2021-10-14

1. It's important for the performance of code being rendered and scalability of applications, maintaining it's performance.

2. Asymptotic behavior is a method of describing limiting behavior.

3. 9 operations.

4. O(1), O(n), O(n^2), O(log n), O(n log n), O(2^n), O(n!)

    1. O(1) - Constant Time

    ```
    let listOne = [5,10,15,25]
    console.log(listOne[2])```
    ```

    2. O(n^2) - Quadratic Time (two nested 'for' loops)

    3. O(log n) - Logarithmic Time

    ```
    function findNum(max) {
        let min = 0
        let target = Math.floor(Math.random() * max)
        let guess = Math.floor((max + 1) / 2)

        while (guess =/= target) {
            if (guess > target) {
                max = guess - 1
            } else {
                min = guess + 1
            }
        }

         return guess
    }

    findNum(32)
    ```

5. Data Structures are the forms in which data is organized, common examples are: arrays, objects, linked-lists, queues, stacks, trees, etc.