Introduction

A basic overview of what to expect in this course

ES6 is the sixth release of ECMA Script, more commonly known as JavaScript. ES6 revamped the way we use JavaScript, bringing in several new features which greatly simplify writing and reading the language.

We'll explore all the fundamentals of ES6 and look at how they practically improve our JavaScript experience.

To start things off, we will discuss Functions, which play an essential role in JavaScript. As you'll see, ES6 has refined function syntax, making them easier and more flexible.

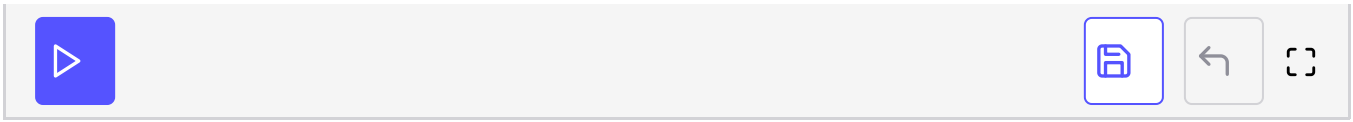
So let's get right into it. Welcome aboard!

var vs let

introduction to the `let` keyword for declaring block-scoped variables; and the dangers of scoping, such as the temporal dead zone

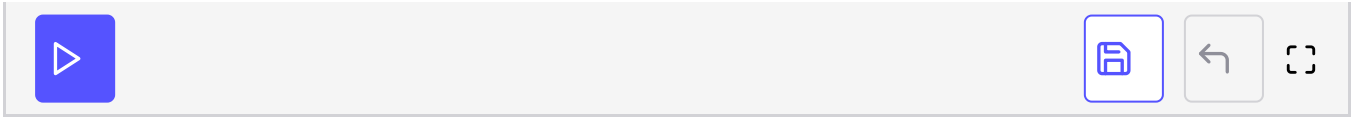
Variables declared with `var` have function scope. This means that they are accessible inside the function/block they are defined in. Take a look at the following code:

```
var guessMe = 2;
console.log("guessMe: "+guessMe);// A: guessMe is 2
( function() {
    console.log("guessMe: "+guessMe);// B: guessMe is undefined
    var guessMe = 5;
    console.log("guessMe: "+guessMe);// C: guessMe is 5
} )();
console.log("guessMe: "+guessMe);// D: guessMe is 2
```



Comment `B` may surprise you if you have not heard of hoisting. If a variable is declared using **var** inside a function, the Javascript engine treats them as if they are declared at the top of a functional scope. However, if that variable has been declared outside the function, it has a global scope regardless of where the actual declaration occurs. This is called **hoisting**.

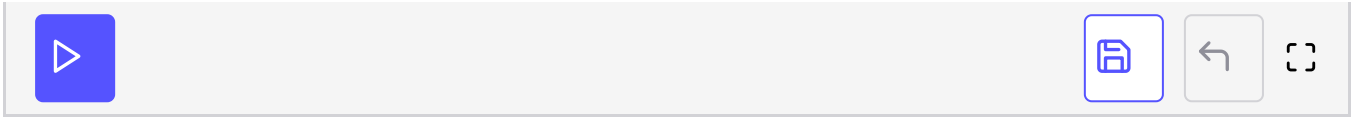
```
() => {
    JAVASCRIPT_STATEMENTS;
    var guessMe = 5;
};
//accessing guessMe will give an error here
```



in the following form:

```
() => {
```

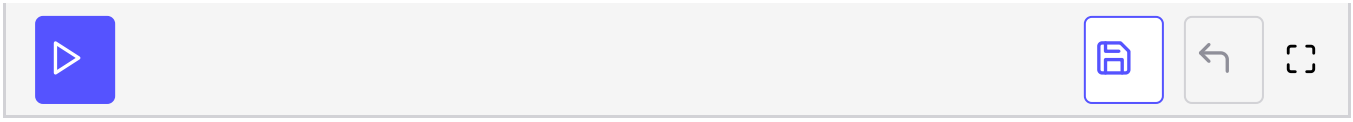
```
    var guessMe;
    JAVASCRIPT_STATEMENTS;

    guessMe = 5;
};
```



Variables declared with `var` are initialized to `undefined`. This is why the value of `guessMe` was `undefined` in comment `B`.

