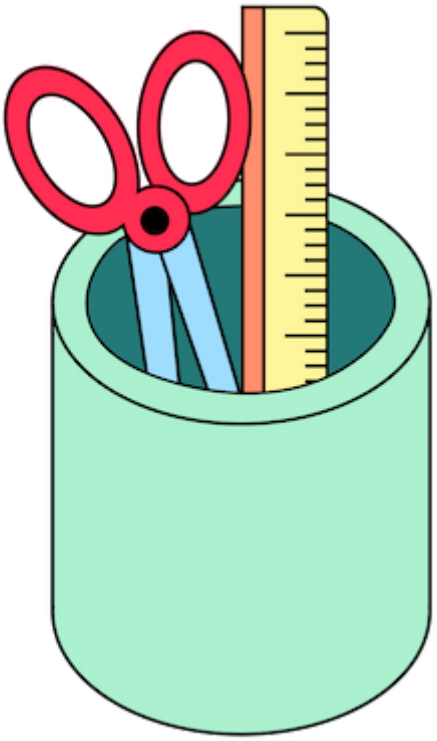


Coding with JS

02

Variables

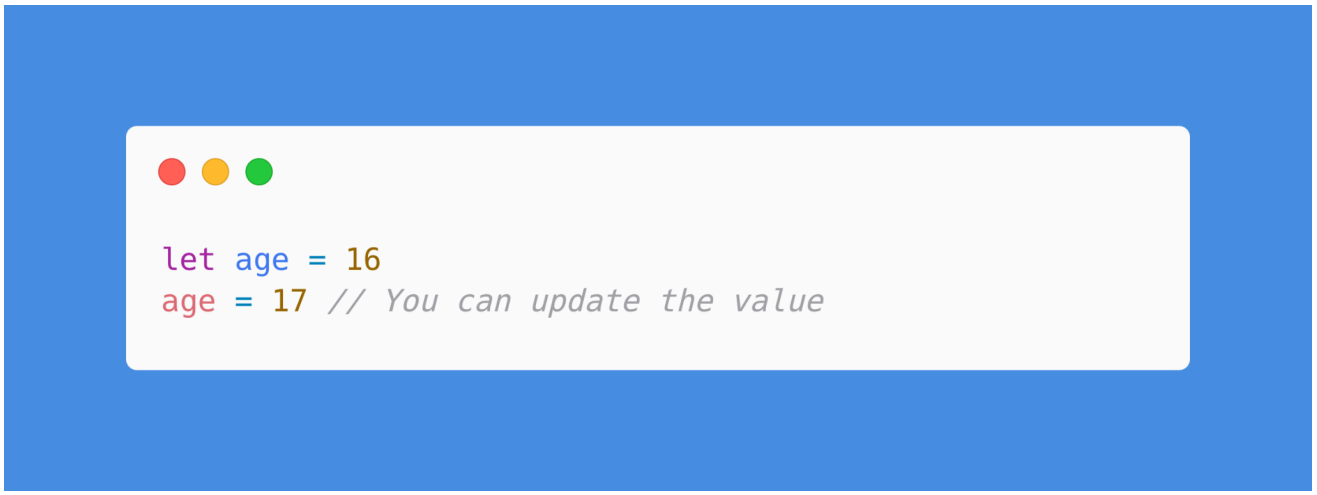
Let's dive into variables and basic data manipulation in JavaScript

Variables

A variable in JavaScript is like a little box that can hold things, like numbers or words. You can give this box a name, so you can easily find it later. You can also change what's inside the box or look at what's inside it whenever you want. Variables help us remember and use information in our code.

