Day School Javascript Programming Workshop

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I have put this tutorial workshop on the web. This tutorial can be viewed and downloaded from http://www.users.totalise.co.uk/~rifat then selecting M150 then Day School and Programming Workshop then click on Javascript Programming Workshop. Working solutions for questions (4) to (7) can be tested and viewed on my website.

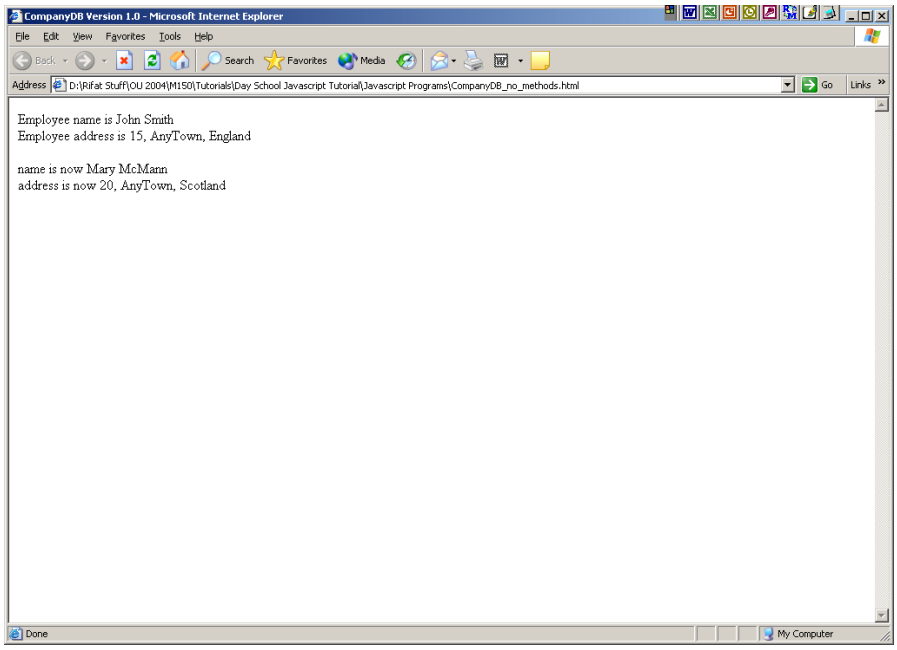
1) Implement a custom object called EmployeeType that take 3 parameters; Full Name, Address and Salary?

2) To the constructor function you designed in Question (1) add the following 3 methods :

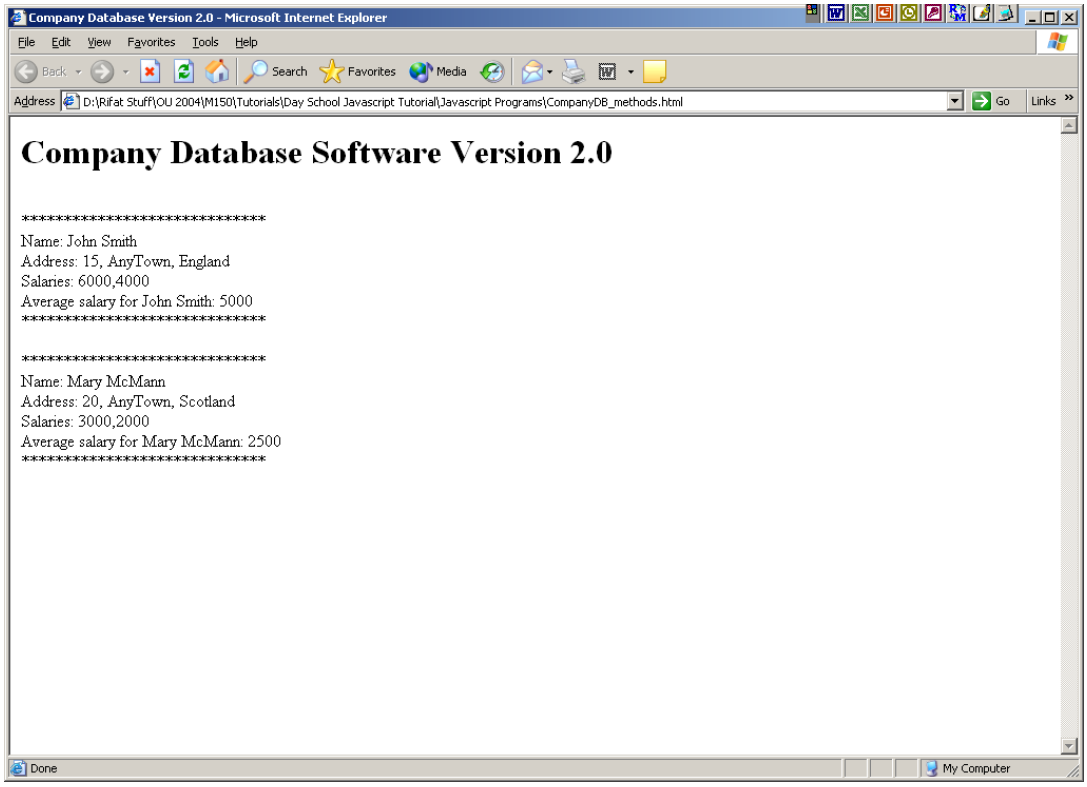
a) method for inputting previous year salaries of the employee
b) method for calculating and displaying the average salary
c) method for displaying the employee's details

