Question: Implement own bind

```
Function.prototype.bind = function(context){

    const fn = this;
    const mainArguments = [].slice.call(arguments, 1);
    return function() {
        const currentArgs = [].slice.call(arguments);
        return fn.apply(context, [...mainArguments, ...currentArgs]);
    }
}
```

Question: Debounce

```
function debounce(func, interval, callfirst){

    let timeout;
    return function () {
        const context = this, args = arguments;

        let delay = function() {
            timeout = null;
            if(!callfirst){
            func.apply(context, args);
            }
        }

        const isCallFirst =  callfirst && !timeout;

        clearTimeout(timeout);

        timeout = setTimeout(delay, interval|| 500);
        if(isCallFirst) {

          func.apply(context, args);
        }
    }

}
```

Question : currying

```
function curry(func){

return  function (){
           const arguments1 = arguments;
        if(arguments1.length >= func.length){
            return func.apply(this, arguments1);
        }else{
        return function(){
             return curry.apply(this,
func.bind(argument1.concat(arguments)))
         }
        }
    }
}


curriedSum(10, 20, 30) => 60
curriedSum(10, 20)(30) => 60
curriedSum(10)(20)(30) => 60

let curriedSum = curry(sum);
```

Question: implement loadsh get

```
__get(object, keys, defaultVal = null): any {
    keys = Array.isArray(keys) ? keys :
keys.replace(/(\[(\d)\])/g, '.$2').split('.'); //
split by dot of array
    object = object[keys[0]];
    if (object && keys.length > 1) {
      return this.__get(object, keys.slice(1),
defaultVal);
    }
    return object === undefined ? defaultVal :
object;
  }
```

Question Link list

```
// adds an element at the end

// of list

add(element)

{

        // creates a new node

        var node = new Node(element);
}



        // to store current node
        var current;

        // if list is Empty add the
        // element and make it head
        if (this.head == null)
                this.head = node;
        else {
                current = this.head;

                // iterate to the end of the
                // list
                while (current.next) {
                        current = current.next;
                }

                // add node
                current.next = node;
        }
        this.size++;
}
```

```
// insert element at the position index
// of the list
insertAt(element, index)
{
        if (index > 0 && index > this.size)
                return false;
        else {
                // creates a new node
                var node = new Node(element);
                var curr, prev;

                curr = this.head;

                // add the element to the
                // first index
                if (index == 0) {
                        node.next = head;
                        this.head = node;
                } else {
                        curr = this.head;
                        var it = 0;
                        // iterate over the list to find
                        // the position to insert
                        while (it < index) {
                            it++;
                            prev = curr;
                            curr = curr.next;
                        }

                        // adding an element
                        node.next = curr;
                        prev.next = node;
                }
                this.size++;
        }
}

// removes an element from the
// specified location
removeFrom(index)
{
        if (index > 0 && index > this.size)
        return -1;
    else {
        var curr, prev, it = 0;
        curr = this.head;
        prev = curr;

        // deleting first element
        if (index == = 0) {
                this.head = curr.next;
        } else {
                // iterate over the list to the
                // position to removce an element
                while (it < index) {
                        it++;
                        prev = curr;
                        curr = curr.next;
                }

                // remove the element
                prev.next = curr.next;
        }
        this.size--;
        // return the remove element
        return curr.element;
    }
}

// removes a given element from the
// list
removeElement(element)
{
    var current = this.head;
    var prev = null;

    // iterate over the list
    while (current != null) {
        // comparing element with current
        // element if found then remove the
        // and return true
        if (current.element == = element) {
            if (prev == null) {
                this.head = current.next;
            } else {
                prev.next = current.next;
            }
            this.size--;
            return current.element;
        }
        prev = current;
        current = current.next;
    }
    return -1;
}

// finds the index of element
indexOf(element)
{
    var count = 0;
    var current = this.head;

    // iterae over the list
    while (current != null) {
        // compare each element of the list
        // with given element
        if (current.element == = element)
```

```
                return count;

            count++;

            current = current.next;

        }


        // not found

        return -1;

}


// gives the size of the list

size_of_list()

{

        console.log(this.size);

}


class Node{
    constructor(data, next = null){
        this.data = data,
        this.next = next
    }
}
```

