Final Exam – Part 03 (35 points) *LastName, FirstName*

JavaScript Objects [1]

Real Life Objects, Properties, and Methods

In real life, a car is an **object**.

A car has **properties** like weight and color, and **methods** like start and stop:

Object	Properties	Methods
	car.name = Fiat	car.start()
	car.model = 500	car.drive()
	car.weight = 850kg	car.brake()
	car.color = white	car.stop()

All cars have the same **properties**, but the property **values** differ from car to car.

All cars have the same **methods**, but the methods are performed **at different times**.

JavaScript Objects

You have already learned that JavaScript variables are containers for data values.

This code assigns a **simple value** (Fiat) to a **variable** named car:

```
var car = "Fiat";
```

Objects are variables too. But objects can contain many values.

This code assigns **many value**s (Fiat, 500, white) to a **variable** named car:

```
var car = {
    type:"Fiat",
    model:"500",
    color:"white"
};
```

The values are written as **name:value** pairs (name and value separated by a colon).

Object Definition

You define and create a JavaScript object with an object literal:

```
var person = {
    firstName:"John",
    lastName:"Doe",
    age:50,
    eyeColor:"blue"
};
```

Spaces and line breaks are not important. An object definition can span multiple lines:

Object Properties

The **name:values** pairs in JavaScript objects are called **properties**:

Property	Property Value
firstName	John
lastName	Doe
age	50
eyeColor	blue

Accessing Object Properties

You can access object properties in two ways:

```
objectName.propertyName

//OR

objectName["propertyName"]
```

Examples: you can access the last from the person object as follow

```
person.lastName;

//OR

person["lastName"];
```

Object Methods

Objects can also have **methods**.

Methods are **actions** that can be performed on objects.

Methods are stored in properties as **function definitions**.

A **method** is a function stored as a **property**.

Property	Property Value
firstName	John
lastName	Doe
age	50
eyeColor	blue
fullName	function() {return this.firstName + " " + this.lastName;}

Example:

```
var person = {
    firstName: "John",
    lastName : "Doe",
    id       : 5566,
    fullName : function() {
      return this.firstName + " " + this.lastName;
    }
};
```

The *this* Keyword

In a function definition, **this** refers to the "owner" of the function.

In the example above, **this** is the **person object** that "owns" the **fullName** function.

In other words, **this.firstName** means the **firstName** property of **this object**.

Accessing Object Methods

You access an object method with the following syntax:

```
objectName.methodName()
```

Example:

```
name = person.fullName();
```

If you access a method **without** the () parentheses, it will return the **function definition**

[1] JavaScript Objects. https://www.w3schools.com/js/js_objects.asp

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Objectives:

- Work with Objects
- Work with Arrays

Files:

- JavaScript Quiz.html
- SimpleJavaScriptQuiz.js

Tools

- Visual Studio Code
- Web Browser (Chrome, Firefox, or Safari)

Follow These Steps for Final Exam – Part 03:

1. Start Visual Studio Code, and open **SimpleJavaScriptQuiz.js (*1 point*)**

2. Add a comment with your ***firstname lastname* (*1 point*)**

3. Inside the SimpleJavaScriptQuiz.js, define a **variable** called **score** with a value of **0** (***2 points***)

```
var score = 0;
```

4. Next, define an **array** called **myQuestions** with **Objects** as **values**. Each **object** has **three properties**, one is called **question**, another is called **answers** (which is also an object), and the third one is called **correctAnswer**. You can modify the **myQuestions** arrays to handle any number of questions for your Quiz (***15 points***)

```
const myQuestions = [
    {
      question: "What is the meaning of JS?",
      answers: { a:"JavaScript", b:"HTML", c:"Style Sheets", d:"None" },
      correctAnswer: "a"
    },
    {
      question: "What is the meaning of HTML?",
      answers: { a: "JavaScript", b:"Nodes", c:"HyperText Markup Language", d:"Style Sheets" },
      correctAnswer: "c"
    },
    {
      question: "What is the meaning of CSS?",
      answers: {a:"HyperText Markup Language", b:"Nodes", c:"JavaScript",d:"Cascading Style Sheets"},
      correctAnswer: "d"
    },
    {
      question: "What is the meaning of SQL?",
      answers: {a:"HyperText Markup Language", b:"Nodes", c:"Structured Query Language", d:"Cascading Style Sheets"},
      correctAnswer: "c"
    },
    {
      question: "What is the meaning of PL?",
      answers: {a:"HyperText Markup Language", b:"Structured Query Language", c:"JavaScript", d:"Procedural Language"},
      correctAnswer: "d"
    }
  ];
```

5. **Using** a simple **for loop**, iterate over each element of the array (which is an object), and **prompt** the **values** of the **properties** to the user. Make sure to **store** the **value returned** by the **prompt** in a **variable** called **yourAnswer** (***8 points***)

```
for (var testQuestion in myQuestions){
  var yourAnswer = prompt(myQuestions[testQuestion].question + '\n' +
    'a)' + myQuestions[testQuestion].answers.a + '\n' +
    'b)' + myQuestions[testQuestion].answers.b  + '\n' +
    'c)' + myQuestions[testQuestion].answers.c + '\n' +
    'd)' + myQuestions[testQuestion].answers.d + '\n');
```

6. Inside the loop, **check if the user answer** stored in **yourAnswer** is **equal** to the **object property correctAnswer**. **If that is the case**, then **display** a pop-up window with the **text 'Answer is Correct'** and **increase** the **value** of **score** by **1**. **If it is not correct**, then **display** a pop-up window with the text '**Answer is Wrong**' (***4 points***)

```
if (yourAnswer == myQuestions[testQuestion].correctAnswer) {
  alert('Answer is Correct');
  score ++;
}
else {
  alert('Answer is Wrong');
}
```

7. After the loop, **display** a pop-up window with the **user score** on the quiz (***2 points***)

```
alert('Your Score is ' + score + '/' + myQuestions.length);
```

8. Save the file and check the quiz using the html file.