Nullish Coalescing

This lesson explains the new nullish coalescing operator.

WE'LL COVER THE FOLLOWING

Nullish coalescing for an object

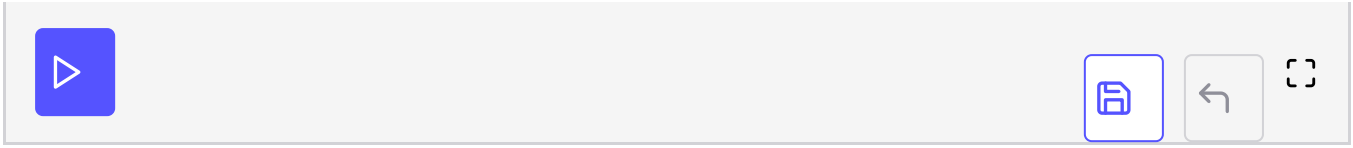
TypeScript 3.7 brought the *nullish coalescing* operator: `??`. On the left side of the operator is a variable or condition. On the right side is the result **if** the condition is `null` or `undefined`.

One use case for this operator is to check if a variable is set to define a default value.

The invocation of **line 19** of the `myFunction` does not have a second parameter. It causes the code to use the default value at **line 8**.

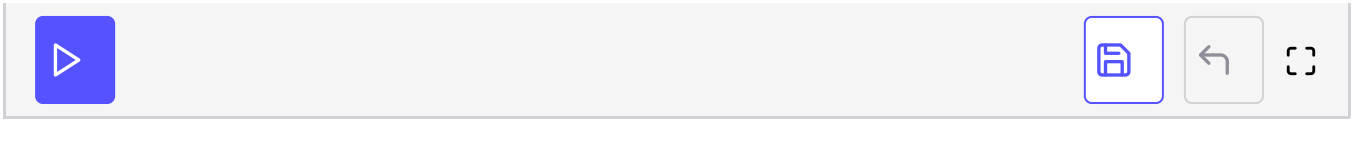
```
interface Options {
  opt1: number;
  opt2: boolean;
}
function myFunction(id: number, options?: Options): void {
  let optionsOrDefault: Options;
  if (options === undefined) {
    optionsOrDefault = { opt1: -1, opt2: false }; // Default
  } else {
    optionsOrDefault = options;
  }

  console.log(`myFunction with id ${id}`);
  if (optionsOrDefault.opt2) {
    console.log(`--> Has option 1 with value ${optionsOrDefault.opt1}`);
  }
}

myFunction(1); // Uses default from line 8
myFunction(2, { opt1: 2, opt2: true });
```

```
myFunction(3, { opt1: 3, opt2: false });
```



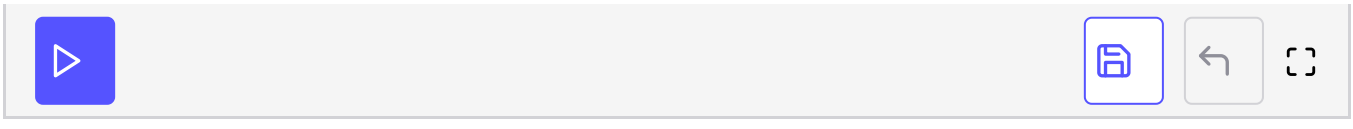
Now, it is possible to reduce the amount of code with the nullish coalescing operator. **Line 6** is shorter because of the `??` syntax which uses the right side of the operator only of `options` is `undefined`.

```
interface Options {
  opt1: number;
  opt2: boolean;
}
function myFunction(id: number, options?: Options): void {
  let optionsOrDefault: Options = options ?? { opt1: -1, opt2: false };

  console.log(`myFunction with id ${id}`);
  if (optionsOrDefault.opt2) {
    console.log(`--> Has option 1 with value ${optionsOrDefault.opt1}`);
  }
}

myFunction(1);
myFunction(2, { opt1: 2, opt2: true });
myFunction(3, { opt1: 3, opt2: false });
```



It is worth noting that an alternative to this example is to use a `default` value instead of an optional one. In the following code, **line 5** has a default value defined after the `=` sign. But, this is only because of the nature of the example.

```
interface Options {
  opt1: number;
  opt2: boolean;
}
function myFunction(id: number, options: Options = { opt1: -1, opt2: false }): void {
  console.log(`myFunction with id ${id}`);
  if (options.opt2) {
    console.log(`--> Has option 1 with value ${options.opt1}`);
  }
}

myFunction(1);
myFunction(2, { opt1: 2, opt2: true });
myFunction(3, { opt1: 3, opt2: false });
```

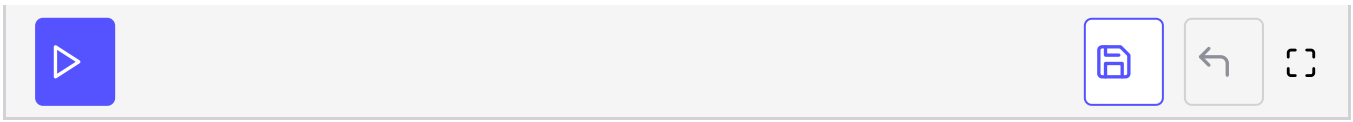


Any use cases that need a fallback when a value is `null` or `undefined` is a good candidate for *nullish coalesing*.

Nullish coalescing for primitive

So far, the lesson's examples have been focused on objects, but *_nullish coalescing* also works on primitives. For example, if the value is `undefined`, you can set a default value with a primitive type.

```
function operation(): number | undefined {
  return Math.random() > 0.5 ? 500 : undefined;
}

let x: number = operation() ?? -1;
console.log(x);
```



The example above has a function that returns a `number` or an `undefined` type. However, the type expected is a `number`. If the function cannot be changed to always return a number, then a solution is to verify that the value is a number or else has a default number value. The *nullish coalescing* works toward that solution by providing a compact syntax.