Question : memorization

```
const memoize = (callback, threshold = 1000) => {

let memo = new LRU(threshold);

return(args) => {

// console.log("get value", memo.get(args))
if(memo.get(args) != undefined){
console.log("from cache");
console.log(memo.getSizeOfCache())
return memo.get(args);
}else{
// const keys = Object.keys(memo);
// if(keys.length === threshold){
//     delete memo[keys[0]];
// }
 console.log(memo.getSizeOfCache())
memo.set(args, callback(args))
// memo[args] = callback(args);
// console.log("current size", keys.length);
return  memo.get(args);
}

}

}
```

Question : LRU

```
class LRU{

constructor(threshold = 100){
    this.max = threshold;
    this.cache = new Map();
}

get(key){
    // console.log("iun get", key)
    let item = this.cache.get(key);
     console.log(key,item)
    if(item != undefined){
        this.cache.delete(key);
        this.cache.set(key, item);
    }
   return item;

}

set(key, val){
    if(this.cache.has(key)){
         this.cache.delete(key);
    }

    if(this.cache.size === this.max){
        this.cache.delete(this.getFirst())
    }
    this.cache.set(key, val);

}
getFirst(){
    return this.cache.keys().next().value;
}

getSizeOfCache(){
    return this.cache.keys()
}

}
```

Question : chocolate/wrapper

```
static int countMaxChoco(int money,
                         int price, int wrap)
    {

        // Corner case
        if (money < price)
            return 0;

        // First find number of chocolates
        // that can be purchased with the
        // given amount
        int choc = money / price;

        // Now just add number of chocolates
        // with the chocolates gained by
        // wrapprices
        choc = choc + (choc - 1) / (wrap - 1);
        return choc;
    }
```

// recursion

```
int countRec(int choc, int wrap)
{
    // If number of chocolates is less than
    // number of wrappers required.
    if (choc < wrap)
        return 0;

    // We can immediatly get newChoc using
    // wrappers of choc.
    int newChoc = choc/wrap;

    // Now we have "newChoc + choc%wrap"
wrappers.
    return newChoc + countRec(newChoc +
choc%wrap,
                              wrap);
}
```

Question : maxDiff from an array

```
function getMaxiff (arr){
   const length  = arr.length;
  let maxDiff = -100
  if(!length){
     return  maxDiff;
  }
  let maximumRightValue = arr[length-1];
  for(let i = length-2; i>=0 ; i--){
    if(arr[i] > maximumRightValue){
      maximumRightValue = arr[i];
    }else{
      const currentDiff = maximumRightValue - arr[i];
    //  console.log(currentDiff, arr[i])
      if(currentDiff > maxDiff){
        maxDiff = currentDiff;
      }
    }
  }
  return maxDiff;
}
console.log(getMaxiff([2, 3, 10, 6, 4, 8, 1]))
```

Question: Implement map function

```
const hoMyMap = function(callback, arr) {

    let resultArray = [];
    for(let i = 0; i<arr.length; i++){
        resultArray.push(callback(arr[i], i, this))
    }

    return resultArray;
}
```

Memorization for async

```
function memo(func, isAsync){
    let memo = {};

    const x = function(args){
        memo[args] = memo[args] || func.apply(this, args);
        return  memo[args];
    }
    x.store = memo;

    if(isAsync){
        return async function(){
            const args = JSON.stringify(arguments)
            x(arguments);
        }
    }else{
        return function(){
            const args =[].slice.call(arguments);
            x(args);
        }
    }

}
```

Memoization with cache return

```
function memo(func){
    let memo = {};
    let a = function(){
        const args = [].slice.call(arguments);
        if(memo[args]){
            return memo[args];
        }else{
            memo[args] = func.apply(this, args);
            return  memo[args];
        }
    };
    a.store = memo;
    return a;
}
```

