COMP1531 | T09B / H17B

Week 1

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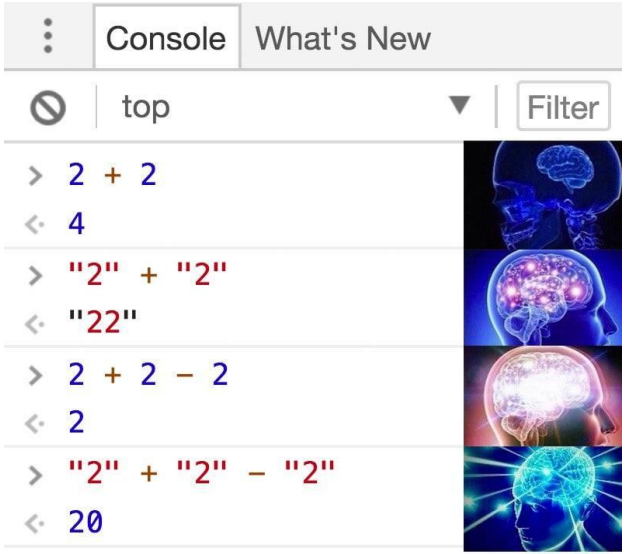

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Learning objectives

- Getting to know your groups + group activity !
- Going from **C** to **JavaScript**
  (printing, variables, arrays, loops, functions)
- Quick Admin stuff

🏠Admin: How the course works

Lectures -> Youtube
Help Sessions -> Teams
Group Assignment -> Teams
Labs & Project -> Gitlab
Forum -> Ed

All of the above -> WebCMS

🏠Admin: Attendance & Participation

Tutorial Attendance recorded starting Week 2

Tutorial participation and attendance contributes to your project mark

Low Attendance	Scaling Down
Regular Attendance	No Scaling
Great Attendance + Participation	Scaling Up

👨‍👩‍👧 T09B Teams

5316642	Amy Clarke	T09B_BOOST
5387884	Andy Ng	T09B_BOOST
5271790	Meyliana Ng	T09B_BOOST
5420321	Daniel Chen	T09B_BOOST
5356417	Yuichiro Nakahira	T09B_BOOST
5419773	Ronald Chiang	T09B_CRUNCHIE
5419787	Brian Ngo	T09B_CRUNCHIE
5417461	Denton Nguyen	T09B_CRUNCHIE
5207959	Daniel Fan	T09B_CRUNCHIE
5404557	Sanskar Sahu	T09B_CRUNCHIE
5363946	Haadiya Mustafa	T09B_DREAM
5376765	Samuel Lim	T09B_DREAM
5421256	Sunny Chen	T09B_DREAM
5417001	Ansh Gulati	T09B_DREAM
5418955	Aedan Keldoulis	T09B_DREAM
5390758	Advaita Nitturkar	T09B_EGGS
5421946	Benjamin Stacey	T09B_EGGS
5425354	Jeyanth Goringe	T09B_EGGS
5417310	Rishi Wig	T09B_EGGS
5413747	Josh Fotheringham	T09B_EGGS

Get to know your Team!

- 👋 Introduce yourselves !
- 📲 Exchange contact details + comms
  (Discord, Facebook, MS Teams, etc...)
- 💯 Set your expectations
  (HD / D / C / P)

