

CGS 3066: Fall 2016

Homework 3

Total Points: 100

Due: Thursday 11/17/2016

This homework is on JavaScript programming, focusing on JavaScript control structures, objects and arrays. This homework needs to be turned in on paper in class on the due date. You don't have to turn it in on the server. Also, you only need to write the JavaScript part of the code. You don't need to write any HTML/CSS. Please include a short description before the code that explains your approach to the solution and how you translated the steps into code.

Problem 1 - 50 points

Write a JavaScript program to find the average of the factorial of the numbers in an array.

- Create an array with 10 random positive integers.
- Create a function to find the factorial of a number. A factorial is defined as the product of all numbers from 1 to that number.
- Iterate through the array to sum up the factorials and then find their average.
- Print the average in an alert box.

Problem 2 - 50 points

Write a JavaScript program to count the occurrences of each vowel in a string.

- Read in a string from the user. You can assume the input will come in from a text box called "sentence" in a form called "inputForm".
- Initialize 5 count variables, one for each vowel.
- Iterate through the string and increment the appropriate vowel count if a vowel is found.
- Print the result through the console log.

Problem 3 - Extra Credit: 50 points

Write a JavaScript program to change the page contents based on user input.

- Create an array of objects where each object consists of 2 properties - name and imageURL. You can initialize them to the following:
 1. Name: Spongebob Squarepants.
ImageURL: sponge.png
 2. Patrick Star
ImageURL: star.jpg

3. Name: Squidward Tentacles
ImageURL: squid.jpg
 4. Name: Sheldon J Plankton
ImageURL: plankton.png
- Write a function called “change”. You can assume it will be triggered by pressing a button.
 - In the function, read in a number from the user. You can assume this comes from a form called “myForm” with a text box called “character”.
 - Change the inner HTML of a paragraph with the id “charName” to the name of the corresponding character. For example, if the user had 1, set the paragraph to say “Spongebob Squarepants”
 - Similarly, change the href for an image tag with the id “charImg” to the corresponding ImageURL.
 - If the user has an invalid number, set the paragraph to say “invalid”. Don’t change the image.