Stock profit maximize (Single trans)

```javascript
var maxProfit = function(prices) {
    let result = 0;
    let min = prices[0];
    for(let i = 1; i < prices.length; i++) {
        min = Math.min(prices[i], min);
        result = Math.max(result, prices[i] - min);
    }
    return result;
};
```

Stock profit maximize multiple transaction

```javascript
var maxProfit = function(prices) {
    let profit = 0;
    for (let i = 0; i < prices.length - 1; i++) {
        const possibleProfit = prices[i + 1] - prices[i];
        profit = Math.max(profit + possibleProfit, profit);
    }
    return profit;
};
```

```javascript
var maxProfit = function(prices) {
    if(prices.length < 2) return 0;
    let min = prices[0], sum = 0;
    for(let i = 1 ; i < prices.length ; i++){
        if(prices[i]  >= prices[i - 1]){
            sum += (prices[i] - prices[i-1]);
        }
    }

    return sum;
};
```

Stock profit(sell before buying)

```javascript

var maxProfit = function(prices) {
    let haveOne = -prices[0]
    let haveTwo = -Infinity
    let notHaveOne = -Infinity
    let notHaveTwo = -Infinity
    for (let i = 1; i < prices.length; i++) {
        haveOne = Math.max(haveOne, -prices[i])
        haveTwo = Math.max(haveTwo, notHaveOne-prices[i])
        notHaveOne = Math.max(notHaveOne, haveOne+prices[i])
        notHaveTwo = Math.max(notHaveTwo, haveTwo+prices[i])
    }
    return Math.max(0, notHaveOne, notHaveTwo)
};
```

Longest Word in Dictionary

```
var longestWord = function(words) {
    let set = new Set(words);
    let res = "";
    words.forEach(a => {
        if(a.length < res.length) return;
        if(a.length == res.length && a > res) return;
        for(let i = a.length - 1; i> 0 ; i--) {
            if( !set.has( a.substring(0, i))) return

        }
        res = a;
    })
    return res;
};
```