Variables declared with `let` have block scope. They are valid inside the block they are defined in.

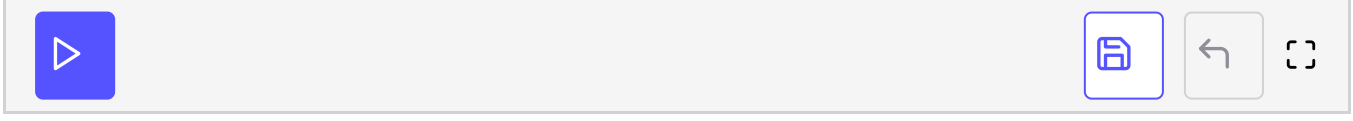
```
// A: guessMe is undeclared
{
    // B: guessMe is uninitialized. Accessing guessMe throws an error
    //console.log(guessMe); <-This gives an error
    let guessMe = 5;
    console.log("guessMe: "+guessMe);// C: guessMe is 5
}
// D: guessMe is undeclared
```



Comment `B` may surprise you again. Even though `let guessMe` is hoisted similarly to `var`, its value is not initialized to `undefined`. Retrieving uninitialized values throws a JavaScript error.

The area described by comment `B` is the *temporal dead zone* of variable `guessMe`.

```
function logAge() {
    console.log( 'age:', age );
    var age = 25;
}
logAge();
```



In `logAge`, we log `undefined`, as `age` is hoisted and initialized to `undefined`.

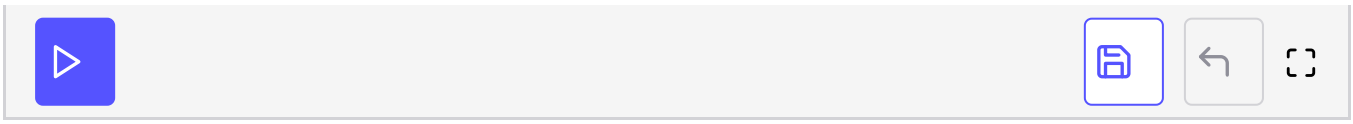
```
function logName() {
```

Constants

introduction to Javascript constants; potential errors, such as the temporal dead zone

Declarations with `const` are block scoped, they have to be initialized, and their value cannot be changed after initialization.

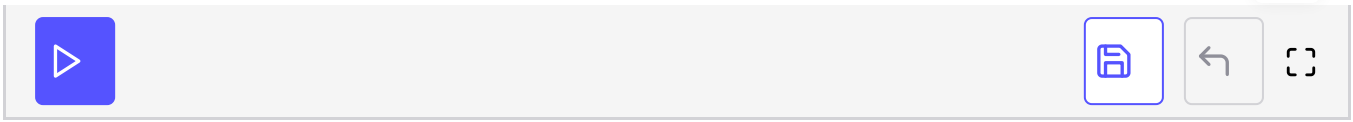
```
const PI = 3.1415;
PI = 3.14;
```



This code will give uncaught TypeError: Assignment to constant variable.

Not initializing a constant also throws an error:

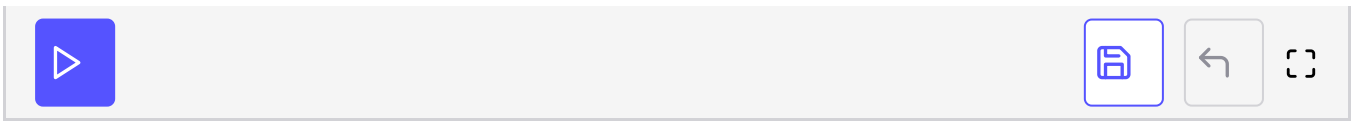
```
const PI; //const PI=8; won't give an error
```



Uncaught SyntaxError: Missing initializer in const declaration

Const may also have a *temporal dead zone*.

```
// temporal dead zone of PI
//PI cannot be accessed here
const PI = 3.1415;
// PI is 3.1415 and its value is final
//PI can be accessed here
```



Redeclaring another variable with the same name in the same scope will throw an error.

In the next lesson, let's discuss the use cases of `var`, `let` and `const` formally.