# Homework: Functions and Function Expressions

This document defines the homework assignments from the ["OOP" Course @ Software University](https://softuni.bg/trainings/coursesinstances/details/8). Please submit as homework a single zip / rar / 7z archive holding the solutions (source code) of all below described problems.

## Function Playground

Create a **function** with no parameters. Perform the following operations:

* The function should print the number of its arguments and each of the arguments' type.
  + Call the function with different number and type of arguments.
* The function should print the **this** object. Compare the results when calling the function from:
  + Global scope
  + Function scope
  + Over the object
  + Use **call** and **apply** to call the function with parameters and without parameters

## DOM Traversal

You are given an HTML file. Write a function that traverses all **child elements** of an **element** by a **given CSS selector** and prints all found elements in the format:

***<Element name>***: id="***<id>***", class="***<class>***"

Print each element on a new line. **Indent** child elements.

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| **Sample Code** | **Sample Output** |
| var selector = ".birds";  traverse(selector); | h2: class="birds-heading"  ul: class="birds-list"  li: class="bird"  li: class="bird"  ul:  li: class="sub-bird"  li: class="sub-bird"  li: id="eagle" class="bird"  li: class="bird"  li: class="bird"  li: class="bird" |

## DOM Manipulation

Create an **IIFE module** for working with the **DOM** **tree**. The module should support the following operations:

* **Adding** а DOM **element** to a **parent element** specified by **selector**
* **Removing** a **child element** from a **parent** specified by **selector**
* **Attaching** an **event** to a given **selector** by given **event type** and **event hander**
* **Retrieving** elements by a given CSS **selector**

The module should reveal only its **methods** (i.e. everything else should be encapsulated).

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| **Sample Code** |
| var liElement = document.createElement("li");  // Appends a list item to ul.birds-list  domModule.**appendChild**(liElement,".birds-list");  // Removes the first li child from the bird list  domModule.**removeChild**("ul.birds-list","li:first-child");  // Adds a click event to all bird list items  domModule.**addHandler**("li.bird", 'click', function(){ alert("I'm a bird!") });  // Retrives all elements of class "bird"  var elements = domModule.**retrieveElements**(".bird"); |

## Console Module

Create a **module** for working with the console object. The module should support the following functionality:

* Writing a line to the console
* Writing a line to the console using **formatting** (with placeholders)
* Writing to the console should call **toString()** to each element
* Writing **errors** and **warnings** to the console with and without format

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| **Sample Code** |
| specialConsole.**writeLine**("Message: hello");  specialConsole.**writeLine**("Message: {0}", "hello");  specialConsole.**writeError**("Error: {0}", "A fatal error has occurred.");  specialConsole.**writeWarning**("Warning: {0}", "You are not allowed to do that!"); |