CMIS 102: Introduction to Programming

Assignment 4: Repetition Structure Programs

Summary:

This assignment has two different parts. All parts will require you to write a Program Design Document to include which you will upload as an attachment to LEO within a Word document:

1. Written specifications in your own words
2. Algorithm design with flowchart describing program sequential processing.
3. Known test data which will test each branch of selection structures.

Program Implementation needs to be demonstrated for each part by creating a JavaScript program. You will need to provide a link to your working program by submitting through the LEO assignments folder. Do NOT upload html or image files to LEO just provide the link.

This assignment is due at the beginning of the first class week 6 and is worth 30 points. I will only grade this assignment once so please make sure you have attached all documentation that you would like me to grade. I only accept paper not emails on these assignments. Late assignments will be reduced 20% for each class period late.

Part A: Average Age Calculator – 10 Points

Program Requirements:

Design and implement a program will calculate the average age of any number of people using sentinel controlled loop:

1. Name your file **`AverageAge.html`**
2. The number of people may very so utilize a sentinel value to end input.
3. Do not accept negative values for age calculations.
4. Display your name as the programmer.
5. Verify your design and program using valid test data and correct your design if necessary.

Part B: Guessing Game Program – 20 Points

Program Requirements:

Design and implement a program that will be a guessing game program with filename **GuessGame`.html`**. The program will begin by generating a random integer number between zero and nine. The player will try to guess this number and the computer will display "Too High", "Too Low", or "You Win" as appropriate. The program will allow the user four attempts at guessing the number before displaying "You Lose, the number was x." The program must accept only numerical entries between 0 and 9.

After you verified your program runs for numbers between 0 and 9 with 4 attempts, then you may make it more advanced with a wider range and more attempts.

A good source for information on the JavaScript language and it random number function is at the website: http://www.w3schools.com/jsref/jsref_obj_math.asp

JavaScript random() Method

JavaScript Math Object

Definition and Usage

The random() method returns a random number between 0 and 1.

Syntax

Math.random()

Example:

```
 //return a random number between 0 and 1
document.write(Math.random() + "<br />");
//return a random integer between 0 and 10
document.write(Math.floor(Math.random()*11));
```

The output of the code above can be:

0.4904839569921399

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JavaScript floor() Method

JavaScript Math Object

Definition and Usage

The floor() method rounds a number DOWNWARDS to the nearest integer, and returns the result.

Syntax

Math.floor(x)

Example:

```
document.write(Math.floor(0.40) + "   ");
document.write(Math.floor(5.1) + "   ");
document.write(Math.floor(-5.9));
```

The output of the code above will be: 0 5 -6