JAVASCRIPT LESSON 3: FUNCTION , OBJECTIVE, JAVASCRIPT IN WEB BROWSERS

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JAVASCRIPT FUNCTION SAMPLE:

main.js

```
1  // create a function named greet()
2  function greet() {
3      console.log("Hello World!");
4  }
5
6  // store a function in the displayPI variable
7  // this is a function expression
8  let displayPI = function() {
9      console.log("PI = 3.14");
10 }
11
12 // call the greet() function
13 greet();
14
15 // call the reply() function
16 displayPI();
17
18 // Output:
19 // Hello World!
20 // PI = 3.14
```

- **Output:**

```
[Running] node "c:\Users\reyes\Documents\Javascript Lessons\Javascript\main2.js"
Hello World!
PI = 3.14

[Done] exited with code=0 in 0.102 seconds
```

FUNCTION

```
/// Previously
// function expression
let product = function(x, y) {
    return x * y;
};

result = product(5, 10);

console.log(result);  // 50
```

```
[Running] node "c:\Users\reyes\Documents\Javascript Lessons\Javascript\function.js"
50

[Done] exited with code=0 in 0.167 seconds
```

JAVASCRIPT OBJECT

JAVASCRIPT OBJECT

- An object is a composite value: it aggregates multiple values (primitive values or other objects) and allows you to store and retrieve those values by name.
- An object is more than a simple string-to-value map, however. In addition to maintaining its own set of properties, a JavaScript object also inherits the properties of another object, known as its “prototype.
- Write a JavaScript program to create a class called "Person" with properties for name, age and country. Include a method to display the person's details. Create three instances of the 'Person' class and display their details.

A PERSON OBJECT WITH (NAME, AGE, COUNTRY AND PLACE OF BIRTH)

```
class Person {
    constructor(name, age, country) {
      this.name = name;
      this.age = age;
      this.country = country;
    }

    displayDetails() {
      console.log(`Name: ${this.name}`);
      console.log(`Age: ${this.age}`);
      console.log(`Country: ${this.country}`);
    }
  }

  // Create instances of the Person class
  const person1 = new Person('Pochie Reyes', 25, 'Australia');
  const person2 = new Person('Richard Umali', 40, 'Netherlands');
  const person3 = new Person ('Pia Tuazon', 33, 'Singapore');

  // Display details of person1
  console.log('Person-1 Details:');
  person1.displayDetails();

  // Display details of person2
  console.log('\nPerson-2 Details:');
  person2.displayDetails();

  console.log ('\nPerson-3 Details: ');
  person3.displayDetails();
```

```
[Running] node "c:\Users\reyes\Documents\Javascript Lessons\JSExercises\tempCodeRunnerFil
Person-1 Details:
Name: Pochie Reyes
Age: 25
Country: Australia

Person-2 Details:
Name: Richard Umali
Age: 40
Country: Netherlands

Person-3 Details:
Name: Pia Tuazon
Age: 33
Country: Singapore

[Done] exited with code=0 in 0.106 seconds
```

EXERCISE: VEHICLE OBJECT

- Write a JavaScript program that creates a class called 'Vehicle' with properties for make, model, and year. Include a method to display vehicle details. Create a subclass called 'Car' that inherits from the 'Vehicle' class and includes an additional property for the number of doors. Override the display method to include the number of doors.

```javascript
class Vehicle {
    constructor(make, model, year) {
      this.make = make;
      this.model = model;
      this.year = year;
    }

    displayDetails() {
      console.log(`Make: ${this.make}`);
      console.log(`Model: ${this.model}`);
      console.log(`Year: ${this.year}`);
    }
  }

  class Car extends Vehicle {
    constructor(make, model, year, doors) {
      super(make, model, year);
      this.doors = doors;
    }

    displayDetails() {
      super.displayDetails();
      console.log(`Doors: ${this.doors}`);
    }
  }

  // Create an instance of the Vehicle class
  const vehicle = new Vehicle('Ford', 'F-150', 2020);

  // Display vehicle details
  console.log('Vehicle Details:');
  vehicle.displayDetails();

  // Create an instance of the Car class
  const car = new Car('Honda', 'Accord', 2023, 4);

  // Display car details
  console.log('\nCar Details:');
  car.displayDetails();
```

```
[Running] node "c:\Users\reyes\Documents\Javascript Lessons\JSExercises\car.js"
Vehicle -1 Details:
Name: Honda
Model: mobilio
Color: undefined
Color: White
Vehicle -2 Details:
Name: Toyota
Model: fortuner
Color: undefined
Color: Blue

[Done] exited with code=0 in 0.12 seconds

[Running] node "c:\Users\reyes\Documents\Javascript Lessons\JSExercises\tempCodeRunnerFile.js"
Vehicle Details:
Make: Ford
Model: F-150
Year: 2020

Car Details:
Make: Honda
Model: Accord
Year: 2023
Doors: 4
```

