Algorithms and Testing

Algorithms

a process or set of rules

Good practice for logical thinking

Not necessarily used often in front end work

Great to learn how to write tests

Maximum difference

Given an array of numbers

Return the maximum difference between any 2 elements

[0, 5, 10]

Result: 10

Maximum difference

```
const testArray = [5, 28, 19, 21, 4, 6];


const maxDiff = array => {

    return result;

}


console.log(maxDiff(testArray));
```

Maximum difference

15 minutes on the clock

Maximum difference

Stop coding!

To the code editor

Maximum difference between adjacent elements

```
const testArray = [5, 28, 19, 21, 4, 6];

const maxAdjacentDiff = array => {


    return result;

}

console.log(maxAdjacentDiff(testArray));
```

Maximum difference between adjacent elements

10 minutes on the clock

Maximum difference between adjacent elements

Stop coding!

To the code editor

Test our functions

TDD - Test Driven Development

Red - Green - Refactor

Unit tests

jest

Test our functions

```
test(“short description”, () => {
    expect(something).toBe(value);
});
```

Test our functions

Let’s add some tests

To the code editor

```
npm init -y
npm install jest --save-dev
Create index.test.js
package.json
    “test”: “jest”
module.exports
```

Factorial

The **factorial** of a non-negative integer is the product of all positive integers less than or equal to the integer.

5 * 4 * 3 * 2 * 1 = 120

Note: the factorial value of 0 is 1.

Factorial

15 minutes on the clock

Write your tests first!

```
factorial(5) === 120

factorial(0) === 1

factorial(10) === 3628800
```

Factorial

Stop coding!

To the code editor

Palindromes

```
isPalindrome(“race car”) === true

isPalindrome(“super race car”) === false
```

Palindromes

10 minutes on the clock

```
isPalindrome(“race car”) === true

isPalindrome(“super race car”) === false
```

Palindromes

Stop coding!

To the code editor