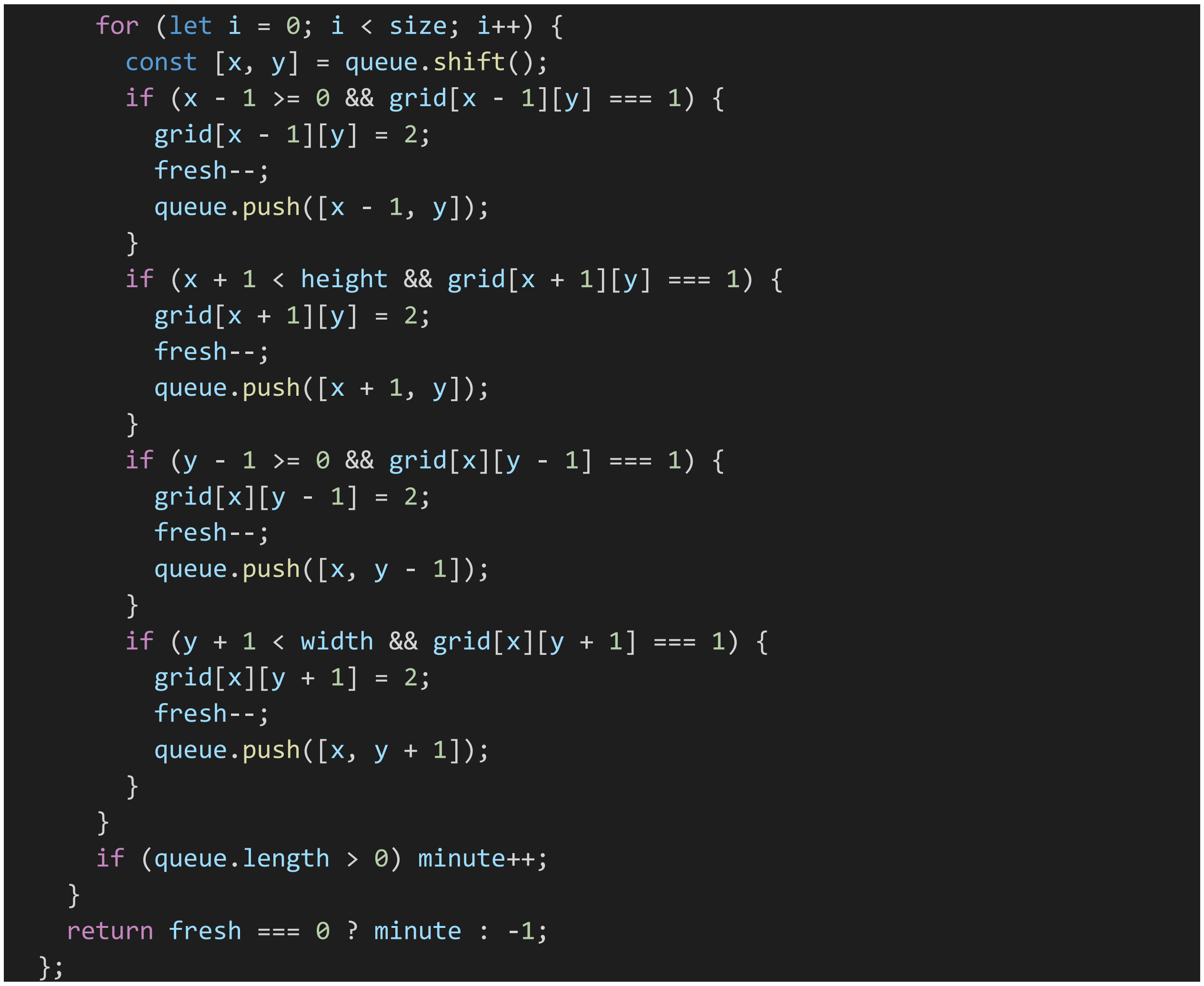
Jump Game

```

var jump = function(nums) {
    let currFarest = 0
    let currEnd = 0
    let jump = 0
    for (let i = 0; i < nums.length - 1; i++) {
      currFarest = Math.max(currFarest, i + nums[i])
      // Improvement
      if (currFarest >= nums.length -1) return jump+1
      if (currEnd === i) {
        jump++
        currEnd = currFarest
      }
    }
    return jump
  };
```

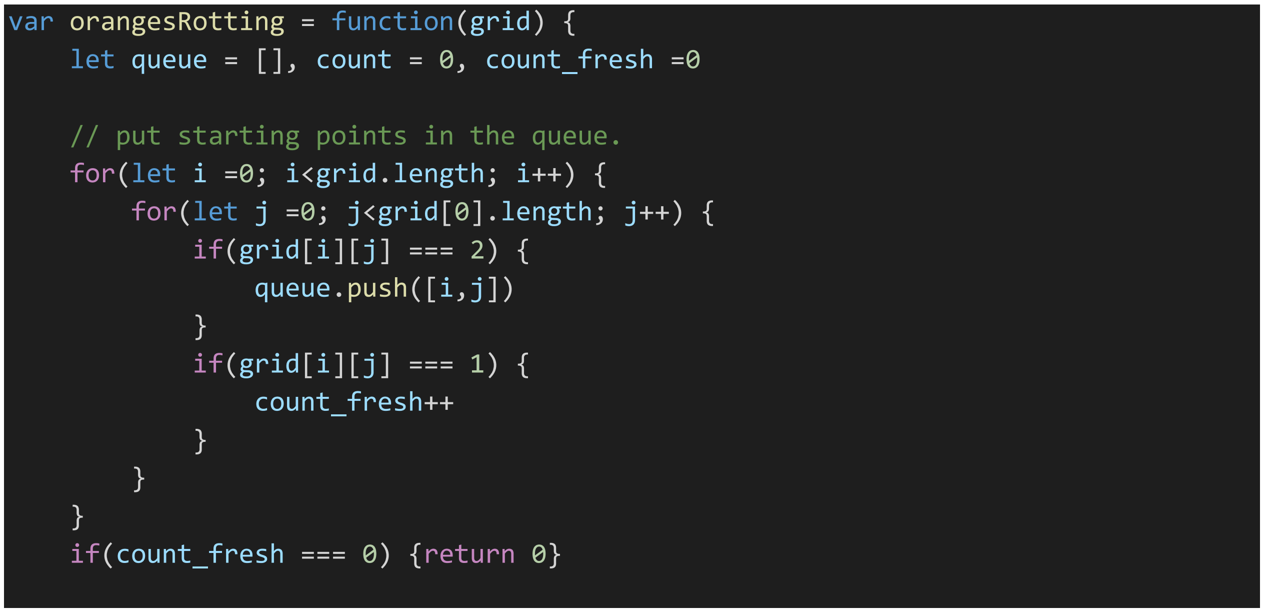
```
function jump(nums) {
    var max = 0;
    var nextMax = 0;
    var jumps = 0;

    nums.some((v, i) => {
        if (max >= nums.length - 1) {
            return true;
        }

        nextMax = Math.max(i + v, nextMax);

        if (i === max) {
            max = nextMax;
            jumps++;
        }
    });

    return jumps;
}
```

