BACK

Most Frequent Digit Sum

193,004

DESCRIPTION SOLUTIONS 1951 COMMENTS 5 README CODEWRITING SCORE: 300/300

A `step(x)` operation works like this: it changes a number `x` into `x - s(x)`, where `s(x)` is the sum of `x`'s digits. You like applying functions to numbers, so given the number `n`, you decide to build a decreasing sequence of numbers: `n`, `step(n)`, `step(step(n))`, etc., with `0` as the last element.

Building a single sequence isn't enough for you, so you replace all elements of the sequence with the sums of their digits (`s(x)`). Now you're curious as to which number appears in the new sequence most often. If there are several answers, return the maximal one.

Example

- For `n = 88`, the output should be
  `mostFrequentDigitSum(n) = 9`.
  - Here is the first sequence you built: `88, 72, 63, 54, 45, 36, 27, 18, 9, 0`;
  - And here is `s(x)` for each of its elements: `16, 9, 9, 9, 9, 9, 9, 9, 9, 0`.

  As you can see, the most frequent number in the second sequence is `9`.

- For `n = 8`, the output should be
  `mostFrequentDigitSum(n) = 8`.
  - At first you built the following sequence: `8, 0`
  - `s(x)` for each of its elements is: `8, 0`

  As you can see, the answer is `8` (it appears as often as `0`, but is greater than it).

Input/Output

- **[execution time limit] 4 seconds (js)**
- **[input] integer n**

  Guaranteed constraints:
  $1 \le n \le 10^5$,
- **[output] integer**

  The most frequent number in the sequence `s(n), s(step(n)), s(step(step(n)))`, etc.

[JavaScript (ES6)] Syntax Tips

```
// Prints help message to the console
// Returns a string
function helloWorld(name) {
    console.log("This prints to the console when you Run Tests");
    return "Hello, " + name;
}
```