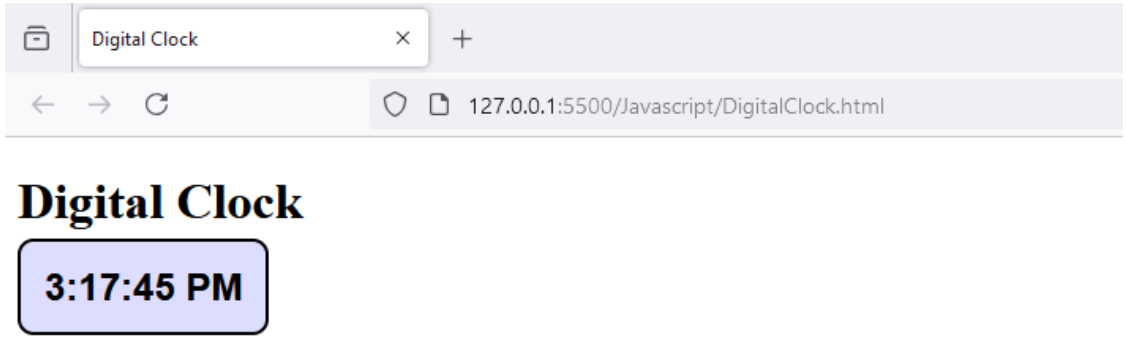
JAVASCRIPT IN WEB BROWSERS

JAVASCRIPT IN WEB BROWSERS

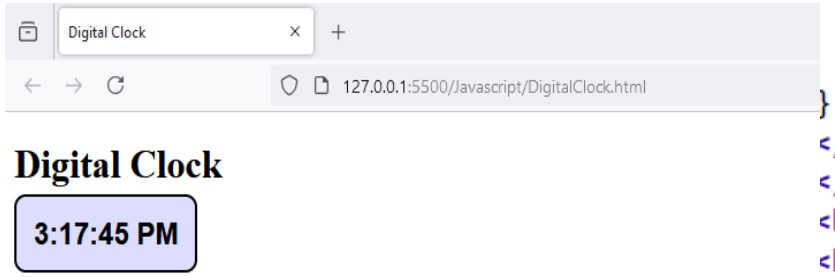
- JavaScript language was created in 1994 with the express purpose of enabling dynamic behavior in the documents displayed by web browsers.
- The language has evolved significantly since then, and at the same time, the scope and capabilities of the web platform have grown explosively.
- The first part, we described the web platform's programming model, how scripts are embedded within the HTML pages, how Javascript code is triggered asynchronously by events.
- Javascript has several APIs that enable web applications to do:
    1. Control document content and style
    2. Determine the on-screen position of document elements
    3. Create reusable user interface components
    4. Draw graphics
    5. Play and generate sounds
    6. Manage browser navigation and history
    7. Exchange data over the network
    8. Store data on the user's computer
    9. Perform concurrent computation with threads

WEB PROGRAMMING BASICS

- This section explains how JavaScript programs for the web are structured, how they are loaded into a web browser, how they obtain input, how they produce output, and how they run asynchronously by responding to events.
- Web browsers display HTML documents. If you want a web browser to execute JavaScript code, you must include (or reference) that code from an HTML document, and this is what the HTML <script> tag does.
- JavaScript code can appear inline within an HTML file between <script> and </script> tags.
- Here, for example, is an HTML file that includes a script tag with JavaScript code that dynamically updates one element of the document to make it behave like a digital clock:



EXERCISE: DIGITAL CLOCK




```html
<!DOCTYPE html>                  <!-- This is an HTML5 file -->
<html>                           <!-- The root element -->
<head>                           <!-- Title, scripts & styles can go here -->
<title>Digital Clock</title>
<style>                          /* A CSS stylesheet for the clock */
#clock {                         /* Styles apply to element with id="clock" */
  font: bold 24px sans-serif;    /* Use a big bold font */
  background: #ddf;              /* on a light bluish-gray background. */
  padding: 15px;                 /* Surround it with some space */
  border: solid black 2px;       /* and a solid black border */
  border-radius: 10px;           /* with rounded corners. */
}
</style>
</head>
<body>                     <!-- The body holds the content of the document. -->
<h1>Digital Clock</h1>     <!-- Display a title. -->
<span id="clock"></span>   <!-- We will insert the time into this element. -->
<script>
// Define a function to display the current time
function displayTime() {
    let clock = document.querySelector("#clock"); // Get element with id="clock"
    let now = new Date();                         // Get current time
    clock.textContent = now.toLocaleTimeString(); // Display time in the clock
}
displayTime()                    // Display the time right away
setInterval(displayTime, 1000);  // And then update it every second.
</script>
</body>
</html>
```

SEATWORK #3 JAVASCRIPT

1. CREATE A PERSON OBJECT WITH (NAME, AGE, COUNTRY AND PLACE OF BIRTH)

```
[Running] node "c:\Users\reyes\Documents\Javascript Lessons\JSExercises\person.js"
Person-1 Details:
Name: Rico Galang
Age: 25
Country: Australia
Birthplace: Manila

Person-2 Details:
Name: Richard Topaz
Age: 40
Country: Netherlands
Birthplace: Sucat

Person-3 Details:
Name: Pia Lim
Age: 33
Country: Singapore
Birthplace: Rizal

Person-4 Details:
Name: Pochie Abe
Age: 26
Country: Switzerland
Birthplace: Bicol

[Done] exited with code=0 in 0.091 seconds
```

2. CREATE A CAR CLASS WITH ADDITIONAL INSTANCE OF "OWNER"

- Note: Please follow the sample Vehicle/Car.js page for more information. *The Owner Name should be your "Full Name"*

```
[Running] node "c:\Users\reyes\Documents\Javascript Lessons\JSExercises\vehicle.js"
Vehicle Details:
Make: Ford
Model: F-150
Year: 2020
Owner Name: Joshua

Car Details:
Make: Honda
Model: Accord
Year: 2023
Owner Name: Rica
Doors: 4

[Done] exited with code=0 in 0.073 seconds
```

3. CHECK IF NUMBER IS ODD OR EVEN.

```
var number = 10;
If (number % 2 === 0) {
 { console.log (It is even number");
  } else { console.log ("It is odd"):
  }
```

Console Output:

This number is Even.

4. JAVASCRIPT PROTOTYPE

- The Object.getPrototypeOf() method returns the prototype of the specified object.

```javascript
// create an empty object
let obj = {};

// create an object named person
let person = {
    name: "Patricia",
    age: 96,
}

// set person as the prototype of obj
Object.setPrototypeOf(obj, person);

// print the prototype of obj
console.log(Object.getPrototypeOf(obj));


// Output: { name: 'Vincent', age: 56 }

// check if the prototype of obj
// is equal to the person object
console.log(Object.getPrototypeOf(obj) == person)

// Output: true
```

```
[Done] exited with code=0 in 0.217 seconds

[Running] node "c:\Users\reyes\Documents\Javascript Lessons\Javascript Prototype\javascriptprototype.js"
{ name: 'Patricia', age: 96 }
true

[Done] exited with code=0 in 0.178 seconds
```

RUBRICS CRITERIA

Factors to Consider	Very Good (8-10)	Good (6-7)	Fair (3-5)	Needs Improvement (1-2)	No Output (0)
1. Working and Running Codes (no issues/defects)					
2. Completeness of activities					
3. Timeliness /Punctual Submission					
4. Readability/Clarity of Codes					
5. Knowledge Familiarity					