

# App Development & Modeling

BSc in Applied Computing

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Produced  
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# Javascript Part 1b

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# Objects & Arrays

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- The fundamental building blocks of java programs are
  - Object
  - Array
  - Functions

# Creating & Using Objects

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- The simplest way to create an object is either through:
  - the *object constructor*
  - the shorthand syntax known as *object literal*.
- Objects are *unordered key/value pairs*.
  - The *key* is formally known as a property and the value can be any valid JavaScript type, even another object.
- To create or access a property on an object, we use
  - *dot notation*
  - *bracket notation*

# Creating Objects ...

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Object  
Constructor

```
var person1 = new Object;  
person1.firstName = "John";  
person1.lastName = "Doe";
```

Object Literal

```
var person2 =  
{  
  firstName: "Jane",  
  lastName: "Doe"  
};
```

# Using Objects...

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Dot Notation

```
person1.firstName = "John";  
person1.lastName = "Doe";
```

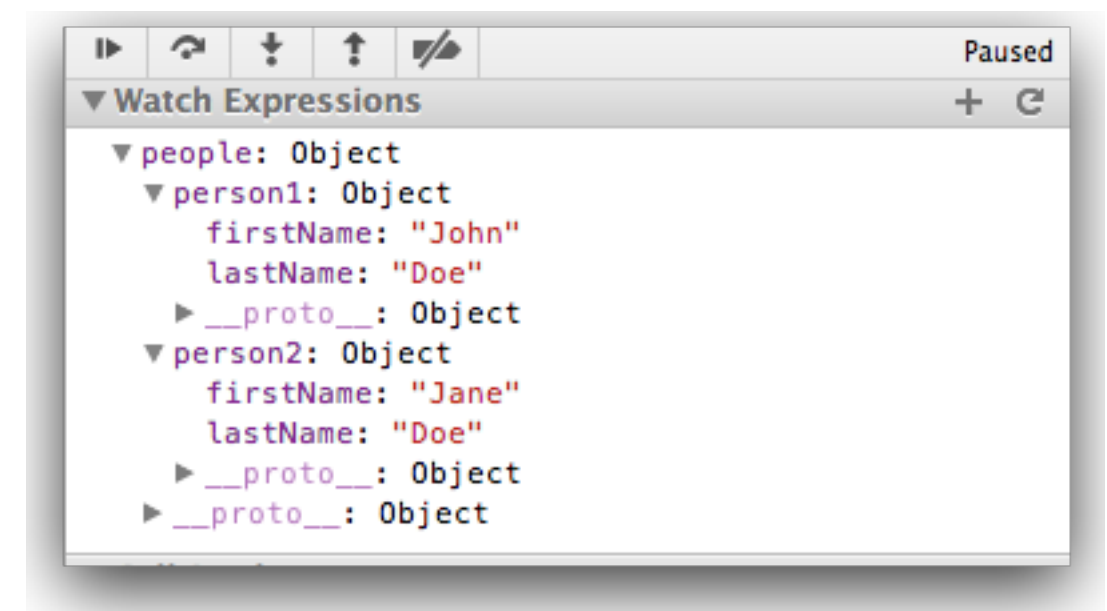
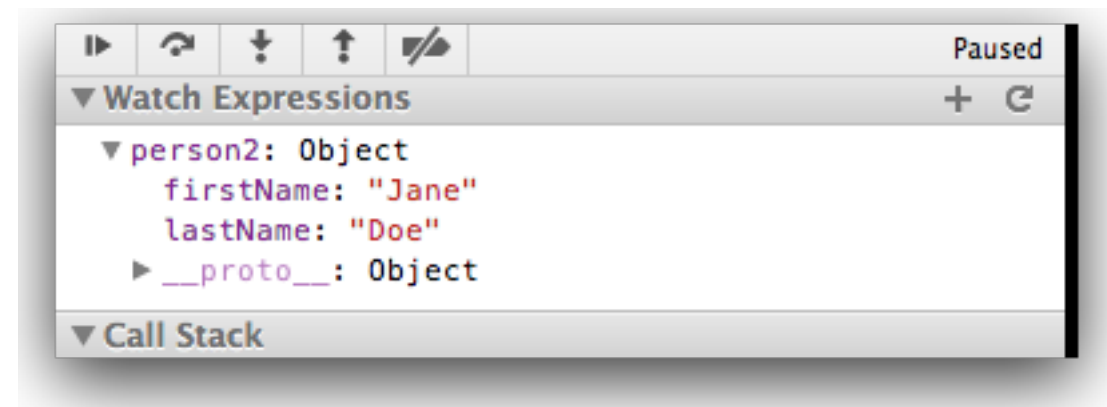
Bracket Notation

```
person['firstName'] = "Mary";  
person['lastName'] = "Smith";
```

# Tracing Objects

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- Object structure and contents can be explored in detail in Chrome Developer Tools



# Creating & Using Arrays

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- Arrays are a type of object that are ordered by the index of each item it contains.
- The index starts at zero and extends to however many items have been added, which is a property of the array known as the "length" of the array.
- Similar to objects, an array can be created with the array constructor or the shorthand syntax known as array literal.



# Creating Arrays...

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Array Constructor

```
var foo = new Array;
```

Array Literal

```
var bar = [];
```

# Creating Arrays with Dimensions

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Array Constructor

```
var foo = new Array(5);
```

- In general, dont do this. Better to create empty array:

Array Literal

```
var bar = [];
```

- And the append items via as needed

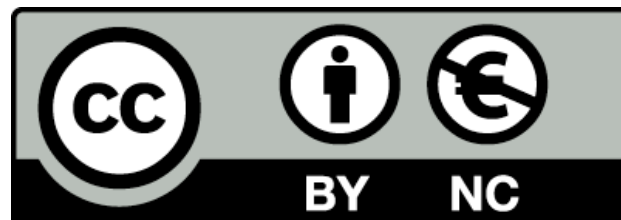
```
bar.push(23);  
bar.push(32);
```

# Using Arrays...

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- Insertion into arrays can be via:
  - `[]` notation (like Java)
  - Using 'push' which appends to the end of the array

```
var foo = [];  
  
foo.push("a");  
foo.push("b");  
  
alert( foo[ 0 ] ); // => a  
alert( foo[ 1 ] ); // => b  
  
alert( foo.length ); // => 2  
  
foo.pop();  
  
alert( foo[ 0 ] ); // => a  
alert( foo[ 1 ] ); // => undefined  
  
alert( foo.length ); // => 1
```



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