

JS Data Types

What are they?

What are they?

- Data types are the types of information provided by a programming language
- **Primitive** data types are the basic building blocks of a language
 - They are **immutable** (cannot be changed)

What are they?

- There are also **composite** types
 - They are constructed by combining **primitive** and other **composite** data types
 - They are **mutable** (can be changed)

What types do we have in JS?

Primitive Data Types

Data Type	Description	Example
Strings	Pieces of text	"hello world";
Numbers	Integers or floats	4; 2.6;
Booleans	Represents true or false	true; false;
Undefined	Has not been assigned a value	undefined;
Null	Non-existent	null;

Composite Data Types

Data Type	Description	Example
Objects	Collection of data	{ name: "Jane" }
Arrays	Ordered collection of data	["a", "b"]
Functions	A "callable" subprogram	function hi() {}

Strings

What are Strings?

A sequence of characters used to represent text

Delimited by single or double quotes

Special characters have to be escaped (e.g. conflicting quotes)

What are Strings?

```
"";
```

```
"A piece of text";
```

```
'These are all strings';
```

```
"Jane's bag";
```

```
'Bill's guitar';
```

```
"Hello " + "World"; // Concatenation
```

Data Types & Inheritance

- When we create data, we get:
 - Properties (accesses data)
 - Methods (runs an operation on data)

```
// Properties
```

```
"Hello".length;
```

```
// Methods
```

```
"Hello".toUpperCase();
```

String Properties & Methods

```
// Properties
```

```
"Hello World".length;
```

```
// Methods
```

```
"Hello World".toUpperCase();
```

```
"Hello World".startsWith("H");
```

Exercise

- Find out how the `.includes` method works
 - Use JS to find out where "Hello" includes "a"
- Find out how the `.split` method works
 - What does this `return`?
- Find out how the `.repeat` method works
 - Repeat the string "!" 20 times

Numbers

Numbers in JS

- Integers
- Floats (Decimals)
- Negative
- Positive
- Some weird things...

Numbers in JS

```
42;
```

```
1294921;
```

```
0.14;
```

```
-14;
```

```
-19.2521;
```


Arithmetic Operators

```
4 + 8;    // Addition
```

```
12 - 4;   // Subtraction
```

```
4 * 5;    // Multiplication
```

```
8 / 4;    // Division
```

```
9 % 4;    // Remainder
```

Comparison Operators

```
9 === 9; // Strict Equality
```

```
4 > 3;    // Greater than
```

```
6 >= 2;   // Greater than or equal to
```

```
6 < 19;   // Less than
```

```
3 <= 3;   // Less than or equal to
```

Booleans

What are booleans?

A logical data type that can only have the value true or false

They are used primarily with conditionals and loops

Booleans

```
true;
```

```
false;
```

undefined

What is undefined?

A data type meaning that there is **no value yet**.

What is undefined?

This often pops up when:

- A variable hasn't been assigned a value
- You attempt to access an object's property
 - But it has no associated value
- You receive a parameter in a function
 - But no argument has been provided for that parameter

undefined

```
undefined;
```

null

What is null?

A null value represents having no data stored

It, just like undefined, means there is no value

null vs. undefined

- Null is often intentional, or explicit (e.g. you store this value in a variable)
- Undefined is set by the browser (e.g. when you don't give a variable a value)

null

```
null;
```

Resources

- [You Don't Know JS](#)
- [Eloquent JavaScript](#)
- [Speaking JavaScript](#)
- [JavaScript.info](#)
- [Codecademy](#)
- [MDN](#)