

Programming for Journalists

UC Berkeley Graduate School of Journalism

DataTypes Review

Numbers

```
var total = 80;
```

Strings

```
var name = "Joe";
```

Booleans

```
var verified = true;
```

Arrays

```
var scores = [2, 4, 0];
```

Objects

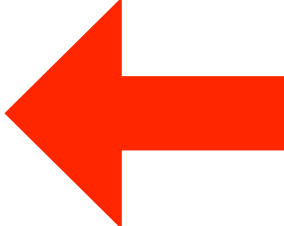
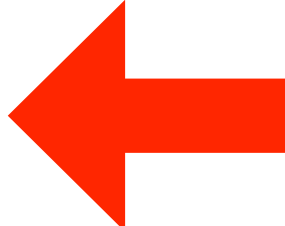
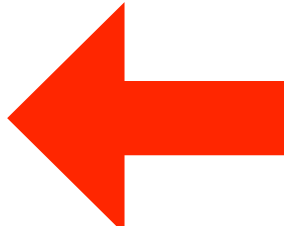
Objects

- An object is a **datatype** which allows us to store multiple values into a single variable.
- Each piece of data has a keyword, which identifies it, and can be used to recall that data.
- Very similar to Arrays, except *instead* of **index** numbers, we use keywords called **properties**.

Three types of objects

1. Object Literals
2. Dot notation
3. Square bracket notation

Three types of objects

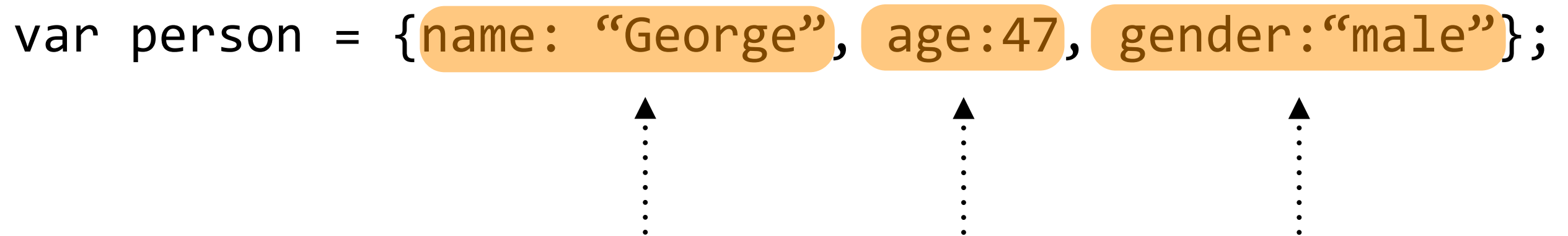
- 1. Object Literals  set data
- 2. Dot notation  set & retrieve data
- 3. Square bracket notation  set & retrieve data

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Object Literal

```
var person = {name: "George", age: 47, gender: "male"};
```



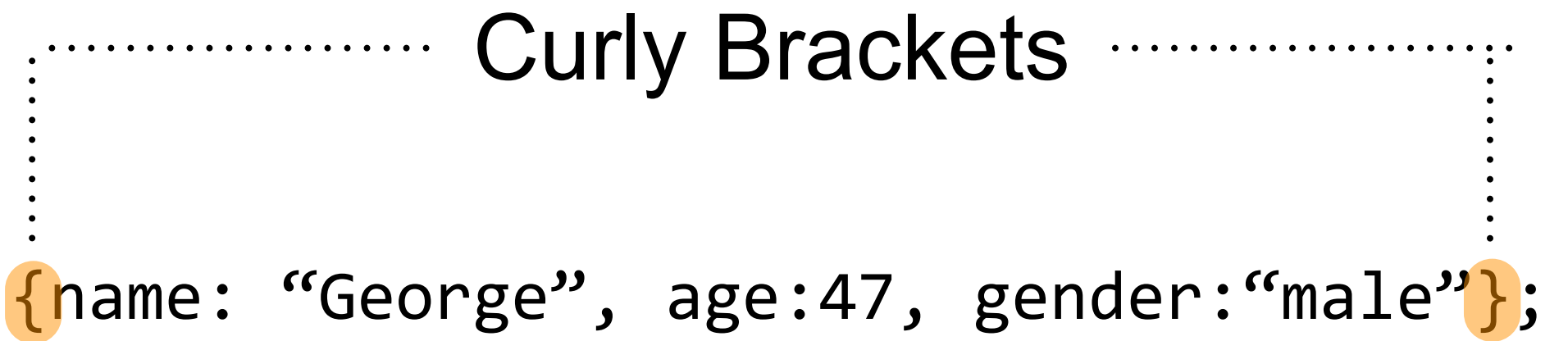
The diagram shows the object literal {name: "George", age: 47, gender: "male"}; from the previous block. Three orange rounded rectangles highlight the items: "name: 'George'", age: 47, and gender: "male". Below each item is a vertical dotted line ending in an upward-pointing arrow, pointing to the text "Three items in this object, called key/value pairs." below.