Rotten eggs problem :

```

var orangesRotting = function(grid) {
    const height = grid.length;
    const width = grid[0].length;
    let fresh = 0;
    const queue = [];
    for (let i = 0; i < height; i++) {
      for (let j = 0; j < width; j++) {
        if (grid[i][j] === 2) queue.push([i, j]);
        if (grid[i][j] === 1) fresh++;
      }
    }
    let minute = 0;
    while (queue.length) {
      const size = queue.length;
```



```
      for (let i = 0; i < size; i++) {
        const [x, y] = queue.shift();
        if (x - 1 >= 0 && grid[x - 1][y] === 1) {
          grid[x - 1][y] = 2;
          fresh--;
          queue.push([x - 1, y]);
        }
        if (x + 1 < height && grid[x + 1][y] === 1) {
          grid[x + 1][y] = 2;
          fresh--;
          queue.push([x + 1, y]);
        }
        if (y - 1 >= 0 && grid[x][y - 1] === 1) {
          grid[x][y - 1] = 2;
          fresh--;
          queue.push([x, y - 1]);
        }
        if (y + 1 < width && grid[x][y + 1] === 1) {
          grid[x][y + 1] = 2;
          fresh--;
          queue.push([x, y + 1]);
        }
      }
      if (queue.length > 0) minute++;
    }
    return fresh === 0 ? minute : -1;
  };
```



```
var orangesRotting = function(grid) {
    let queue = [], count = 0, count_fresh =0

    // put starting points in the queue.
    for(let i =0; i<grid.length; i++) {
        for(let j =0; j<grid[0].length; j++) {
            if(grid[i][j] === 2) {
                queue.push([i,j])
            }
            if(grid[i][j] === 1) {
                count_fresh++
            }
        }
    }
    if(count_fresh === 0) {return 0}
    // start the BFS from all starting points simultaneously.
    let directions = [[0,1],[1,0],[0,-1],[-1,0]]
    while(queue.length !== 0) {
        // Remember, rotting virus moves at the same time
        // and we only count one time whewn all of them move together.
        // that's why we count once for the batch of points in the queue
        // at the time.
        count++
        let size = queue.length
        for(let i =0; i<size; i++) {
            let [startR,startC] = queue.shift()
            for(let [dr, dc] of directions) {
                let r= startR + dr
                let c = startC + dc
                if(r >=0 && r< grid.length && c >=0 && c<grid[0].length && grid[r
][c] === 1) {
                    grid[r][c] = 2
                    queue.push([r,c])
                    count_fresh --
                }
            }
        }
    }
```