Groups will be finalised Friday night, 16th September

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👨‍👩‍👧 H17B Teams

5416492	Samuel Lim	H17B_AERO
5416493	Lachlan Liu	H17B_AERO
5417542	Jonathan Lai	H17B_AERO
5406774	Nuren Alahee	H17B_AERO
5316690	Helen Song	H17B_AERO
5418326	Daniel Shi	H17B_BOOST
5417290	James Lu	H17B_BOOST
5419389	Jake Song	H17B_BOOST
5421898	Dulini Galhena	H17B_BOOST
5111130	Jingqi Wang	H17B_CRUNCHIE
5419375	Jeffrey Lu	H17B_CRUNCHIE
5413842	Robert Han	H17B_CRUNCHIE
5419703	Zachary Ecob	H17B_CRUNCHIE
5258425	Danny Dien	H17B_CRUNCHIE
5412365	Luqing Wang	H17B_DREAM
5397747	Cho Sun	H17B_DREAM
5401098	Xiaoyu Su	H17B_DREAM
5428082	Huu Phuc Tran	H17B_DREAM
5420097	Morgan Au	H17B_DREAM
5265211	Sebastian Williams	H17B_EGGS
5310467	Sam Mears	H17B_EGGS
5397993	Byron Petselis	H17B_EGGS
5421468	Kalaish Stanley	H17B_EGGS
5363988	Andrew Ha	H17B_EGGS

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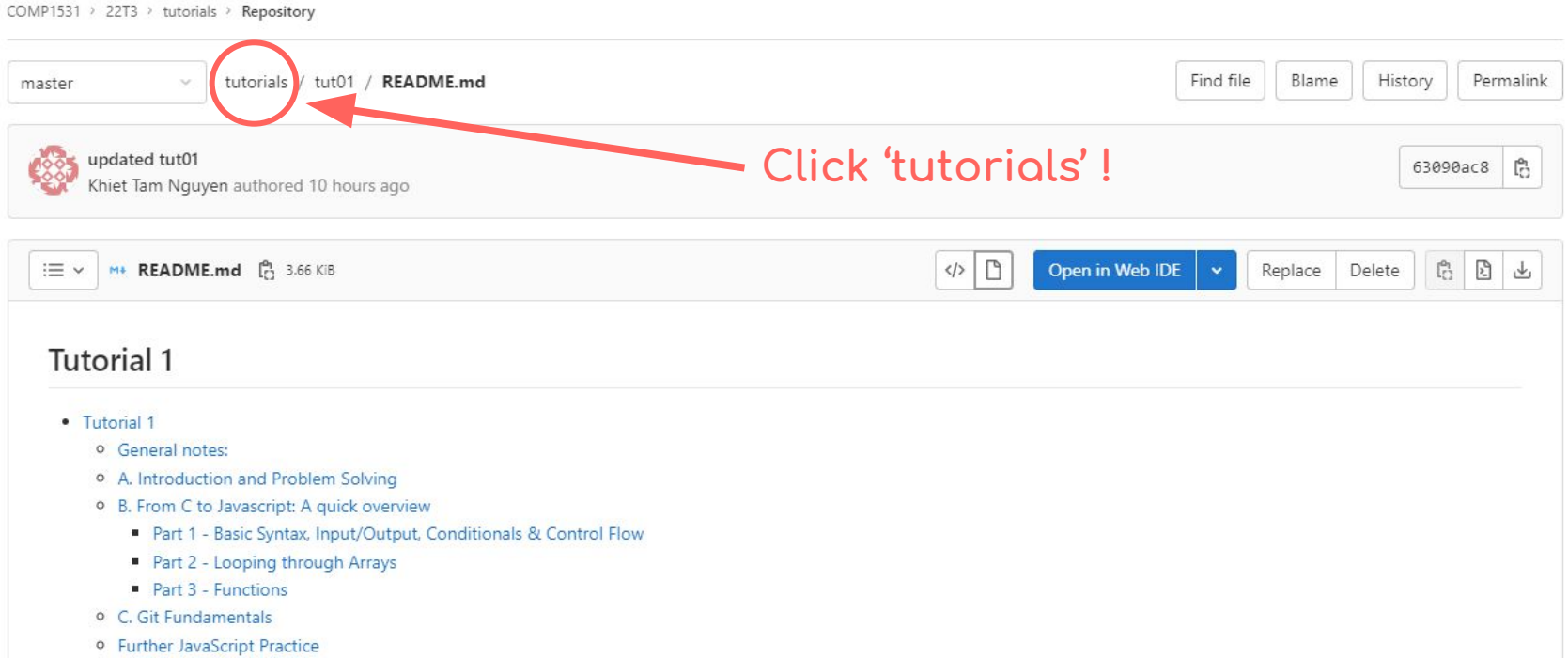
👨‍👩‍👧Team Problem Solving 🧠