3) Implement the 3 methods mentioned in Question (2)

4) Using the custom object you defined in Questions (1) write using Javascript a simple database application for the company to add and display details for its employees. For this tutorial assume the maximum number of employees is 2 and just write data internally to the object. The output should looks something like in the following figure :

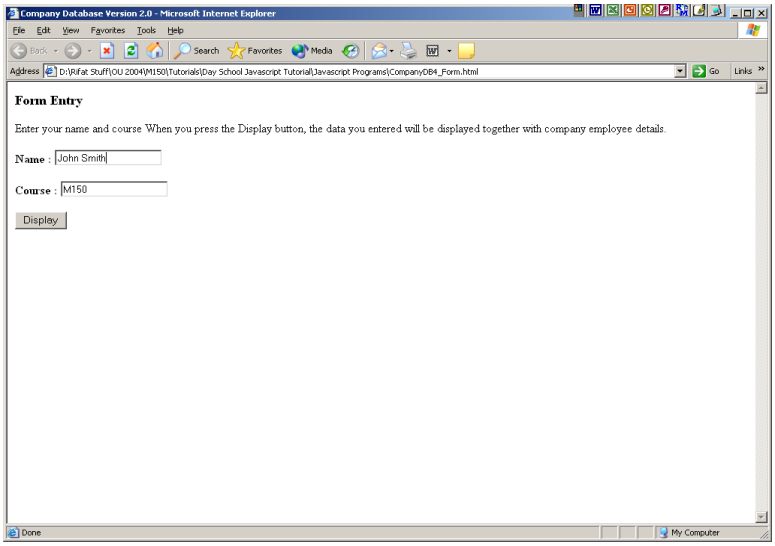


5) Using the custom object and methods you defined in Questions (1) to (3) write using Javascript a simple database application for the company to add and display details for its employees. Make sure you implement the methods and use those in the question. For this tutorial assume the maximum number of employees is 2 and just write data internally to the object. The output should look like the following figure :

