

Javascript: Variables & Objects

var

- The variable statement declares a variable, optionally initializing it to a value.

// String

var *greeting* = **“hello”**;

// Number

var *favoriteNum* = **33**;

// Boolean

var *isAwesome* = **true**;

// undefined

var *foo*;

var *setToUndefined* = **undefined**;

// null

var *empty* = **null**;

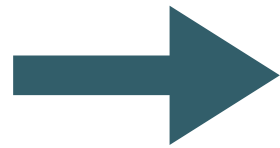
const

- Similar to the var statement*
- However, the value cannot be redeclared or reassigned.
- It is thus
CONSTANT

```
// String  
const greeting = 'hello';  
// Number  
const favoriteNum = 33;  
// Boolean  
const isAwesome = true;
```

** but block scoped. More on this later...*

const Errors



```
// Number  
const favoriteNum = 33;  
  
favoriteNum = 23;
```

- Cannot change your mind once const initialised
- Reassignment prohibited - error if attempted.

```
> const favoriteNum = 33;  
   favoriteNum = 23;
```

```
✖ ▶ Uncaught TypeError: Assignment to constant variable.  
   at <anonymous>:3:13
```

```
> |
```

let

- The **let** statement declares a block scope local variable, optionally initializing it to a value.

```
let x = 1;

if (x === 1) {
  let x = 2;

  console.log(x);
  // expected output: 2
}

console.log(x);
// expected output: 1
```

```
// Number
let favoriteNum = 33;

favoriteNum = 23;
```

Always use **const** or **let**

Never use **var** - it can be considered obsolete for our purposes

Primitive Data Types

- 6 Primitive Data Types
- JavaScript is known as a "weakly" typed language.
- This means is that when you create variables and assign them to values, you do not have to specify the type of data you are working with.

// String

const *greeting* = "hello";

// Number

let *favoriteNum* = 33;

// Boolean

const *isAwesome* = true;

// undefined

let *foo*;

let *setToUndefined* = undefined;

// null

let *empty* = null;

Object Data Types

- Whereas primitive data typed variables hold individual values. e.g:
 - numbers
 - strings
 - boolean etc...
- Object types can hold *more than one value*. e.g.:
 - a number AND a string.
 - 2 numbers and a boolean and a string
 - 3 strings and 2 numbers
- Objects are central to creating interesting and powerful programs

Creating an Object

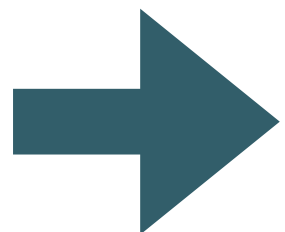
- Introduces a single variable called 'homer'.
- This is an object with two fields
 - firstName, containing 'homer'
 - lastName, containing 'simpson'

```
const homer = {  
  firstName: 'homer',  
  lastName: 'simpson',  
};
```


