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Launch School
Introduction to Programming With JavaScript
More Stuff – Exercises

1: This exercise asks us what the following code logs to the console:

```
let array1 = [1, 2, 3];
let array2 = array1;
array1[1] = 4;
console.log(array2);
```

The answer is that it logs [1, 4, 3]. This is because array1 and array2 are both storing a reference to the same place in the memory heap, and so when the object that array1 is pointing to is mutated, so does the object that array2 is pointing to (since it is the same one.)

2: This exercise asks us to explain what the following error message and stack trace tells us:

```
$ node exercise2.js
/Users/wolfy/tmp/exercise2.js:4
  console.log(greeting);
              ^

ReferenceError: greeting is not defined
    at hello (/Users/wolfy/tmp/exercise2.js:4:15)
    at Object.<anonymous> (/Users/wolfy/tmp/exercise2.js:13:1)
    at Module._compile (internal/modules/cjs/loader.js:721:30)
    at Object.Module._extensions..js (internal/modules/cjs/loader.js:732:10)
    at Module.load (internal/modules/cjs/loader.js:620:32)
    at tryModuleLoad (internal/modules/cjs/loader.js:560:12)
    at Function.Module._load (internal/modules/cjs/loader.js:552:3)
    at Function.Module.runMain (internal/modules/cjs/loader.js:774:12)
    at executeUserCode (internal/bootstrap/node.js:342:17)
    at startExecution (internal/bootstrap/node.js:276:5)
```

The answer is that the error message tells us that the variable greeting which our program exercise2.js tried to call was not defined. The stack trace also tells us that this error was thrown inside a function named hello, at line 4 column 15 of the exercise2.js program, which itself was called at line 13 column 1 of the program.

3: This exercise asks us to write some code to output the square root of 37. I did this as follows:

```
console.log(Math.sqrt(37));
```

4: This exercise asks us to write some code to output the maximum value of a list of numbers. I did this as follows:

```
console.log(Math.max(1,6,3,2));
console.log(Math.max(-1,-6,-3,-2));
console.log(Math.max(2,2));
```

5: This exercise asks us to explain what the following function does:

```
function doSomething(string) {
  return string.split(' ').reverse().map((value) => value.length);
}
```

The answer is that this function takes in a string as argument, separates the string by splitting along substrings separated by whitespace and puts these substrings into an array, reverses the order of this array, and then creates a new array containing the lengths of the substrings in the reversed array and returns this new array.

6: This exercise asks us to write a function that searches and array for every element that matches the regular expression given by its argument, and returns all matching elements in an array. I did this as follows:

```
function allMatches(array, regex) {
  let returnArray = [];
  for (let i = 0; i < array.length; i += 1) {
    if (regex.test(array[i])) returnArray.push(array[i]);
  }
  return returnArray;
}
```

7: This exercise asks us to explain what exception handling is and what problem it solves:
The answer is that exception handling is the practice of dealing with potential errors that might arise in out code using try/catch clauses. It solves the problem of potentially unwanted crashes of our program or bugs in our code. "Exception handling is a process that deals with errors in a manageable and predictable manner."