Three items in this object,
called key/value pairs.

Object Literal

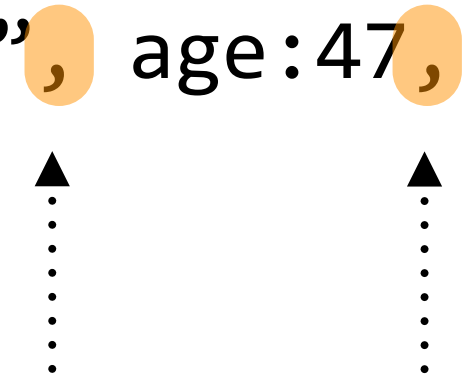
..... Curly Brackets

```
var person = {name: "George", age:47, gender:"male"};
```

A diagram illustrating the curly brackets in an object literal. A dotted line forms a rectangular frame around the curly braces of the object literal in the code snippet below. The text "Curly Brackets" is centered above the frame. The opening curly brace "{" and the closing curly brace "}" are highlighted with orange circles.

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```



The diagram highlights the commas in the object literal {name: "George", age:47, gender:"male"}. Two orange circles are placed over the commas. From each circle, a vertical dotted line with an upward-pointing arrow leads to the text "Separate each section by commas".

Separate each section by commas

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```



Properties

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```



Properties

Object Literal

```
var person = {name: "George", age: 47, gender: "male"};
```



Properties

Object Literal

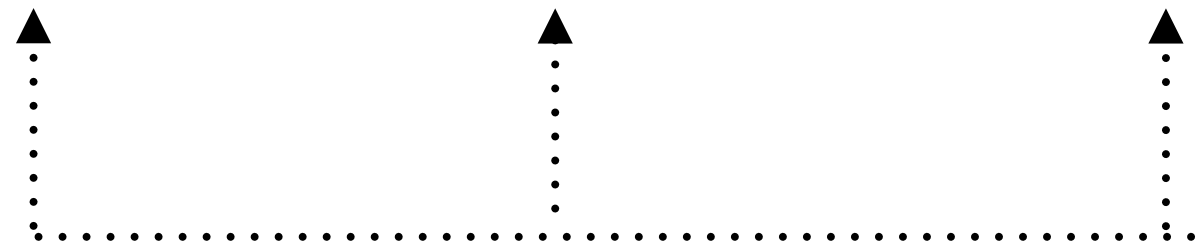
```
var person = {name: "George", age: 47, gender: "male"};
```



Properties

Object Literal

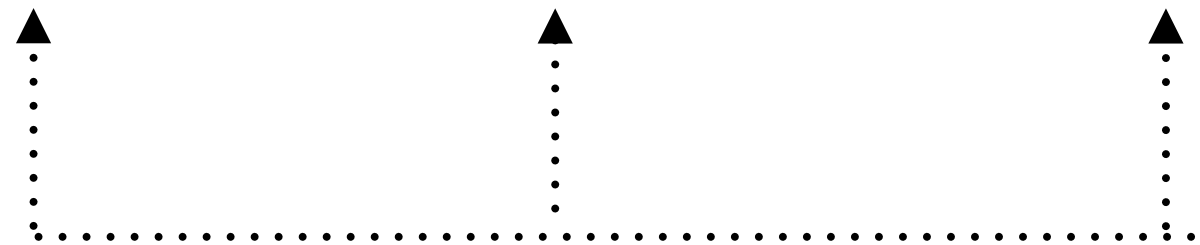
```
var person = {name: "George", age:47, gender:"male"};
```



Values

Object Literal

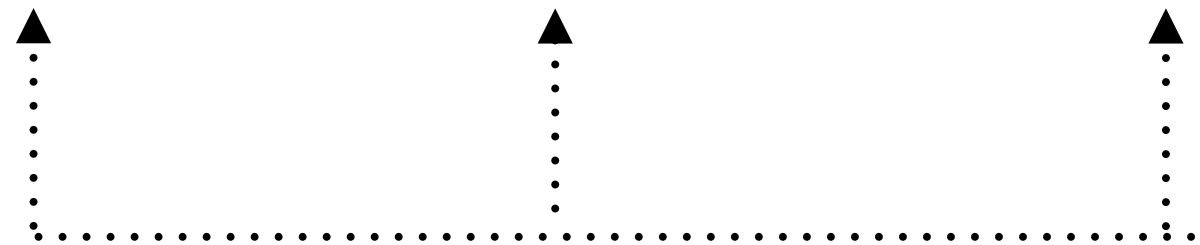
```
var person = {name: "George", age:47, gender:"male"};
```