Objects with Strings & Numbers

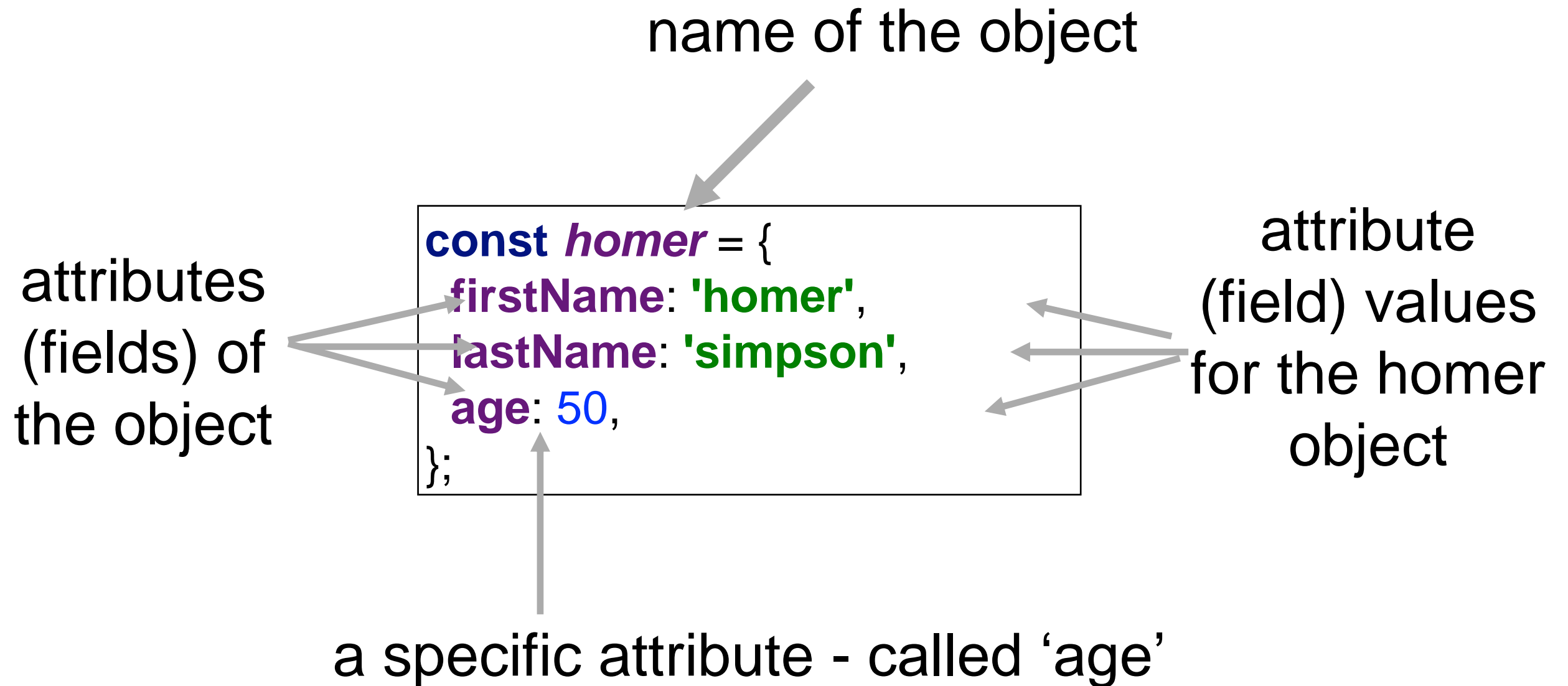
```
const bart = {  
  firstName: 'bart',  
  lastName: 'simpson',  
  age: 10,  
};  
  
console.log(bart);
```

- An object containing 2 strings and a number.



{ firstName: 'bart', lastName: 'simpson', age: 10 }

Anatomy of an Object



Objects in the Console



The screenshot shows a web browser's developer console with the 'Console' tab selected. The console displays the following code and output:

```
> const homer = {  
  firstName: 'homer',  
  lastName: 'simpson',  
};  
< undefined  
> console.log(homer);  
▶ Object {firstName: "homer", lastName: "simpson"}  
< undefined  
>
```

- We can paste code directly in the console for experimentation purposes
- Can be useful when learning or to clarify your understanding about some syntax/feature

Objects with Functions

```
const marge = {  
  firstName: 'marge',  
  lastName: 'simpson',  
  age: 10,  
  sayHello() {  
    console.log('Hello from me!');  
  },  
};  
  
marge.sayHello();
```

name of the object

data
attributes
(fields) of
the object

a function
attribute of
the object

attribute
values for
the object

```
const marge = {  
  firstName: 'marge',  
  lastName: 'simpson',  
  age: 45,  
  sayHello() {  
    console.log('Hello from me!');  
  },  
};
```

```
console.log(marge);  
console.log(marge.firstName);  
console.log(marge.age);
```

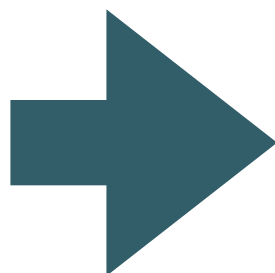
calling the
function
within the
marge
object.

```
marge.sayHello();
```

accessing
marge's
fields

this refers to the
'current' object.
Ned in this case

```
const ned = {  
  firstName: 'ned',  
  lastName: 'flanders',  
  age: 45,  
  speak() {  
    console.log('How diddley do? says ' + this.firstName);  
  },  
};  
  
ned.speak();
```



How diddley do? says ned