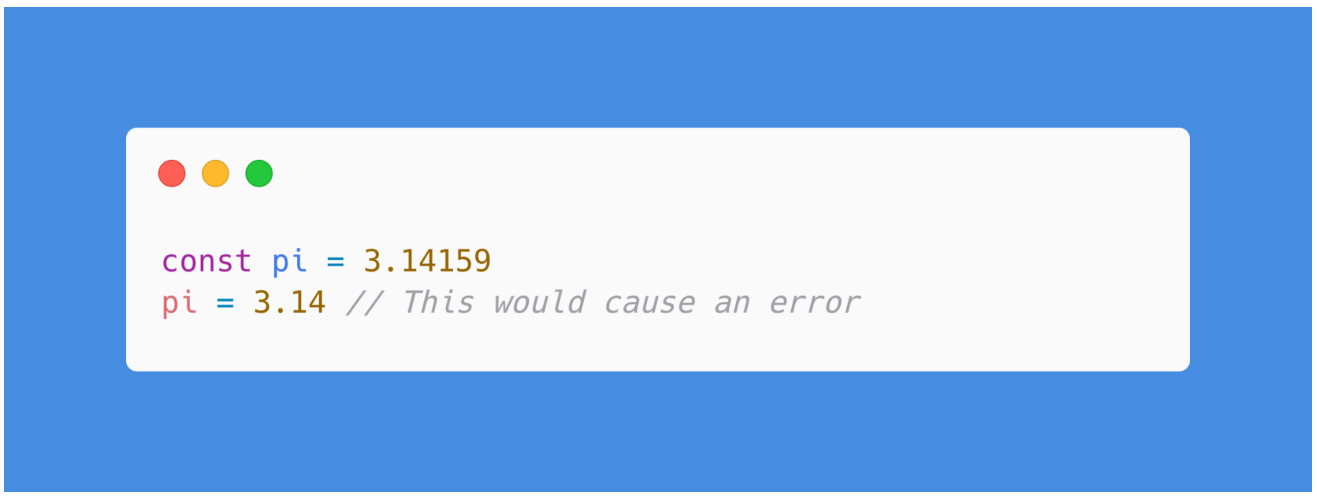
Variables are used to store and manipulate data in your code. In JavaScript, you can create variables using `let` and `const` keywords.

`let`: This keyword allows you to create a variable that can be changed later in your code.



