Assignment 2 – Control Statements I

Due Wednesday, May 22, 2013

For this assignment, please note that NO jQuery may be used. You must write everything in core JavaScript

1) Drivers are concerned with the mileage obtained by their automobiles. One driver has kept track of several tankfuls of gasolie by recording the number of miles driven and the number of gallons used for each thankful. Develop a script that will take as input the miles driven and gallons used (both as integers), for each thankful. The script should calculate and output HTML5 text that displays the number of miles per gallon obtained for each thankful and prints the combined number of miles per gallon obtained for all tankfuls up to this point. Use prompt dialogs to obtain the data from the users. *Use your own made-up data to solve the problem.*

2) A large company pays its salespeople on a commission basis. The salespeople receive $200 per week, plus 9 percent of their gross sales for the week. For example, a salesperson who sells $5000 worth of merchandise in a week receives $200 plus 9 percent of $5,000, or a total of $650. You have been supplied with a list of the items sold by each salesperson. The value of these items are as follows:

Item	Value
1	239.99
2	129.75
3	99.95
4	350.89

Develop a script that inputs one salesperson's items sold for last week, calculates the salesperson's earnings, and outputs HTML5 text that displays the salesperson's earnings.

3) Develop a script that will determine the gross pay for each of three employees. The company pays "straight time" for the first 40 hours worked by each employee and pays "time and a half" for all hours worked in excess of 40 hours. You're given a list of the employees of the company, the number of hours each employee worked last week, and the hourly rate of each employee. Your script should input this information for each employee, determine the employee's gross pay and output HTML5 text that displays the employee's gross pay. Use prompt dialogs to input the data. Some sample data:

Employee Number	Number of Hours Worked Last Week	Hourly Rate For Each Employee
1	40	22.25
2	55	27.35
3	43	19.76
4	35	20.03
5	61	31.02
6	12	21.05

Challenge (coming later but you can attempt): Can you put the information in a JSON or XML file, have your program read that file, and then print the resulting data. What if this info was in a DB … AJAX

4) The process of finding the largest value (i.e. the maximum of a group of values) is used frequently in computer applications. For example, a script that determines the winner of a sales contest would input the number of units sold by each salesperson. The salesperson who sells the most units wins the content. Write a script that inputs a series of 10 single-digit numbers as characters **{eg. 6, 7, 3, 6, 4, 2, 5, -7, 1, 2}** determines the largest of the numbers, and outputs a message that displays the largest number. Your script should use three variables: counter, number (the current digit input to the script, largest (the largest number found so far). Note that you can also change the program to be sentinel controlled to end whenever the user specifies, dealing with an unspecified data range.

5) Write a script that outputs HTML5 text that keeps displaying in the browser window the multiples of the integer 2 – namely, 2, 4, 8, 16, 32, 64, etc. Your loop should *not terminate (make it an infinite loop).* What happens when you run this script?

6) A company wants to transmit data over the telephone, but it's concerned that its phones may be tapped. All of its data is transmitted as four-digit integers. It has asked you to write a script that will encrypt its data so that the data may be transmitted more securely. Your script should read a four digit integer entered by the user in a prompt dialogue and encrypt it as follows:

    a. Replace each digit by modulus 10 (which means the sum of that digit + 7)
    b. Swap the first digit with the third
    c. Swap the second digit with the fourth

    Output text that displays the encrypted integer.

7) **<u>This question continues from 6.</u>** Write a script that inputs the four digit encrypted integer from question 7, and decrypts it to form the original number.

8) A palindrome is a number or a text phrase that reads the same backward and forward. For example, each of the following five-digit integers is a palindrome: 12321, 55555, 45554, 11611. Write a script that reads in a five-digit integer and determines whether it's a palindrome. If the number is not five digits long, display an alert dialog indicating the problem to the user. Allow the user to enter a new value after dismissing the alert dialogue. [hint: try using both division and remainder operations to "pick-off" each digit]