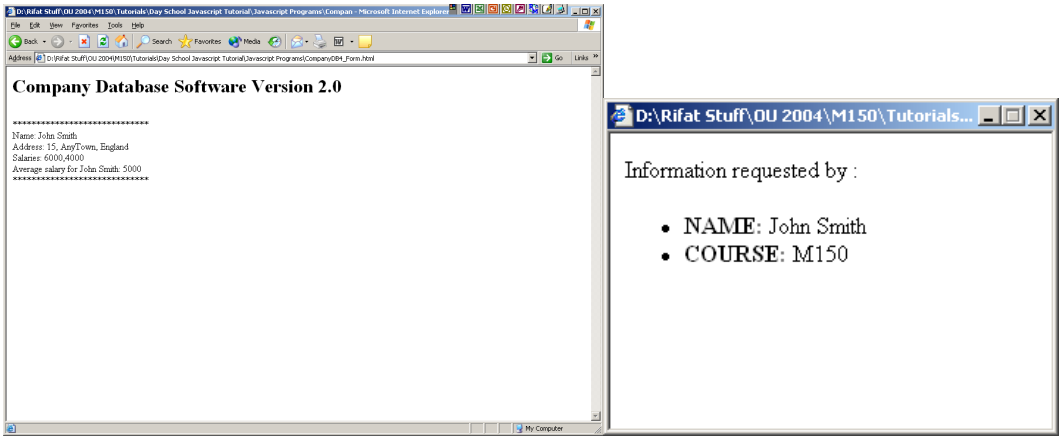


6) Repeat the implementation you did in Question (5) but this time put all the custom object and method implementations in a javascript library called EmployeeLib. What is the advantages and disadvantages of implementing your software this way?

7) Repeat the implementation in (6) but this time within your software put a form that takes in 2 fields; the name and OU course of the person using the software. Also a button called Display. When the user types his/her name and OU course details the software should display the employee's details in the company and open and new window with the name and OU course of the user. Here just implement the software to have one employee record. The output should look like the following figure :



Input form



Output display

Answer to Question 1

```
/* constructor function */

function EmployeeType(aFullName, aAddress, aSalary)
{
 //object properties

   this.FullName = aFullName;
   this.Address = aAddress;
   this.Salary = aSalary;
};
```

Answer to Question 2

```
/* constructor function */

function EmployeeType(aFullName, aAddress, aYearsWorked)
{
 //object properties

   this.FullName = aFullName;
   this.Address  = aAddress;
   this.Years    = new Array(aYearsWorked);

 //object methods

   this.UpdateSalary   = Input_Salary;
   this.AverageSalary  = Disp_Average_Salary;
   this.Display = Disp_Employee;
};
```

Answer to Question 3

```
function Input_Salary(Num_Years, Salary)
{
        // arrays in Javascript are zero based
        // so we deduct 1 from the year number

        this.Years[Num_Years - 1] = Salary
};
```

```
function Disp_Average_Salary()
{
	var total = 0;
	var average;
	var index;

	for (index = 0; index < this.Years.length; index = index + 1)
	{
		total = total + this.Years[index]
	};

	average = total / this.Years.length;
	document.write('Average salary for ' + this.FullName + ': '+ average +'<BR>');
	document.write('*****************************<BR>');
	document.write('<BR>')
};


function Disp_Employee()
{
	document.write('*****************************<BR>');
	document.write('Name: ' + this.FullName);
	document.write('<BR>');
	document.write('Address: ' + this.Address);
	document.write('<BR>');
	document.write('Salaries: ' + this.Years.toString());
	document.write('<BR>')
};
```

Answer to Question 4

```
<HTML>
<HEAD>
<TITLE> CompanyDB Version 1.0 </TITLE>
<SCRIPT LANGUAGE = "JavaScript" type = "text/javascript">


/*
 *        Company Database Software
 *
 *        Written by : Rifat Hamoudi
 */



/* constructor function provided */

function EmployeeType(aFullName, aAddress, aSalary)
{
 //object properties

   this.FullName = aFullName;
   this.Address = aAddress;
   this.Salary = aSalary;
};



var Employee = new EmployeeType('John Smith', '15, AnyTown, England', '10000');
document.write('Employee name is ' + Employee.FullName);
document.write('<BR>');
document.write('Employee address is ' + Employee.Address);
document.write('<BR>');

Employee.FullName = 'Mary McMann';
Employee.Address = '20, AnyTown, Scotland';

document.write('<BR>');
document.write('name is now ' + Employee.FullName);
document.write('<BR>');
document.write('address is now ' + Employee.Address)

</SCRIPT>
</HEAD>
<BODY>
</BODY>
</HTML>
```