Values

Object Literal

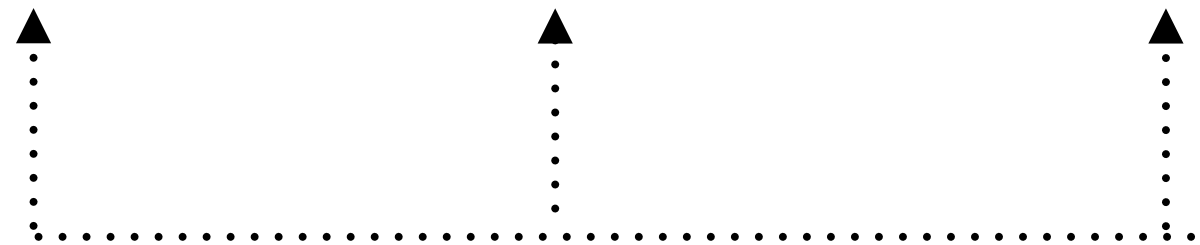
```
var person = {name: "George", age: 47, gender: "male"};
```



Values

Object Literal

```
var person = {name: "George", age: 47, gender: "male"};
```



Values

Object Literal vs Arrays

Object

```
var person = {name: "George", age:47, gender:"male"};
```

Array

```
var person = ["George", 47, "male"];
```

Object Literal vs Arrays

Object

```
var person = {name: "George", age:47, gender:"male"};
```

Array

```
var person = ["George", 47, "male"];
```

Object Literal vs Arrays

Object

```
var person = {name: "George", age:47, gender:"male"};
```

Array

```
var person = ["George", 47, "male"];
```

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the name of **cat2**?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the name of **cat2**?

Fish

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the age of **cat3**?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the age of **cat3**?

1

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the gender of **cat1**?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the gender of **cat1**?

male

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the gender of **cat2**?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the gender of **cat2**?

female

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the name of **cat3**?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the name of **cat3**?

Kitty

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the name of **cat1**?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};
```

```
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};
```

```
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the name of **cat1**?

George

Dot Syntax

Dot Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Dot Syntax

```
person.name
```

```
person.age
```

```
person.gender
```

Dot Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Dot Syntax

```
person.name  
person.age  
person.gender
```

Dot Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Dot Syntax

```
person.name
```

```
person.age
```

```
person.gender
```

Dot Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Dot Syntax

```
person.name
```

```
person.age
```

```
person.gender
```

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat1.age?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat1.age?

2

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat2.fixed?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat2.fixed?

false

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat3.type?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat3.type?

bobtail

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat3.gender?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat3.gender?

male

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat1.type?

Pop Quiz

```
var cat1 = {  
  name    : "George",  
  age     : 2,  
  gender  : "male",  
  type    : "tabby",  
  fixed   : true  
};  
  
var cat2 = {  
  name    : "Fish",  
  age     : 1,  
  gender  : "female",  
  type    : "persian",  
  fixed   : false  
};  
  
var cat3 = {  
  name    : "Kitty",  
  age     : 1,  
  gender  : "male",  
  type    : "bobtail",  
  fixed   : true  
};
```

What is the value of
cat1.type?

tabby

Square Bracket Syntax

Square Bracket Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Square Bracket Syntax

```
person["name"]
```

```
person["age"]
```

```
person["gender"]
```

Square Bracket Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Square Bracket Syntax

```
person["name"]
```

```
person["age"]
```

```
person["gender"]
```

Square Bracket Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Square Bracket Syntax

```
person["name"]
```

```
person["age"]
```

```
person["gender"]
```

Square Bracket Syntax

Object Literal

```
var person = {name: "George", age:47, gender:"male"};
```

Square Bracket Syntax

```
person["name"]
```

```
person["age"]
```

```
person["gender"]
```

Square Bracket vs Arrays

Square bracket syntax

`somevariable["property"]`

Array

`somevariable[9]`

Square Bracket vs Arrays

Square bracket syntax

`somevariable["property"]`

Array

`somevariable[9]`

Square Bracket vs Arrays

Square bracket syntax

`somevariable["property"]`

Array

`somevariable[9]`

`somevariable[someword]`

Square Bracket vs Arrays

Square bracket syntax

`somevariable["property"]`

Array

`somevariable[9]`

It depends, what is someword? A number or string?

`somevariable[someword]`

Square Bracket vs Dot Notation

```
var person = {name: "Jim", "wears a tie":true};
```

Dot notation cannot have spaces

`person.name`

`person["wears a tie"];`

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog1["name"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog1["name"]?