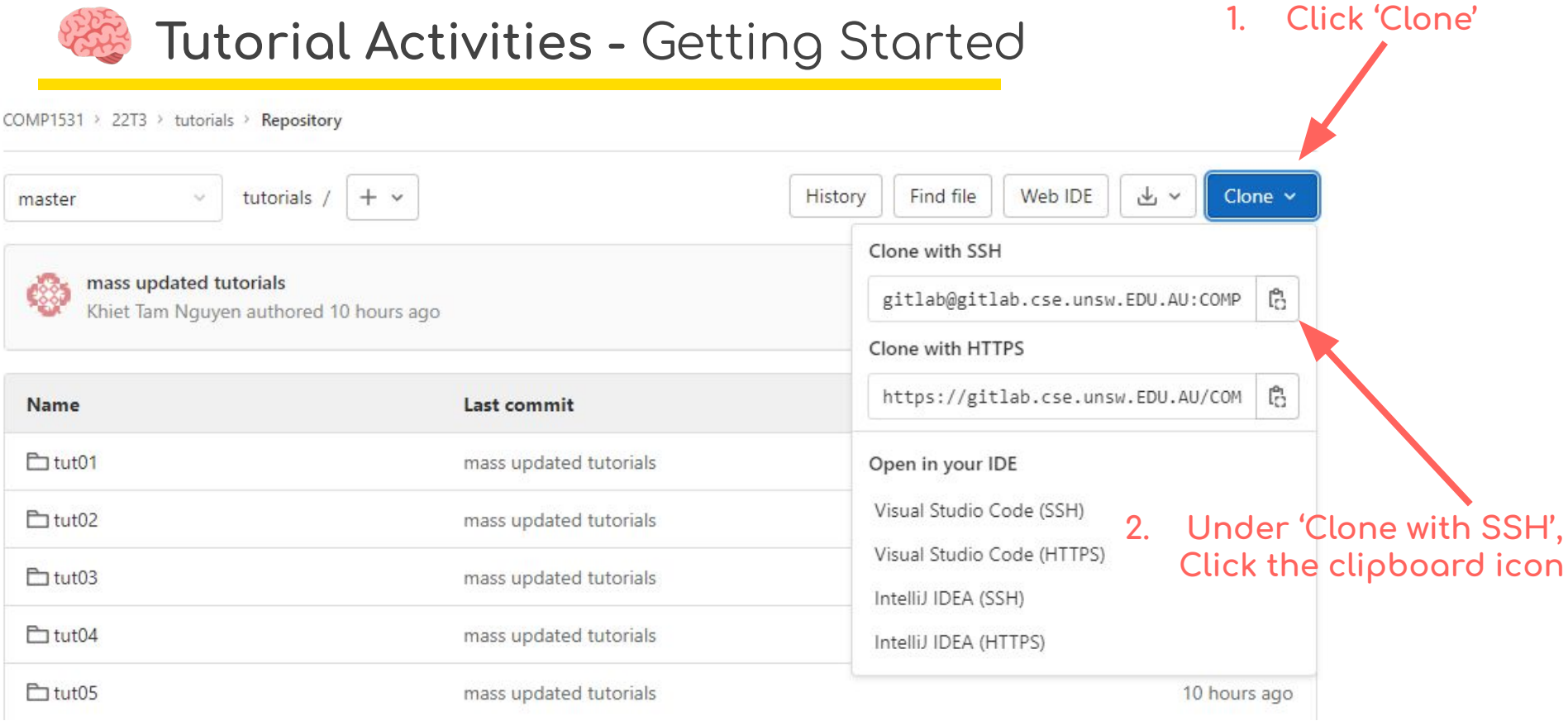
How many **hours** of Zoom calls happen in Sydney everyday?

