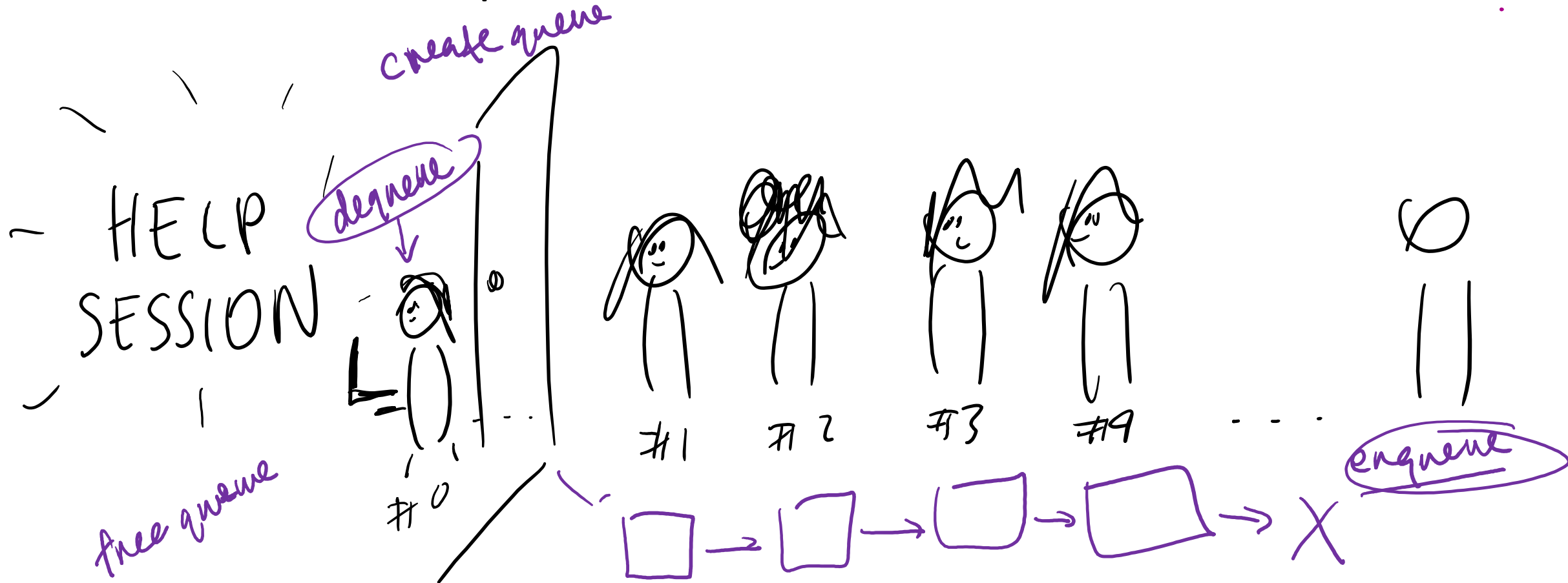
# Final Exam

- Wed 18<sup>st</sup> August, 1pm – 7pm AEST
- Read-only open book, take-home exam (online)
- Expected to take 3-5 hours
- A staff member will always be available to contact
- Array + Linked List Hurdles