Answer to Question 5

```
<HTML>
<HEAD>
<TITLE> Company Database Version 2.0 </TITLE>
<SCRIPT LANGUAGE = "JavaScript" type = "text/javascript">

/*
 *          Company Database Software
 *
 *          Written by : Rifat Hamoudi
 */



/* constructor function provided */

function EmployeeType(aFullName, aAddress, aYearsWorked)
{
 //object properties

   this.FullName = aFullName;
   this.Address  = aAddress;
   this.Years    = new Array(aYearsWorked);

 //object methods

   this.UpdateSalary          = Input_Salary;
   this.AverageSalary         = Disp_Average_Salary;
   this.Display      = Disp_Employee;
};


function Input_Salary(Num_Years, Salary)
{
          // arrays in Javascript are zero based
          // so we deduct 1 from the year number

          this.Years[Num_Years - 1] = Salary
};



function Disp_Average_Salary()
{
          var total = 0;
          var average;
          var index;

          for (index = 0; index < this.Years.length; index = index + 1)
          {
                    total = total + this.Years[index]
          };

          average = total / this.Years.length;
          document.write('Average salary for ' + this.FullName + ': '+ average +'<BR>');
          document.write('*****************************<BR>');
          document.write('<BR>')
};
```

```
function Disp_Employee()
{
        document.write('*****************************<BR>');
        document.write('Name: ' + this.FullName);
        document.write('<BR>');
        document.write('Address: ' + this.Address);
        document.write('<BR>');
        document.write('Salaries: ' + this.Years.toString());
        document.write('<BR>')
};


function Disp_Title()
{
        document.write('<H1>Company Database Software Version 2.0</H1>');
        document.write('<BR>')
};

var Employee1 = new EmployeeType('John Smith', '15, AnyTown, England', 2);
var Employee2 = new EmployeeType('Mary McMann', '20, AnyTown, Scotland', 2);

Disp_Title();

Employee1.UpdateSalary(1, 6000);
Employee1.UpdateSalary(2, 4000);
Employee1.Display();
Employee1.AverageSalary();

Employee2.UpdateSalary(1, 3000);
Employee2.UpdateSalary(2, 2000);
Employee2.Display();
Employee2.AverageSalary();

</SCRIPT>
</HEAD>
<BODY>
</BODY>
</HTML>
```

Answer to Question 6

Contents of EmployeeLib.js file

```
/* File implements the Employee object type */

/*****************************************************************************/
/* Constructor function for creating Employee objects.                       */
/* Function takes three arguments:                                           */
/* aFullName - a string representing the employee's name.                    */
/* aAddress - a string representing the employee's address.                  */
/* aYearsWorked - the number number of years the employee worked in company. */
/*****************************************************************************/

function EmployeeType(aFullName, aAddress, aYearsWorked)
{
 //object properties

   this.FullName = aFullName;
   this.Address  = aAddress;
   this.Years    = new Array(aYearsWorked);

 //object methods

   this.UpdateSalary      = Input_Salary;
   this.AverageSalary     = Disp_Average_Salary;
   this.Display     = Disp_Employee;
};


/*****************************************************************************/
/* Function assigned to the UpdateSalary method in the constructor function. */
/* Function adds a the salaries from previous years.                         */
/* Function takes two arguments:                                             */
/* Year_Num - a number representing the number of the years                  */
/*        for which the employer is worked for.                              */
/* Salary - a number representing the salary for the employee in that year.  */
/* Function returns no value.                                                */
/*****************************************************************************/

function Input_Salary(Year_Num, Salary)
{
        // arrays in Javascript are zero based
        // so we deduct 1 from the year number

        this.Years[Year_Num - 1] = Salary
};
```

```
/*****************************************************************************
/* Function assigned to the AverageSalary method in the constructor function.  */
/* Function takes no arguments.                                                */
/* Function displays the average salary on the current page.                   */
/* Function returns no value.                                                  */
/*****************************************************************************/

function Disp_Average_Salary()
{
        var total = 0;
        var average;
        var index;

        for (index = 0; index < this.Years.length; index = index + 1)
        {
                total = total + this.Years[index]
        };

        average = total / this.Years.length;
        document.write('Average salary for ' + this.FullName + ': '+ average +'<BR>');
        document.write('*****************************<BR>');
        document.write('<BR>')
};


/*****************************************************************************/
/* Function assigned to the display method in the constructor function.        */
/* Function takes no arguments.                                                */
/* Function displays the employee's details (name, address,                    */
/* and salaries) on the current page.                                          */
/* Function returns no value.                                                  */
/*****************************************************************************/

function Disp_Employee()
{
        document.write('*****************************<BR>');
        document.write('Name: ' + this.FullName);
        document.write('<BR>');
        document.write('Address: ' + this.Address);
        document.write('<BR>');
        document.write('Salaries: ' + this.Years.toString());
        document.write('<BR>')
};


/*****************************************************************************/
/* Function assigned to the display software title.                            */
/* Function takes no arguments.                                                */
/* Function displays the software title                                        */
/* Function returns no value.                                                  */
/*****************************************************************************/

function Disp_Title()
{
        document.write('<H1>Company Database Software Version 2.0</H1>');
        document.write('<BR>')
};
```

