O(N log(N))

Code Example

To avoid covering sorting, this is not a practical code example, but purely demonstrates the concept of O(N log(N)).

This code block simulates performing a logarithmic function on every item in an array.

```
38   log(8);
39   function log(n) {
40     let j = 1;
41     for (let k = 0; k < n; k++) {
42       for (let i = n; i > 0.999; i /= 2) {
43         let result = i;
44         console.log(`The result of iteration ${j} is ${result}`);
45         j++;
46       }
47     }
48   }
```

```
The result of iteration 1 is 8
The result of iteration 2 is 4
The result of iteration 3 is 2
The result of iteration 4 is 1
The result of iteration 5 is 8
The result of iteration 6 is 4
The result of iteration 7 is 2
The result of iteration 8 is 1
The result of iteration 9 is 8
The result of iteration 10 is 4
The result of iteration 11 is 2
The result of iteration 12 is 1
The result of iteration 13 is 8
The result of iteration 14 is 4
The result of iteration 15 is 2
The result of iteration 16 is 1
The result of iteration 17 is 8
The result of iteration 18 is 4
The result of iteration 19 is 2
The result of iteration 20 is 1
The result of iteration 21 is 8
The result of iteration 22 is 4
The result of iteration 23 is 2
The result of iteration 24 is 1
The result of iteration 25 is 8
The result of iteration 26 is 4
The result of iteration 27 is 2
The result of iteration 28 is 1
The result of iteration 29 is 8
The result of iteration 30 is 4
The result of iteration 31 is 2
The result of iteration 32 is 1
```

O(2^N)

Power of 2 Complexity - also written as 2^N