Rex

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};
```

```
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};
```

```
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog2["housebroken"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};
```

```
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};
```

```
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog2["housebroken"]?

true

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog3["name"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog3["name"]?

Chompers

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog1["favorite call"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog1["favorite call"]?

here boy

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog3["favorite call"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog3["favorite call"]?

OW-OW-OWWW

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog3["favorite bark"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog3["favorite bark"]?

grrrrrr

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog2["favorite bark"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog2["favorite bark"]?

arf

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog2["name"]?

Pop Quiz

```
var dog1 = {  
  name      : "Rex",  
  age       : 10,  
  "favorite bark" : "ruff",  
  "favorite call" : "here boy",  
  housebroken : true  
};  
  
var dog2 = {  
  name      : "Fido",  
  age       : 5,  
  "favorite bark" : "arf",  
  "favorite call" : "hey!",  
  housebroken : true  
};  
  
var dog3 = {  
  name      : "Chompers",  
  age       : 3,  
  "favorite bark" : "grrrrrrrr",  
  "favorite call" : "ow-ow-owww",  
  housebroken : false  
};
```

What is the value of
dog2["name"]?

Fido

Setting data dot syntax

```
var person = {};
```

```
person.name = "George";
```

```
person.age = 47;
```

```
person.gender = "male";
```

```
person.tall = true;
```

Setting data dot syntax

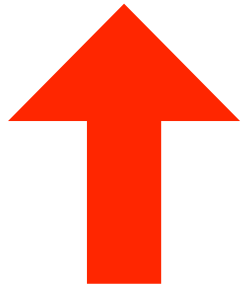
```
var person = {};
```

```
person.name = "George";
```

```
person.age = 47;
```

```
person.gender = "male";
```

```
person.tall = true;
```



properties

Setting data square bracket

```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```

Setting data square bracket


```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```



properties

Pop Quiz

```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```

```
var x = "tall";
```

What is person[x]?

Pop Quiz

```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```

```
var x = "tall";
```

What is person[x]?

true

Pop Quiz

```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```

```
var x = "gender";
```

What is person[x]?

Pop Quiz

```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```

```
var x = "gender";
```

What is person[x]?

male

Pop Quiz

```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```

```
var x = "na";
```

```
var y = "me";
```

What is `person[x + y]`?

Pop Quiz

```
var person = {};
```

```
person["name"] = "George";
```

```
person["age"] = 47;
```

```
person["gender"] = "male";
```

```
person["tall"] = true;
```

```
var x = "na";
```

```
var y = "me";
```

What is person[x + y]?

George

Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```

Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```


Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```

Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```

Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```

Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```

Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```

Objects inside objects

```
var people = {  
    george : {sex:"male", age:40, single:true},  
    mary   : {sex:"female", age:38, single:false},  
    pat    : {sex:"undetermined", age:41, single:true}  
}
```

```
people.george.single  
people.pat.age
```

```
people["george"]["single"]  
people["pat"]["age"]
```

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the medium size photo?

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the medium size photo?

`photos.sizes.m` or `photos["sizes"]["m"]`

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the file name?

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the file name?

`photos.file` or `photos["file"]`

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the large image?

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the large image?

`photos.sizes.l` or `photos["sizes"]["l"]`

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the title?

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the title?

`photos.title` or `photos["title"]`

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the small image?

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the small image?

`photos.sizes.s` or `photos["sizes"]["s"]`

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```


What's the notation for the sizes *object*?

Pop Quiz

```
var photos = {  
  "title" : "A walk on the beach",  
  "file"   : "beach.jpg",  
  "sizes"  : {  
    s : "small-beach.jpg",  
    m : "medium-beach.jpg",  
    l : "large-beach.jpg"  
  }  
}
```

What's the notation for the *sizes object*?

`photos.sizes` or `photos["sizes"]`



Objects & Arrays

Objects + Arrays

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for suzy's occupation?

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for suzy's occupation?

```
people[1].occupation  
people[1]["occupation"]
```

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for paul's name?

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for paul's name?

```
people[3].name  
people[3]["name"]
```


Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for joe's name?

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for joe's name?

```
people[0].name  
people[0]["name"]
```

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for debby's occupation?

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for debby's occupation?

```
people[2].occupation  
people[2]["occupation"]
```

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for suzy's name?

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for suzy's name?

```
people[1].name  
people[1]["name"]
```

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for joe's occupation?

Pop Quiz

```
var people = [  
  {name: "joe",    occupation: "plumber" },  
  {name: "suzy",   occupation: "CEO" },  
  {name: "debby",  occupation: "firefighter"},  
  {name: "paul",   occupation: "prisoner"}  
];
```

What's the notation for joe's occupation?

```
people[0].occupation  
people[0]["occupation"]
```


JavaScript Object Notation

JavaScript Object Notation

JSON