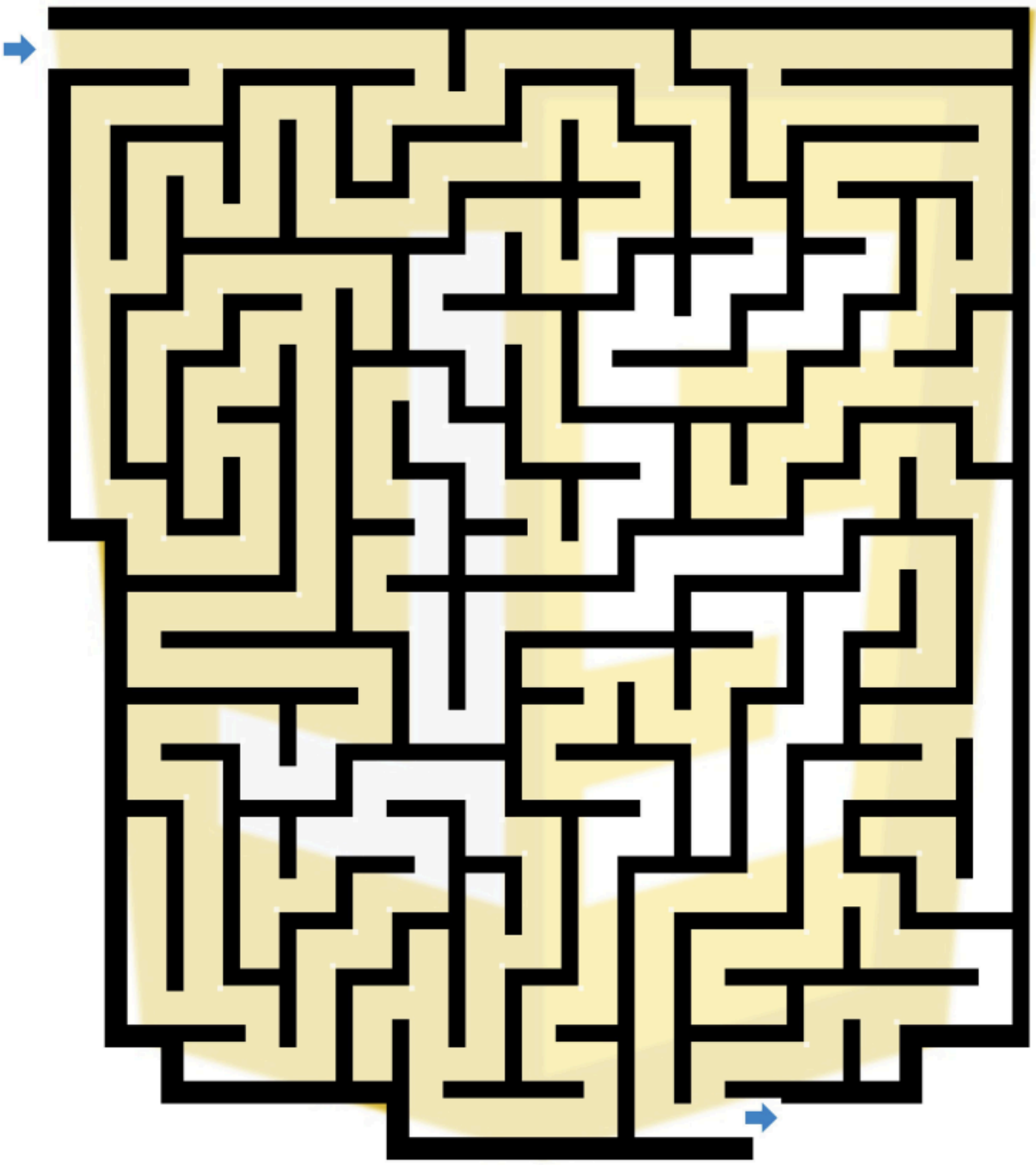
```
let age = 16
age = 17 // You can update the value
```

`const`: This keyword creates a constant variable, which means its value cannot be changed once it is assigned.



```
const pi = 3.14159
pi = 3.14 // This would cause an error
```

Maze



Names

Every programming language has its own set of conventions - common ways of doing things - that are particular to that language. They're an agreed way of doing things that make it easier for programmers to read and understand each others' code.

In JavaScript, variable names follow the camelCase naming convention. This means that the first letter of the name of the variable is always lowercase, and then any other words in the name start with a capital letter. There are no dashes or spaces between words in variable names in JavaScript.

Text (strings)

You can combine strings by using the `+` operator or the more modern template literals, which use `${ }`. Here's an example of both methods:

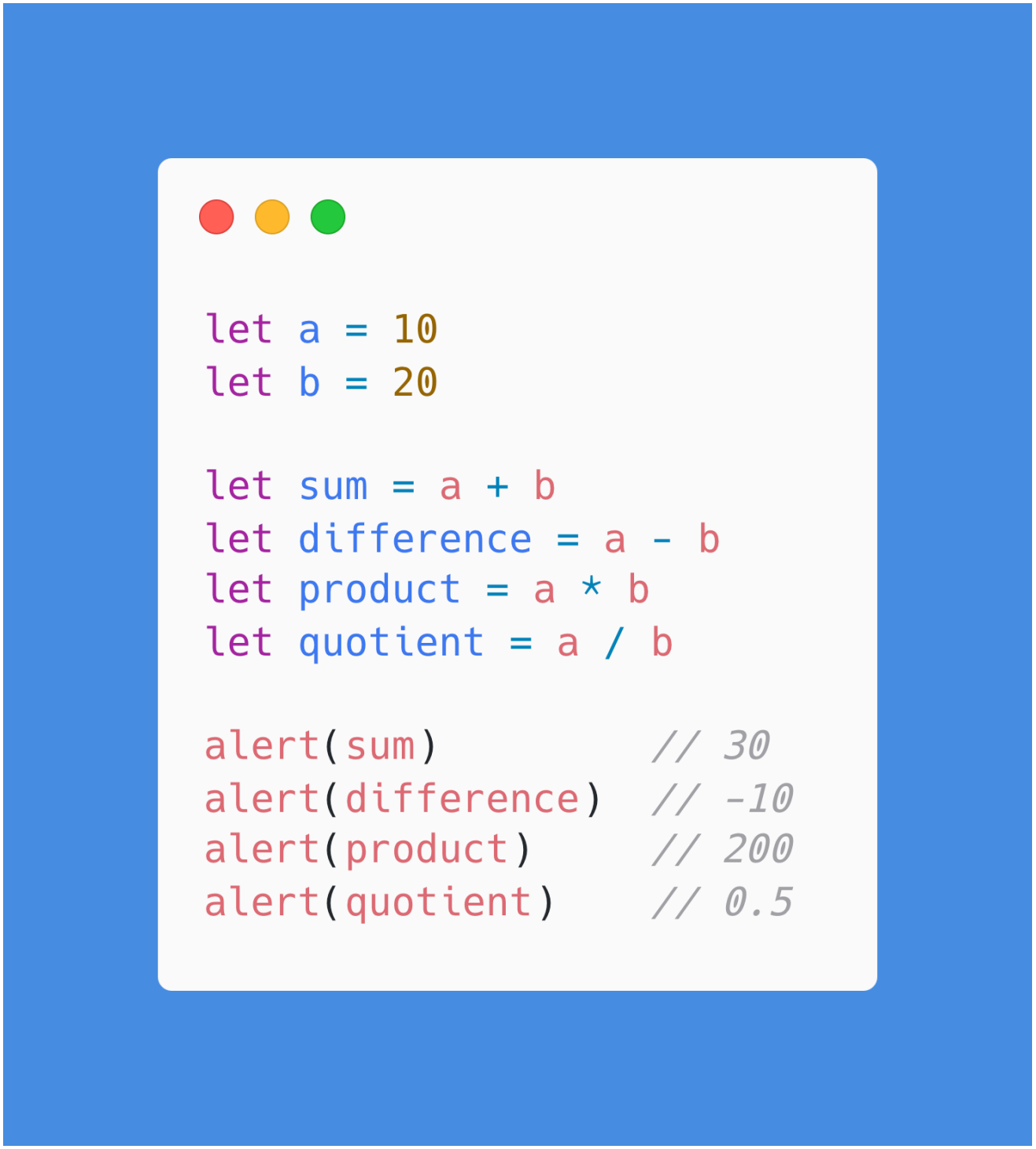
```
let firstName = "Jane"
let lastName = "Doe"

// Using the + operator
alert(firstName + " " + lastName) // "Jane Doe"

// Using template literals
alert(`${firstName} ${lastName}`) // "Jane Doe"
```

Maths

JavaScript supports basic arithmetic operations, such as addition, subtraction, multiplication, and division. Here's an example:



```
let a = 10
let b = 20

let sum = a + b
let difference = a - b
let product = a * b
let quotient = a / b

alert(sum)          // 30
alert(difference)   // -10
alert(product)      // 200
alert(quotient)     // 0.5
```

By understanding how to create and manipulate variables, you'll have a solid foundation for writing more complex code with JavaScript.

🧮 Calculations

```
// Snippet 1
alert(8 + 2)
alert(8 - 2)
alert(8 * 2)
alert(10 / 4)

// Snippet 2
let firstNumber = 20
let secondNumber = 5

let result = firstNumber * secondNumber

alert(result)

// Snippet 3
firstNumber = prompt('Enter a number')
secondNumber = 2

result = first_number * second_number

alert(firstNumber + ' x ' + secondNumber + ' = ' +
result)
```

Predict

Read the code carefully. When you're ready, write what you predict it will do.

What do you think the **Snippet 1** code will do?

What do you think the **Snippet 2** code will do?

