**CENG 256**

**Internet Programming**

**LAB 2 Part b**

**This lab does not have to be uploaded.**

**Learning Objectives:**

1. Understand the use of 1 and 2 dimensional arrays a program.
2. Understand how objects are created and used in JavaScript.
3. Understand basic techniques to manipulate the DOM.

**Question 1:**

**Part 1:**

Carefully consider the JavaScript object definition below.

**var hyundai = {**

**make:’Hyundai’,**

**model:’SantaFe’,**

**year :2010,**

**color:’blue’,**

**passengers:5,**

**convertible:false,**

**mileage:89000**

**};**

**Part 2:**

Write a JavaScript function called **printCarInfo**, that prints all the information of a car object that is passed to it.Test your function with the variable Hyundai.

**Part 3:**

Add the following HSFengine object to your code.

**var HSFengine= {**

**type:'V6',**

**size:3.5**

**};**

Now add this engine to your Hyundai object by adding the line..

**hyundai.engine=HSFengine;**

**Part 4:**

Write a JavaScript function called **printCarInfoComplete**, that prints all the information of a car object that is passed to it including the engine information. Test your function with the variable Hyundai.

**Important Note: You can add or delete properties at ANY time in JavaScript**

To delete a property you use the special keyword “delete”. For example, to delete the “convertible field” from the Hyundai object we created simply put :

**delete hyundai.convertible;**

This will not just delete the value, but the property itself. Note if you try to access the property you will simply get “undefined”. Delete returns **true** once if the property was deleted successfully or if it doesn’t exist in the object. It will return false only if it cannot delete the property which could happen if it is a protected object by the browser.

**Part 5:**

1. Create an empty object called person (copy the code below)

**var person ={};**

1. Add the following attributes: **name:Kevin, numHands: 2, numFeet:2, numtentacles:2**
2. Use the code “**console.log(person);**” to print the object information.
3. Delete the numtentacles field.
4. Use the code “**console.log(person);**” to print the object information again and confirm it is gone

**Part 6:**

Copy and paste the code into a new file called objectGenerator.html

**<!doctype html>**

**<html lang="en">**

**<head>**

**<title>Object-o-matic</title>**

**<meta charset="utf-8">**

**<script>**

**function makeCar() {**

**var makes = ["Chevy", "GM", "Fiat", "Webville Motors", "Tucker"];**

**var models = ["Cadillac", "500", "Bel-Air", "Taxi", "Torpedo"];**

**var years = [1955, 1957, 1948, 1954, 1961];**

**var colors = ["red", "blue", "tan", "yellow", "white"];**

**var convertible = [true, false];**

**var rand1 = Math.floor(Math.random() \* makes.length);**

**var rand2 = Math.floor(Math.random() \* models.length);**

**var rand3 = Math.floor(Math.random() \* years.length);**

**var rand4 = Math.floor(Math.random() \* colors.length);**

**var rand5 = Math.floor(Math.random() \* 5) + 1;**

**var rand6 = Math.floor(Math.random() \* 2);**

**var car = {**

**make: makes[rand1],**

**model: models[rand2],**

**year: years[rand3],**

**color: colors[rand4],**

**passengers: rand5,**

**convertible: convertible[rand6],**

**mileage: 0**

**};**

**return car;**

**}**

**function displayCar(car) {**

**console.log("Your new car is a " + car.year + " " + car.make + " " + car.model);**

**}**

**var carToSell1 = makeCar();**

**displayCar(carToSell1);**

**var carToSell2 = makeCar();**

**displayCar(carToSell2);**

**</script>**

**</head>**

**<body></body>**

**</html>**

Run and view the output. Press f5 (refresh) on the web browser and see the change.

**Part 7:**

Copy and complete the following code and test it.(Note: First you have to figure out what it does)

**function getSecret(file, secretPassword) {**

**\_\_\_\_\_\_\_.opened = \_\_\_\_\_\_\_.opened + 1;**

**if (secretPassword == \_\_\_\_\_\_\_.password) {**

**return \_\_\_\_\_\_.contents;**

**}**

**else {**

**return "Invalid password! No secret for you.";**

**}**

**}**

**function setSecret(file, secretPassword, secret) {**

**if (secretPassword == \_\_\_\_\_\_\_.password) {**

**\_\_\_\_\_\_.opened = 0;**

**\_\_\_\_\_\_.contents = secret;**

**}**

**}**

**var superSecretFile = {**

**level: "classified",**

**opened: 0,**

**password: 2,**

**contents: "Dr. Evel's next meeting is in Detroit."**

**};**

**var secret = getSecret(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_);**

**console.log(secret);**

**setSecret(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_, "Dr. Evel's next meeting is in Philadelphia.");**

**secret = getSecret(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_);**

**console.log(secret);**

ADDING BEHAVIOUR:

**var fiat = {**

**make: "Fiat",**

**model: "500",**

**year: 1957,**

**color: "Medium Blue",**

**passengers: 2,**

**convertible: false,**

**mileage: 88000,**

**started: false,**

**start: function() {**

**this.started = true;**

**console.log("Car Started...");**

**},**

**stop: function() {**

**this.started = false;**

**console.log("Car Stopped...turning off...");**

**alert("Car Stopped");**

**},**

**drive: function() {**

**if (this.started) {**

**console.log("Car is moving..ZOOM ZOOM.");**

**alert("Zoom zoom!");**

**} else {**

**console.log("You need to start the engine first.");**

**alert("You need to start the engine first.");**

**}**

**}**

**};**

**Part 8:**

1. Copy and paste the code into a new file called ”fullcarObject.js”.
2. Next create an html file called fullCarTester.html “to test and view the code above.
3. Add the line below to the JavaScript file in order to print the object..

