Front-end Advanced

Training Assignment

Document Code	25e-BM/HR/HDCV/FSOFT
Version	1.1
Effective Date	7/1/2019

Hanoi, mm/yyyy

RECORD OF CHANGES

No	Effective Date	Change Description	Reason	Reviewer	Approver
1	30/May/2019	Create a new assignment	Create new	DieuNT1	VinhNV
2	07/Jun/2019	Update Fsoft Template	Update	DieuNT1	VinhNV

Contents

FRESHER ACADEMY	**CODE:** **JS-A.S.A201**
	TYPE: **Medium**
	LOC: **300**
	DURATION: **120**

Unit 2-3: Scope, Hoisting and Closure

Objectives:

- Understand Advanced JavaScript concepts such as: Scope, Closure, Hoisting
- Abble to regcognize variable's scope to determine it's value at runtime with ease (including nested scope)
- Able to reason about value of variable in case of Hosting
- Able to recognize and use closure to to solve common problems

Problem 01

What's the result of executing this code and why?

```
1.  function test() {
2.    console.log(a);
3.    console.log(foo());
4.
5.    var a = 1;
6.    function foo() {
7.      return 2;
8.    }
9.  }
10.
11. test();    undefined
                2
```

Problem 02

What's the result of executing this code and why?

```
1.  function someFunction(number) {
2.    function otherFunction(input) {
3.      return a;
4.    }
5.
6.    a = 5;
7.
8.    return otherFunction;
9.  }
10.
11. var firstResult = someFunction(9);
12. var result = firstResult(2);     not a function
```

Problem 03

Evaluate the code below. What's the result and why?

```
1.  var a = 1;
2.  function b() {
3.    a = 10;
4.    return;
5.    function a() {}
6.  }
7.  b();
8.  console.log(a);
```

Problem 04

Consider the following JavaScript code (saved in file **main.js**):

```
1.  var nodes = document.getElementsByTagName('button');
2.  for (var i = 0; i < nodes.length; i++) {
3.      nodes[i].addEventListener('click', function() {
4.          console.log('You clicked element #' + i);
5.      });
6.  }
```

And the following HTML code:

```
1.  <!DOCTYPE html>
2.  <html lang="en">
3.  <head>
4.      <meta charset="UTF-8">
5.      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6.      <meta http-equiv="X-UA-Compatible" content="ie=edge">
7.      <title>Closure</title>
8.  </head>
9.  <body>
10.     <button>Button 1</button>
11.     <button>Button 2</button>
12.     <button>Button 3</button>
13.     <button>Button 4</button>
14.     <script src="main.js"></script>
15. </body>
16. </html>
```

What will be printed on the console if a user clicks the first and the fourth button in the list? Why?
How to fix problem above?