What do you think the **Snippet 3** code will do?

Run

Run the code, and say whether your prediction was right or not, and note any differences.

Did it do what you predicted?

✅ ❌

Differences

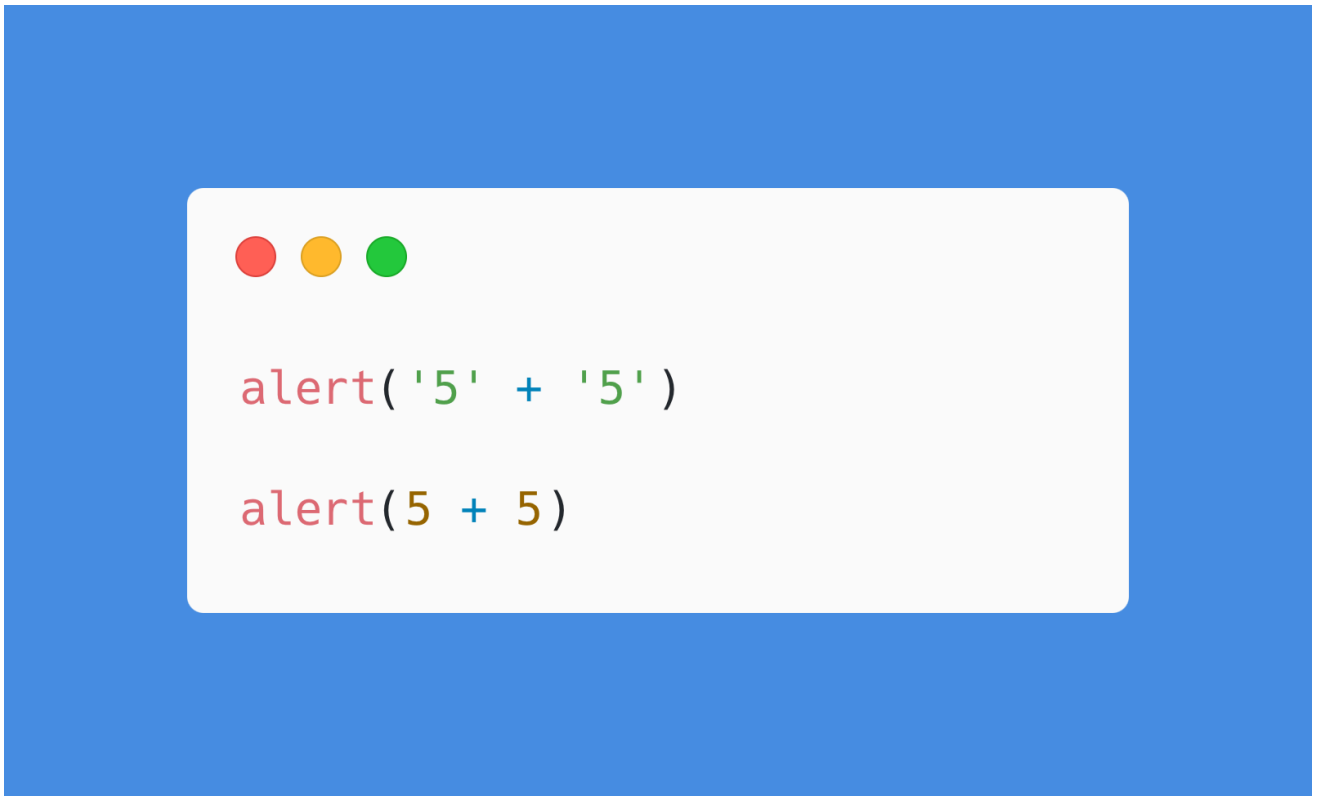
Investigate

1. How many variables are in the code?
2. What's the line number where an output statement is used?
3. What symbol is used for variable assignment?

4. What value is stored in `result` at the end of the program?

5. What value is stored in `secondNumber` at the end of the program?

6. What will each of the following lines output, and why are they different?



Word Scamble

Unscramble the words.