Come up with an exact number

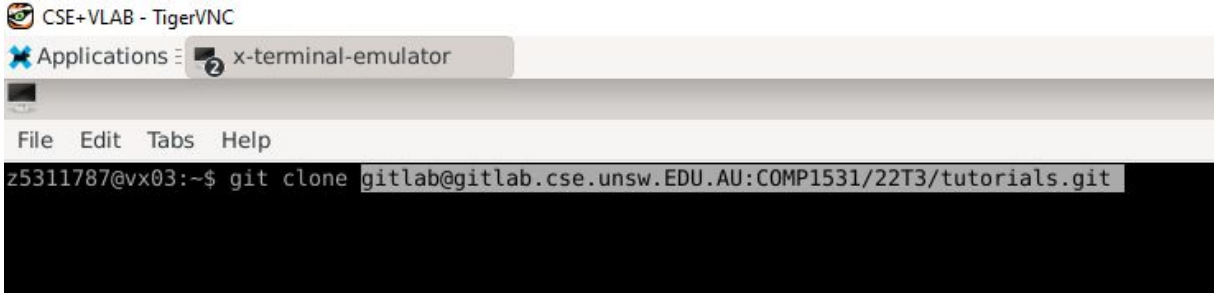
Tutorial Activities - Getting Started

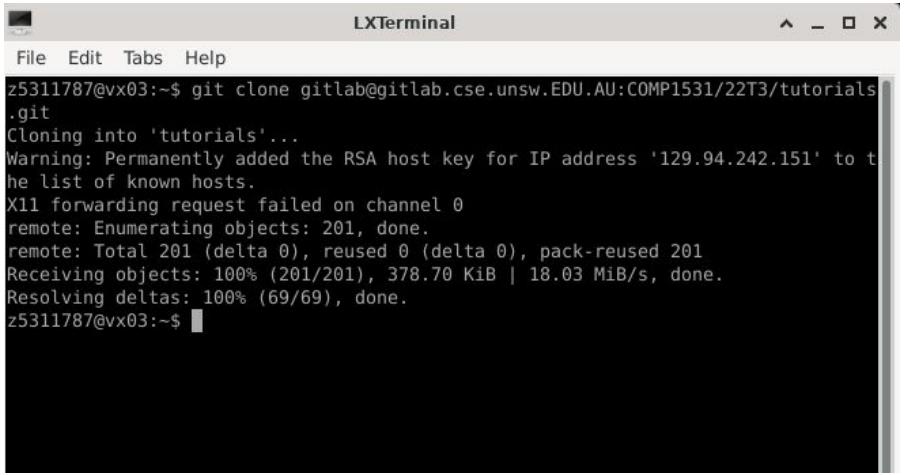


Tutorial Activities - Getting Started



Tutorial Activities - Getting Started





```c
/*
 * [welcome.c]
 *
 * A simple program to print a welcome message
 * and print 10 numbers with information about
 * whether they are odd or even.
 */
#include <stdio.h>

#define SIZE 10

int main(void) {

    char message[] = "Welcome to COMP1531!";
    printf("%s\n", message);

    printf("Numbers from 1 to %d\n", SIZE);
    for (int num = 1; num <= SIZE; num++) {
        if (num % 2 == 0) {
            printf("EVEN: %d\n", num);
        } else {
            printf("ODD:  %d\n", num);
        }
    }
    return 0;
}

```

Take a look at `welcome.c`

How can we convert this C code to JavaScript?