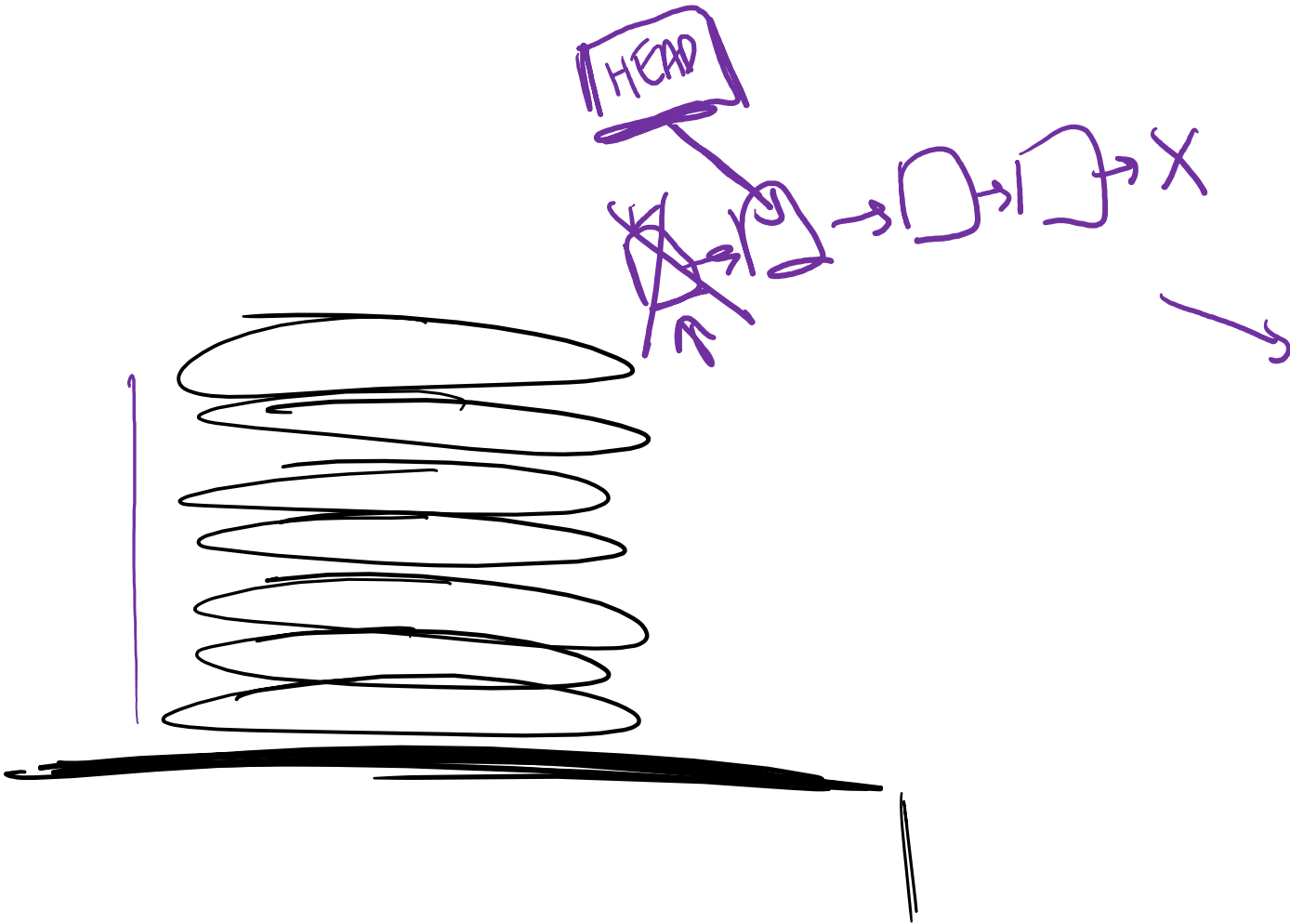
<https://cgi.cse.unsw.edu.au/~cs1511/21T2/lec/exam/slides>



# ADTs, a concept – consider a QUEUE



# Stack – last in, first out



## What functions?

- create stack
- push to stack (add)
- pop from stack (remove)
- count items
- free stack

# stack.c and stack.h

- Implementation – linked list



# stack.c and stack.h

## Header File

- \*.h
- Typedef
- Function declarations
- Easy access to functions
- Don't know how functions are implemented

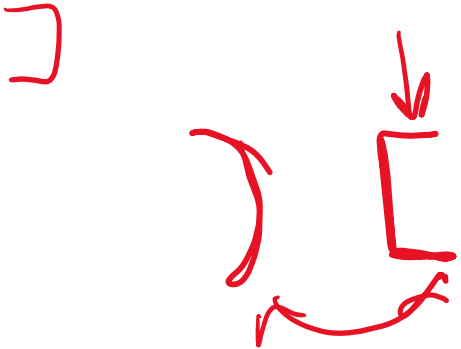
## Implementation File

- \*.c
- #include "header"
- Function implementation

# Matching Brackets

[(){}()]      invalid

[[]](){()}      valid



# Recursion

$$\begin{aligned}5! &= 5 \times 4 \times 3 \times 2 \times 1 \\5! &= 5 \times 4! \\4! &= 4 \times 3! \\3! &= 3 \times 2! \\2! &= 2 \times 1! \\1! &= 1\end{aligned}$$

- A function that calls itself
  - Breaks itself down into smaller sub-problems
- How to solve any recursion question
  1. Write the base/terminating case
  2. Write the recursive case

$$\hookrightarrow n! = n \times (n-1)!$$



# Fibonacci number

[https://en.wikipedia.org/wiki/Fibonacci\\_number](https://en.wikipedia.org/wiki/Fibonacci_number)

From Wikipedia, the free encyclopedia

*"Fibonacci Sequence" redirects here. For the chamber ensemble, see [Fibonacci Sequence \(ensemble\)](#).*

In mathematics, the **Fibonacci numbers**, commonly denoted  $F_n$ , form a [sequence](#), called the **Fibonacci sequence**, such that each number is the sum of the two preceding ones, starting from 0 and 1. That is,<sup>[1]</sup>

