CS 106: Web Technology - I Assignment #4

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Javascript Function

To create a function we can use a function declaration.

fn1.js

```
function showMessage() {
  alert( 'Hello everyone!' );
}
```

fn2.js

```
function name(parameter1, parameter2, ... parameterN) {
    ...body...
    }
```

Our new function can be called by its name: showMessage().

fn2.js

```
function showMessage() {
  alert( 'Hello everyone!' );
}

showMessage();
showMessage();
```

Default Values

If a function is called, but an argument is not provided, then the corresponding value becomes undefined.

For instance, the aforementioned function showMessage(from, text) can be called with a single argument:

fn3.js

```
function showMessage(from,text="no text given") {
    alert( from + ": " + text );
}

showMessage("Ann"); // Ann: no text given
```

Function Expressions

In JavaScript, a function is not a “magical language structure”, but a special kind of value.
We have here two types of function implementation:

- Function Declaration
- Function Expression

fn4.js

```
function sayHi() {
    alert( "Hello" );
}

let sayHi = function() {
  alert( "Hello" );
};

// remeber the semi-colon at the end.

let func = sayHi;

func(); // It will do same as sayHi()
```

Callback Functions

fnCallback.js

```
function ask(question, yes, no) {
  if (confirm(question)) yes()
  else no();
}

function showOk() {
  alert( "You agreed." );
}

function showCancel() {
  alert( "You canceled the execution." );
}

// usage: functions showOk, showCancel
// are passed as arguments to ask
ask("Do you agree?", showOk, showCancel);
```

Info: The arguments showOk and showCancel of ask are called callback functions or just callbacks.

fnCallbackMore.js

```
function ask(question, yes, no) {
  if (confirm(question)) yes()
  else no();
}

ask(
  "Do you agree?",
  function() { alert("You agreed."); },
  function() { alert("You canceled the execution."); }
);
```

Lab Objective

Learn about JS functions

1. To learn about the box model and styling with the layouts.
2. To learn about the controls with pseudo classes

Info: Begin by trying the demonstration version in link below. Each of the ten buttons correspond to one of ten pure functions. Your job is to "reverse engineer" each and then write your own version of that function. The file lab2-io.js supplied with the starter archive contains the JavaScript functions invoked by clicking the buttons as specified in lab2.html. Each of those functions is a wrapper around a corresponding pure function. For example, the second, emphasizeTester prompts the user for some text, passes that string of text as an argument to the pure function emphasize which returns another string which is displayed using alert. http://science.slc.edu/msiff/courses/webp/labs/2/lab2-demo.html

Below are the questions that you will implment using functions.

Question 1

square takes as input a number and returns another number.

Question 2

emphasize takes as input a string and returns another string.

Condition: The emphasize will output a bold and italic statement.

Question 3

isShortOrLong takes as input a string and returns a Boolean value.

Condition: A short number is a telephone number that is shorter than the standard 7 or 10 digit number

Question 4

isTriple takes as input a number and returns a Boolean value.

Question 5

triangle takes as input a number and returns another number.

Question 6

xor takes as input two Boolean values and returns another Boolean value.

Question 7

isYesOrNo takes as input a string and returns a Boolean value.

Condition: String will consist at least one 'o'. o for orange.

Question 8

oddNotSmall takes as input a number and returns a Boolean value.

Question 9

round takes as input a number and returns another number.

Question 10

mystery takes two inputs, the first a number, the second a string, and returns a Boolean value.

The mystery function will return true if and only if the length of string is equal to the value provided in the number.

Info: Numbers

- A triple number is a number that is equal to the sum of three equal numbers, i.e. it is 3 times the value of a single number. For example, 6 is a triple of 2 ($6 = 2 + 2 + 2$).
- A triangle number is a number that represents the number of dots or objects arranged in an equilateral triangle shape. They are called triangle numbers because they form a triangular pattern when arranged in rows. Triangle numbers can be calculated as $n(n+1)/2$, where n is an positive integer. For example, the first 5 triangle numbers are 1, 3, 6, 10, 15.
- A mystery number is a number that is deliberately concealed or unknown, often used in mathematical puzzles or games. The challenge is to determine the value of the mystery number through a series of clues or mathematical operations. The concept of mystery numbers can also be applied to cryptography and secret codes.