Create a new file called `welcome.js`

To run the program:

```
node welcome.js
```

```c
/*
 * [welcome.c]
 *
 * A simple program to print a welcome message
 * and print 10 numbers with information about
 * whether they are odd or even.
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    printf("%s\n", message);

    printf("Numbers from 1 to %d\n", SIZE);
    for (int num = 1; num <= SIZE; num++) {
        if (num % 2 == 0) {
            printf("EVEN: %d\n", num);
        } else {
            printf("ODD:  %d\n", num);
        }
    }
    return 0;
}
```

```js
/*
 * [welcome.js]
 *
 * A simple program to print a welcome message
 * and print 10 numbers with information about
 * whether they are odd or even.
 */

// General rule: declare variables as constant, if you need
// to change the value later then change 'const' to 'let'
const SIZE = 10;

// Can use single quotes
const message = 'Welcome to COMP1531!';
// Don't need '\n'
console.log(message);

console.log('Numbers from 1 to ' + SIZE);

for (let num = 1; num <= SIZE; num++) {
  // Triple equals (===) instead of double (==)
  if (num % 2 === 0) {
    console.log('EVEN: %d', num);
  } else {
    console.log('ODD:  %d', num);
  }
}
```

✅ To summarise!

`const` —> For variables that will not change *(immutable)*

`let` —> For variables that will change *(mutable)*

Always use **`const`** unless you need **`let`**

`var` —> Never use this !!!

`printf` —> Doesn't automatically add **`'\n'`**

`console.log` —> Automatically adds **`'\n'`**

✍️ Time to write some JavaScript!

1. Create a new file called `shopping.js`
2. Create an array of some grocery items!
3. Find as many ways of looping through the array as possible!
   (Hint: there's at least 3 ways of looping through an array. Try to find them all!)

```
1  const shoppingList = [
2    'potato', 'ketchup', 'milk',
3    'eggs', 'flour'
4  ];
5
6  /**
7   * C-style
8   */
9  for (let i = 0; i < shoppingList.length; i++) {
10   console.log(shoppingList[i]);
11 }
12
13 /**
14  * for-in
15  */
16 for (const i in shoppingList) {
17   console.log(shoppingList[i]);
18 }
19
20 /**
21  * for-of
22  */
23 for (const element of shoppingList) {
24   console.log(element);
25 }
```

Uses integer based index

Uses integer based index *(but less disgusting)*

The best way to do loops
For each `element` in the `shoppingList`

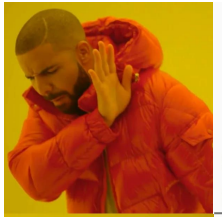
✅ To summarise!

We declare arrays like so:

```
const shoppingList = [
  'potato', 'ketchup', 'milk',
  'eggs', 'flour'
];
```

Always use **`for…of`** loops !

(Unless you really need an index loop)



```
/**
 * C-style
 */
for (let i = 0; i < shoppingList.length; i++) {
  console.log(shoppingList[i]);
}
```

```
/**
 * for-of
 */
for (const element of shoppingList) {
  console.log(element);
}
```

Take a look at `cube.c`

```c
/**
 * [cube.c]
 */

#include <stdio.h>

int cube(int x);

int main(void) {

    int number = 5;
    int result = cube(number);
    printf("%d^3 = %d\n", number, result);

    return 0;
}

int cube(int x) {
    return x * x * x;
}
```

