CS400 MEAN Fall 2019

Problem set 2: generators

Part 0

Create a new branch called PS2 to track files for this assignment (it'll be this branch that you submit on Gradescope). Add a PS2 directory to your repo to work in. NOTE: Switch to your empty master branch before forking your PS2 branch.

Part 1

For this assignment, write JavaScript code to satisfy each of the following problems. Each solution should be in a separate file which is named to reflect the problem number. For example, PS2/PS2.P1.js would be the file holding your solution to Problem Set 2, Problem 1.

You'll end up pushing your entire directory and all of the solution files to github, which can be done either from the command line or from your IDE. After your files are pushed, submit your assignment on Gradescope.

For these problems, you'll need to both write the function (and any helper functions you require), and also a line or two that executes the function with sample input, printing the result on the console. You'll also need to dig around to find ways to solve them; for example, when working with strings, take a look at the docs for the String library to get ideas of what can be done. The 'official' docs are at developer.mozilla.org. Most solutions require chaining a few functions.

Note: For each problem, write your solution using 'fat arrow' (=>) notation.

Example 1
Write a function that returns the largest integer of an array of integers.

```
const biggie = items => Math.max(...items);
console.log(`Biggest int is: ${biggie([4,8,1,4,3,9,2])}`)
```

Problem 1 (PS2.P1.js)

Write two generators that together implement a series of even Fibonacci numbers. The first generator should return the series of fibonacci numbers starting from 0. The series F is defined as

$$F(0) = 0;\ \ F(1) = 1;\ F(n) = F(n-1) + F(n-2)$$

The second generator should use the first to obtain the next number in the sequence, rejecting it if it is odd and asking for the next. Once an even Fibonacci number is obtained, it is emitted.

Use the generators to print out the first 6 even Fibonacci numbers.

Problem 2 (PS2.P2.js)

Write a generator that is initialized with a sentence and that emits each word of the sentence in turn.

Use the generator to print the words, one per line, of the string “All I know is something like a bird within her sang”.

Problem 3 (PS2.P3.js)

Write a function that prints the cube value of its input (ie f(x)=x^3). Next, write a single line of code to call the function on each value of the array [1,2,3,4,5,6,7].

Note: The .map() method on Array is your friend here.