Grow with Google: Lesson 16

Objects

1. Intro to Objects

- Encapsulating related data and functionality in a single container.
- Arrays are a special object in JavaScript.
- JavaScript allows you to create your own objects.

2. Objects in Code

- Declare an object with empty open braces.
  - Properties are defined with key: value pairs.
  - Methods are things objects can do, in effect, functions.
- Arrays are an object in JavaScript.
  - Push and pop are methods in arrays.
- The `typeof` operator returns the name of a data type.

```
typeof "hello" // returns "string"
typeof true // returns "boolean"
typeof [1, 2, 3] // returns "object" (arrays are objects)
typeof function hello() { } // returns "function"
```

Quiz: Umbrella (7-1)

- Not really sure how I would test a method on my own.

```
var umbrella = {
    color: "pink",
    isOpen: true,
    open: function() {
        if (umbrella.isOpen === true) {
            return "The umbrella is already opened!";
        } else {
            umbrella.isOpen = true;
            return "Julia opens the umbrella!";
        }
    },
    close: function() {
        if (umbrella.isOpen === false) {
```

```
            return "The umbrella is already closed!";
        } else {
            umbrella.isOpen = false;
            return "Julian closes the umbrella!";
        }
    }
};
```

4. Objects

- **Primitive Data Types:** Strings, Numbers, Booleans, Undefined, Null
- **Object:** A data structure that lets you store data about a particular thing, and helps you keep track of that data by using a key.
    - Place key value pairs on new lines for readability.

5. Object Literals

```javascript
// Object Literal Notation
var sister = {
  // Properties
  // (Key: Value),
  name: "Sarah",
  age: 23,
  parents: [ "alice", "andy" ],
  siblings: ["julia"],
  favoriteColor: "purple",
  pets: true,
  // Method
  paintPicture: function() {
      return "Sarah paints!";
  }
};


sister["parents"] // Bracket Notation
sister.parents // Dot Notation
sister.paintPicture(); // "Sarah paints!"
sister.name // "Sarah"
```

6. Naming Conventions

- Quotes around property names are valid but can mask potential problems.
  - Can throw syntax errors with dot notation.
- Avoid using numbers for the first character in property names.
  - It works with bracket notation, but will limit you with dot notation.
  - Quotes around property names will mask this problem.
- Avoid using spaces and hyphens. Use camelCase instead.
  - Dot notation will reveal more issues.

7. Summary of Objects

- Properties: Information
- Methods: Functions
- Object-Literal Notation
- Naming Conventions

8. Quiz: Menu Items (7-2)

```
var breakfast = {
    name: "The Lumberjack",
    price: "$" + 9.95,
    ingredients: [
      "eggs",
      "sausage",
      "toast",
      "hashbrowns",
      "pancakes"
    ]
};
```

9. Quiz: Bank Accounts 1 (7-3)

```
var savingsAccount = {
    balance: 1000,
    interestRatePercent: 1,
    deposit: function addMoney(amount) {
        if (amount > 0) {
            savingsAccount.balance += amount;
        }
```

```
    },
    withdraw: function removeMoney(amount) {
        var verifyBalance = savingsAccount.balance - amount;
        if (amount > 0 && verifyBalance >= 0) {
            savingsAccount.balance -= amount;
        }
    },
    printAccountSummary: function() {
        return "Welcome!\nYour balance is currently $" + savingsAccount.balance
+
        " and your interest rate is " + savingsAccount.interestRatePercent +
"%.";
    }
};


console.log(savingsAccount.printAccountSummary());
```

10. Quiz: Bank Accounts 2 (7-4)

```
savingsAccount.balance;
savingsAccount["balance"];
savingsAccount.withdraw(50);
```

11. Quiz: Facebook Friends (7-5)

```
var facebookProfile = {
    name: "Asia Hoe",
    friends: 899,
    messages: [
      "Three",
      "Two",
      "One",
      "Let\'s Jam"
    ],

    postMessage: function(message) {
        facebookProfile.messages.push(message);
```

```
        },

    deleteMessage: function(index) {

        facebookProfile.messages.splice(index, 1);

    },


    addFriend: function() {

        facebookProfile.friends++;

    },


    removeFriend: function() {

        facebookProfile.friends--;

    }

};


facebookProfile.deleteMessage(2);

console.log(facebookProfile.messages);
```

12. Quiz: Donuts Revisited (7-6)

```
var donuts = [

    { type: "Jelly", cost: 1.22 },

    { type: "Chocolate", cost: 2.45 },

    { type: "Cider", cost: 1.59 },

    { type: "Boston Cream", cost: 5.99 }

];


donuts.forEach(function(donuts) {

    console.log(donuts.type + " donuts cost $" + donuts.cost + " each");

});
```