Contents of the main program file

```
<HTML>
<HEAD>
<TITLE> Company Database Version 2.0 </TITLE>
<SCRIPT SRC = "EmployeeLib.js"></SCRIPT>
<SCRIPT LANGUAGE = "JavaScript" type = "text/javascript">


/*
 *       Company Database Software
 *
 *       Written by : Rifat Hamoudi
 */


var Employee1 = new EmployeeType('John Smith', '15, AnyTown, England', 2);
var Employee2 = new EmployeeType('Mary McMann', '20, AnyTown, Scotland', 2);

Disp_Title();

Employee1.UpdateSalary(1, 6000);
Employee1.UpdateSalary(2, 4000);
Employee1.Display();
Employee1.AverageSalary();

Employee2.UpdateSalary(1, 3000);
Employee2.UpdateSalary(2, 2000);
Employee2.Display();
Employee2.AverageSalary();

</SCRIPT>
</HEAD>
<BODY>
</BODY>
</HTML>
```

Answer to Question 7

Contents of the main file

```
<HTML>
<HEAD>
<TITLE> Company Database Version 2.0 </TITLE>
<SCRIPT SRC = "EmployeeLib.js"></SCRIPT>
<SCRIPT LANGUAGE = "JavaScript" type = "text/javascript">

/*
 *          Company Database Software
 *
 *          Written by : Rifat Hamoudi
 */

function showData()
{
          DispWin = window.open('','NewWin', 'toolbar=no,status=no,width=300,height=200')
          message = "Information requested by :";
          message += "<ul><li><b>NAME: </b>" + document.form1.name.value;
          message += "<li><b>COURSE: </b>" + document.form1.course.value;
          DispWin.document.write(message);


          Disp_Title();

          var year1 = 1;
          var year2 = 2;
          var Salary1 = 6000;
          var Salary2 = 4000;

          var Employee1 = new EmployeeType('John Smith', '15, AnyTown, England', 2);

          Employee1.UpdateSalary(year1, Salary1);
          Employee1.UpdateSalary(year2, Salary2);
          Employee1.Display();
          Employee1.AverageSalary()
};

</SCRIPT>
</HEAD>
<BODY>

<H3>Form Entry</H3>

Enter your name and course When you press the Display button, the data you
entered will be displayed together with company employee details.

<FORM name = "form1">

<p><b>Name    : </b> <input TYPE="TEXT" SIZE="20" NAME="name"></p>

<p><b>Course  : </b> <input TYPE="TEXT" SIZE="20" NAME="course"></p>

<p><input TYPE="BUTTON" VALUE="Display" onClick="showData();"></p>

</FORM>

</BODY>
</HTML>
```

P.S. : This file also need EmployeeLib.js which is listed in Answer (6)