1. rignts _____
2. relta _____
3. gsnismtaen _____
4. abvreila _____
5. upttou _____
6. prtpom _____
7. emna _____
8. veula _____
9. ocoteatnnacni _____
10. tel _____
11. enptisp _____
12. pitnu _____
13. qsuela _____

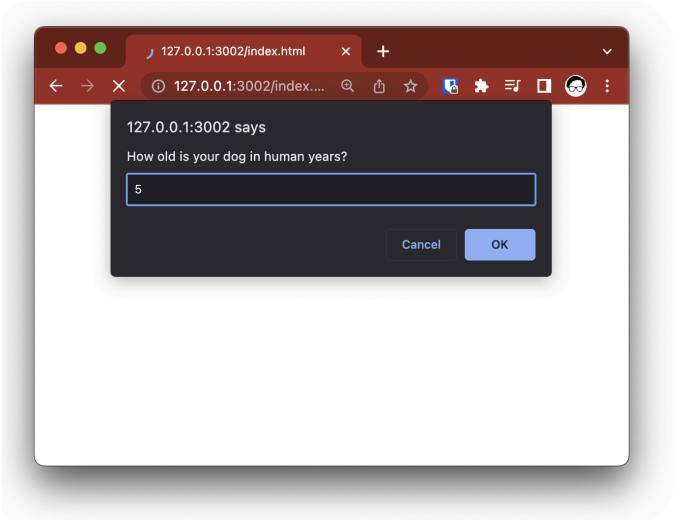
🐶 Pupper Age

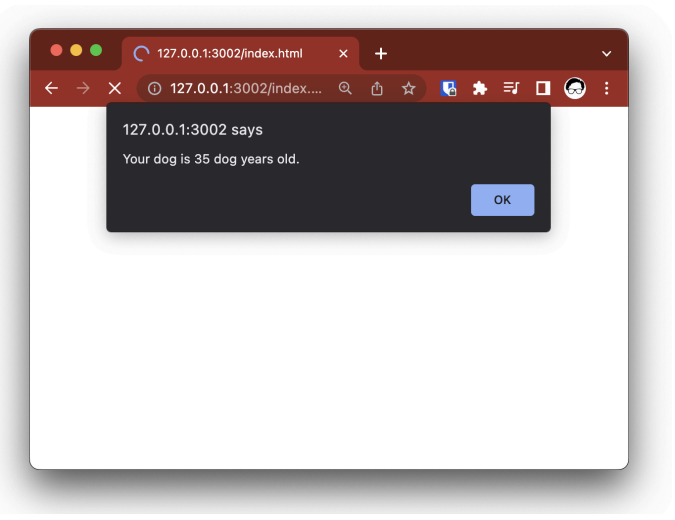
Dogs age ruffly 7 years for every 1 human year.

Task

> Write a program that asks the user for the age of their dog in human years.
> Then multiply it by 7 and tell them how old the dog is in dog years.