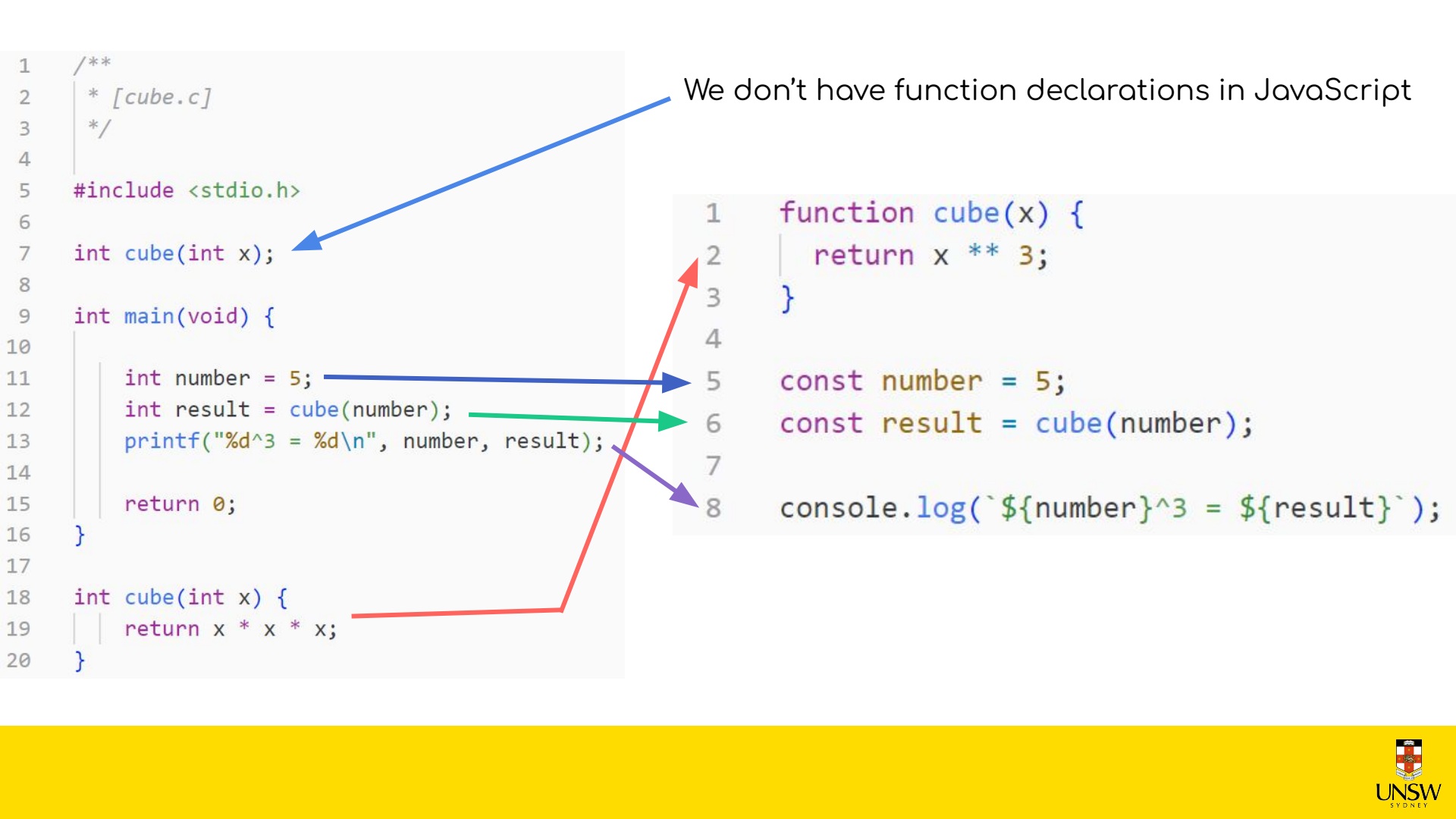
How can we convert this C code to JavaScript?

Create a new file called `cube.js`

We don't have function declarations in JavaScript

```c
/**
 * [cube.c]
 */

#include <stdio.h>

int cube(int x);

int main(void) {

    int number = 5;
    int result = cube(number);
    printf("%d^3 = %d\n", number, result);

    return 0;
}

int cube(int x) {
    return x * x * x;
}
```

```javascript
function cube(x) {
  return x ** 3;
}

const number = 5;
const result = cube(number);

console.log(`${number}^3 = ${result}`);
```



✅ To summarise!

`function` —> The keyword we use to implement functions in JavaScript

```
1   function hello() {
2     console.log('hello!')
3   }
```

~~`int main (void)`~~ —> There are no main functions in JavaScript !

```
int main(void) {
  printf("hi\n");
  return 0;
}
```

```
1
2
3   console.log('hi');
4
5
```

🧪 Labs

Our lab assistant is **Cam** *(please say hi!)*

Will be 2 hours time where you can work on the labs

Later in the term, will be used for project check-ins and project help !

Lab attendance is not mandatory, unless there is a project check-in planned for that lab *(will be announced)*