Console.log(fiat);

1. View the result in the browser.
2. Try to drive the car by adding the line below to the JavaScript file

fiat.drive();

1. Add code to start, then drive, then stop then drive the car. Observe the results.

**Part 9:**

Add the following to your fiat object :

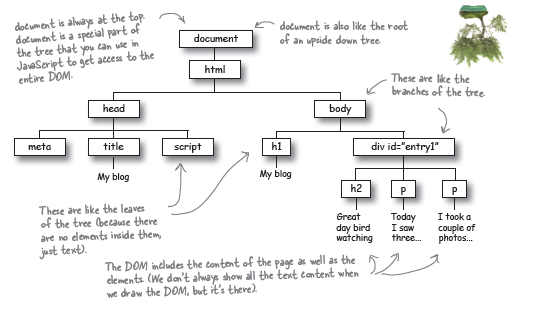
* **fuel attribute**
* **mileage attribute**
* **addFuel( amount) function**

Once these have been added, modify your code so that the following conditions are met:

1. your car **can** start without fuel (fuel >0).
2. your car **cannot** drive without fuel.
3. when you drive the car the car fuel **goes down by 1**.
4. when you drive the car, the **mileage goes up by 1500**.

Thoroughly test your car under all conditions.

DOM –Document Object Model



**Part 1:**

Function focus:

**document.getElementById**

**.innerHTML**

Create and html file called “domBasic.html” with the code below in it.

**<!doctype html>**

**<html lang="en">**

**<head>**

**<meta charset="utf-8">**

**<title>Dr. Evel's Secret Code Page</title>**

**</head>**

**<body>**

**<p id="code1">The eagle is in the</p>**

**<p id="code2">The fox is in the</p>**

**<p id="code3">snuck into the garden last night.</p>**

**<p id="code4">They said it would rain</p>**

**<p id="code5">Does the red robin crow at</p>**

**<p id="code6">Where can I find Mr.</p>**

**<p id="code7">I told the boys to bring tea and</p>**

**<p id="code8">Where's my dough? The cake won't</p>**

**<p id="code9">My watch stopped at</p>**

**<p id="code10">barking, can't fly without umbrella.</p>**

**<p id="code11">The green canary flies at</p>**

**<p id="code12">The oyster owns a fine</p>**

**<script src="code.js"></script>**

**</body>**

**</html>**

In code.js file type…

**var access = document.getElementById("code9");**

**var code = access.innerHTML;**

**code = code + " midnight";**

**alert(code);**

see the result in the browser.

**Part 2:**

**<!doctype html>**

**<html lang="en">**

**<head>**

**<meta charset="utf-8">**

**<title>Movies</title>**

**</head>**

**<body>**

**<h1>Movie Showtimes</h1>**

**<h2 id="movie1">Plan 9 from Outer Space</h2>**

**<p>Playing at 3:00pm, 7:00pm.**

**<span>**

**Special showing tonight at <em>midnight</em>!**

**</span>**

**</p>**

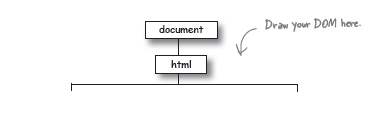
**<h2 id="movie2">Forbidden Planet</h2>**

**<p>Playing at 5:00pm, 9:00pm.</p>**

**</body>**

**</html>**

Draw the DOM for the code above



**Part 3:**

Run the following code…

**<!doctype html>**

**<html lang="en">**

**<head>**

**<meta charset="utf-8">**

**<title>Planets</title>**

**<script>**

**var planet = document.getElementById("greenplanet");**

**planet.innerHTML = "Red Alert: hit by phaser fire!";**

**</script>**

**</head>**

**<body>**

**<h1>Green Planet</h1>**

**<p id="greenplanet">All is well</p>**

**<h1>Red Planet</h1>**

**<p id="redplanet">Nothing to report</p>**

**<h1>Blue Planet</h1>**

**<p id="blueplanet">All systems A-OK</p>**

**</body>**

**</html>**

When you ran the code above you may not have seen anything happen. This is because the code ran **before** the page was fully loaded and the DOM was created.

To ensure this runs after the page has loaded, we put it in a function, the use window.onload ( example shown below)

**function init() {**

**var planet = document.getElementById("greenplanet");**

**planet.innerHTML = "Red Alert: hit by phaser fire!";**

**}**

**window.onload = init;**

Try it and check the output.

**Part 4:**

The example below shows how to set an attribute to an element.

**<!doctype html>**

**<html lang="en">**

**<head>**

**<meta charset="utf-8">**

**<title>Planets</title>**

**<style>**

**.redtext { color: red; }**

**</style>**

**<script>**

**function init() {**

**var planet = document.getElementById("greenplanet");**

**planet.innerHTML = "Red Alert: hit by phaser fire!";**

**planet.setAttribute("class", "redtext");**

**}**

**window.onload = init;**

**</script>**

**</head>**

**<body>**

**<h1>Green Planet</h1>**

**<p id="greenplanet">All is well</p>**

**<h1>Red Planet</h1>**

**<p id="redplanet">Nothing to report</p>**

**<h1>Blue Planet</h1>**

**<p id="blueplanet">All systems A-OK</p>**

**</body>**

**</html>**

**Basic DOM manipulation functions (Summary)**

**document.getElementById**

**.innerHTML**

**planet.setAttribute("class", "redtext");**

**var info = planet.getAttribute("redtext");**