Example output





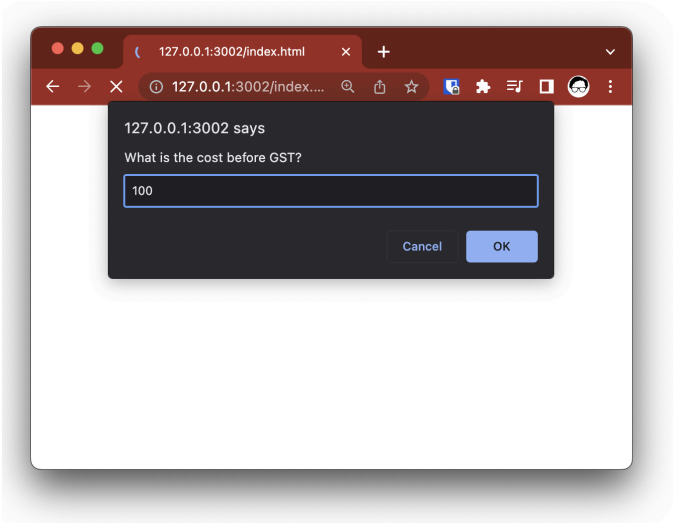
GST Calculator

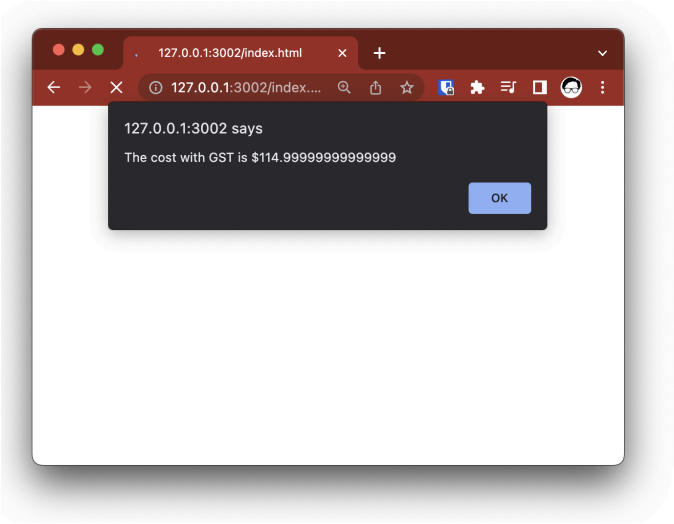
GST is the tax added to goods and services. It's currently 15% on top of the normal price.

Task

> Create a program that asks the user for a price, then tells them what it will be when GST is added.

Example output





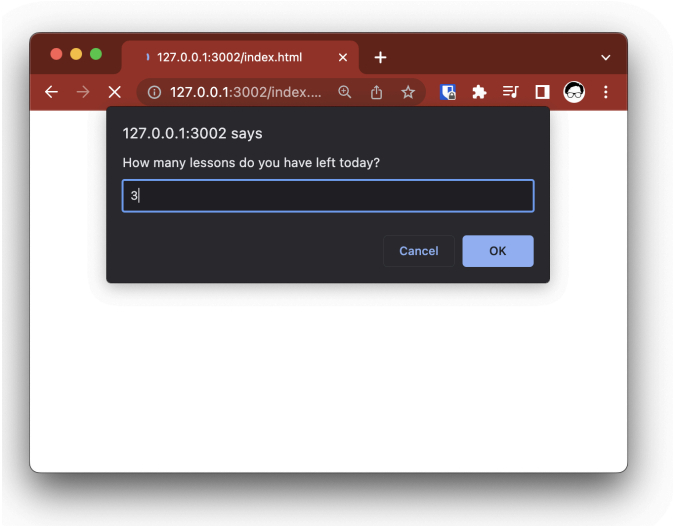
Lessons to Seconds

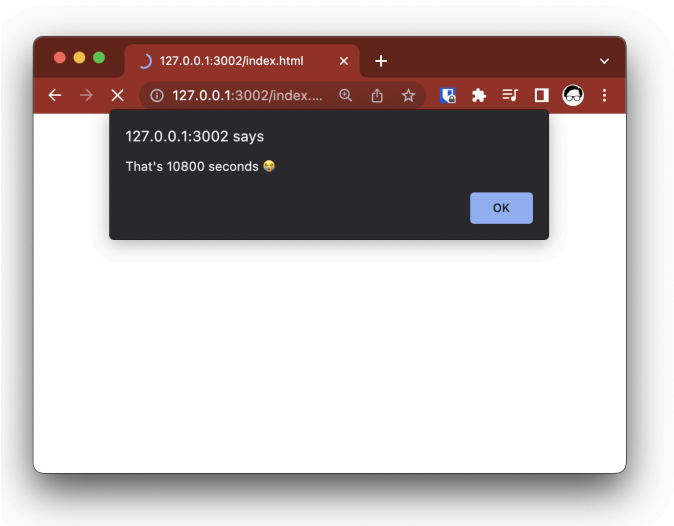
A lesson can seem like it goes on forever. Tick, tick, tick. How many seconds to go?