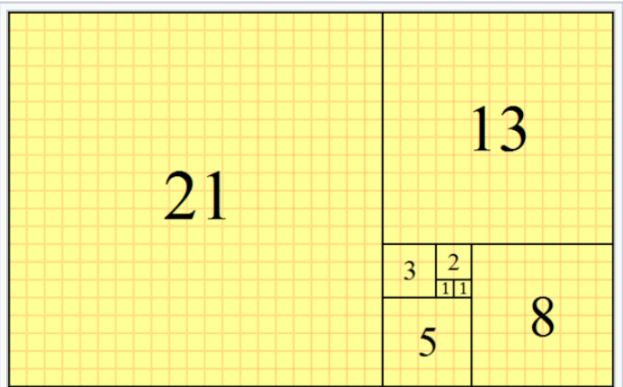
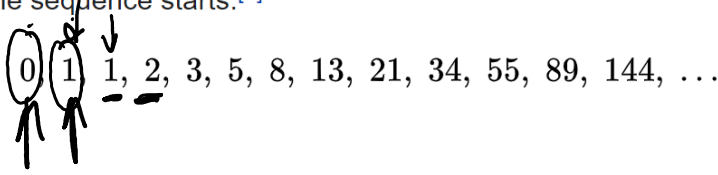
$$F_0 = 0, \quad F_1 = 1,$$

and

$$F_n = F_{n-1} + F_{n-2}$$

for  $n > 1$ .

The sequence starts:<sup>[2]</sup>



A tiling with squares whose side lengths are successive Fibonacci numbers: 1, 1, 2, 3, 5, 8, 13 and 21.

```
int minimum(struct node* head) {
```

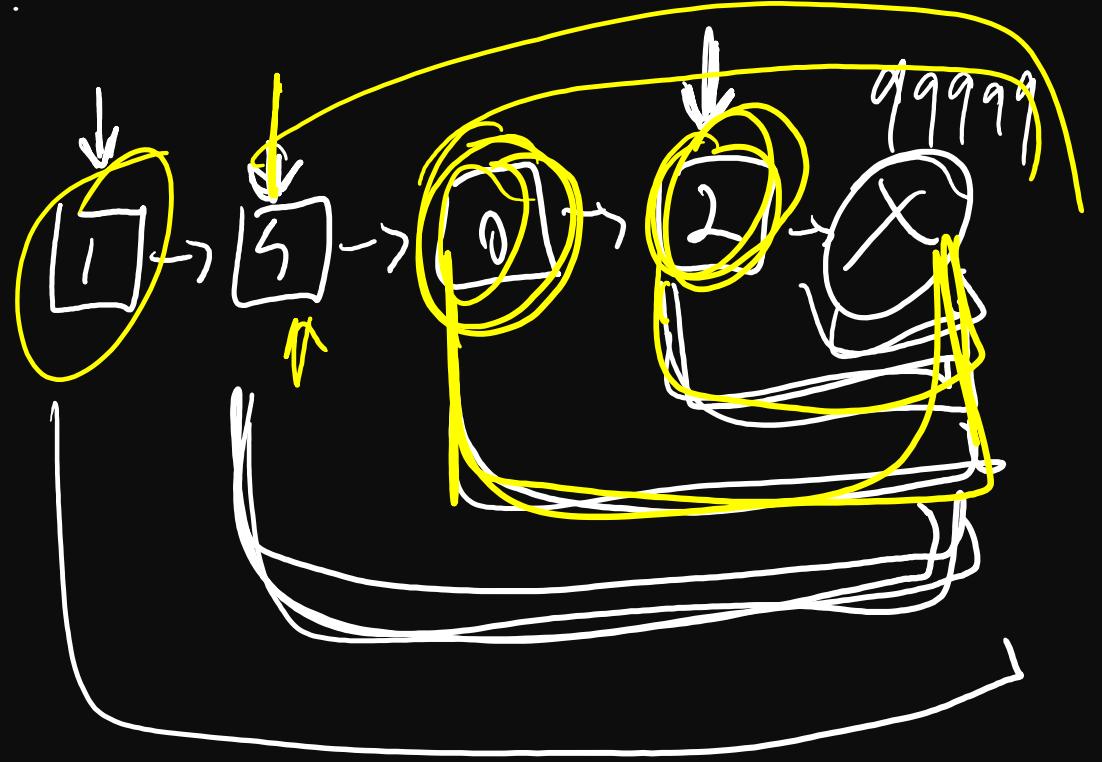
```
    if (head == NULL) {  
        return INT_MAX;  
    }
```

```
    int curr_min = head->data;  
    int rest_min = minimum(head->next);
```

```
    if (curr_min < rest_min) {  
        return curr_min;  
    }
```

```
    return rest_min;
```

```
}
```



## myExperience Term 1 for COMP1511 Programming Fundamentals

★ COMP1511 Programming Fundamentals

Please respond to all of the questions below

	Strongly disagree	Disagree	Moderately disagree	Moderately agree	Agree	Strongly Agree
I have felt supported to learn in the online environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I developed my ability to work effectively with others online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt part of an online learning community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The feedback helped me learn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online course resources helped me learn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The assessment tasks were relevant to the course content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

★ Overall I was satisfied with the quality of the course

	Strongly disagree	Disagree	Moderately disagree	Moderately agree	Agree	Strongly agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What have been the best elements of studying online?

What were the most challenging elements of studying online?

Previous Next Save Submit Progress  0%

<https://myexperience.unsw.edu.au/>