Task

> Create a program that asks the user for how many lessons are left in the day, then tells them how many seconds to go. Assume each lesson is an hour.

Example output





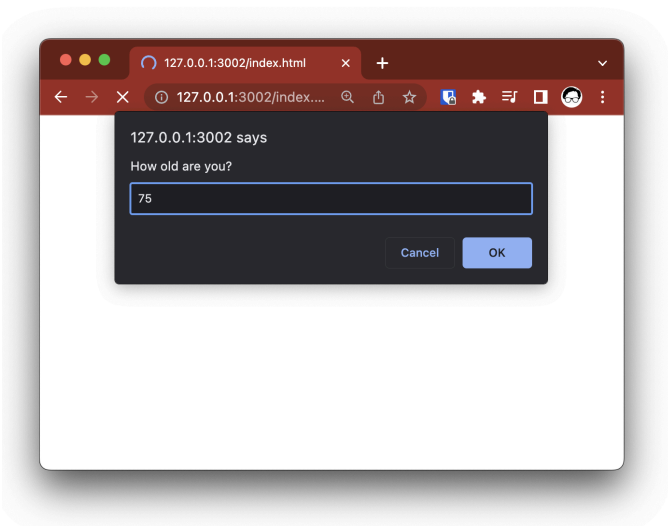
⏳ Life Remaining

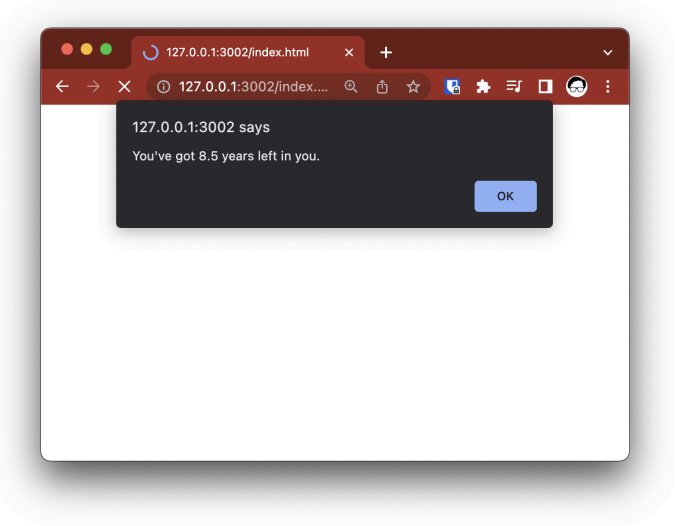
Life is uncertain. It'd be nice to know how much is left.

Task

> Create a program that asks the user for their age, then tells them how long they have to live.
> Use the average life expectancy of 83.5 years to do the calculation.

Example output





Cloze

Fill in the gaps.

In JavaScript, an _____ is a type of dialogue box that appears on your screen. It's used to provide the user with some information. Once it is triggered, the program will pause until the user acknowledges the alert by pressing "OK" to close the dialogue box, then the program will continue.

A _____, on the other hand, is a special type of dialogue box that not only provides information but also asks for input from the user. It includes a text field where the user can type their response, then press “Ok” to close the dialogue box and continue the program.

A _____ in JavaScript is like a named storage container that can hold different types of data. You can assign a value to it, and then use the name elsewhere in your code to refer to the stored value. You can also change the value stored in it by simply assigning a new value to it.

Debugging

Circle all of the errors in these blocks of code.

```
alert('It's on sale for 50% off!')
let prompt = ('What is the ticket price?')
price = price * 0.5
output("The sale price is " + price)
```

```
let numOfStudents = prompt('How many students have you got?')
let numOfGroups = prompt('How many groups do you need?')

let studentsPerGroup = numOfStudents / numOfGroups

alert('You should have groups of ' + studentsPerGroup)
```