Name:	**Date:**
Vince Allen D. Cristal	February 5, 2026
School:	**Course:**
LSPU - San Pablo City Campus	On-The-Job Training

1. Challenge 1

Code:

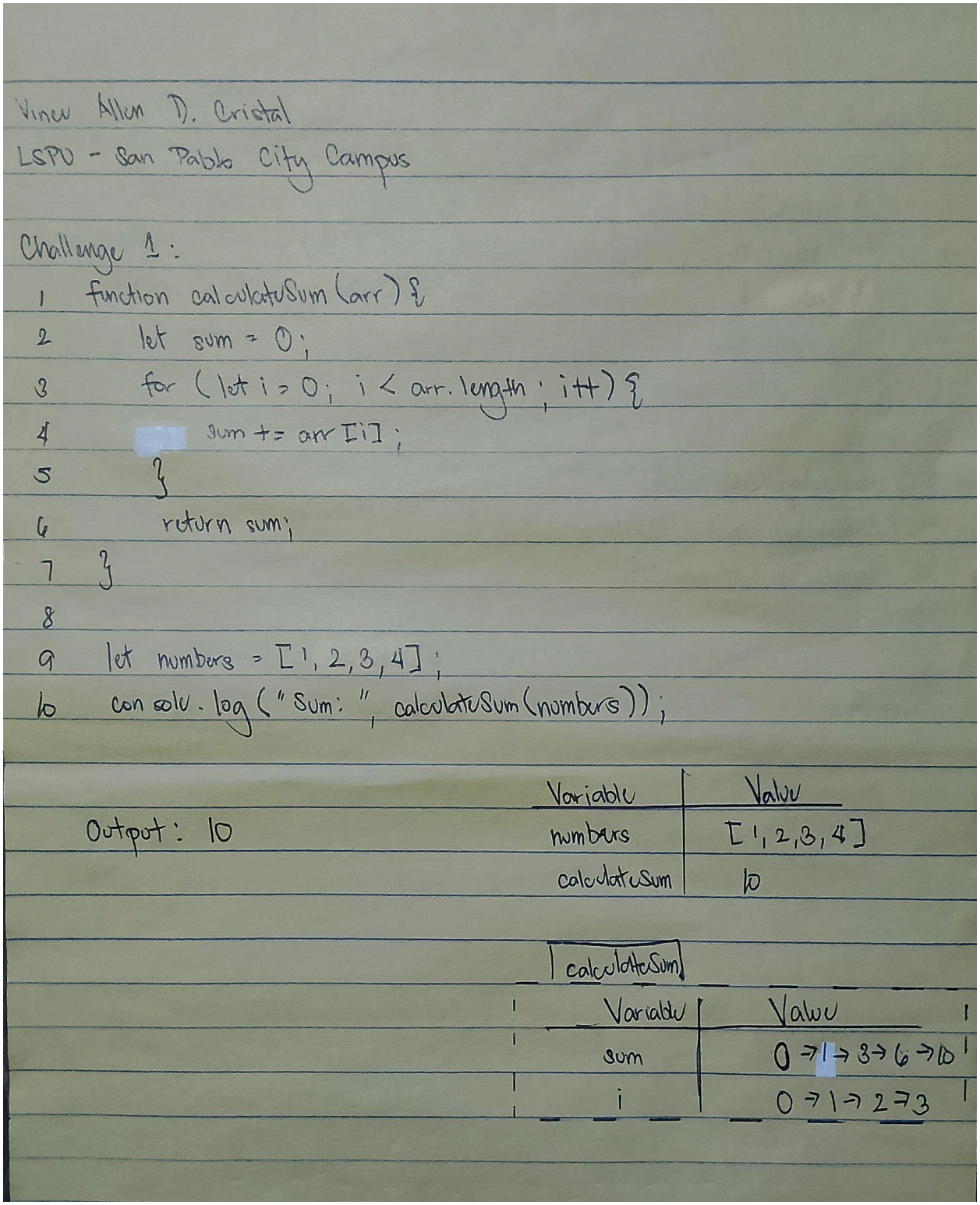
```
function calculateSum(arr) {
  let sum = 0;
  for (let i = 0; i < arr.length; i++) {
    sum += arr[i];
  }
  return sum;
}

let numbers = [1, 2, 3, 4];
console.log("Sum:", calculateSum(numbers));
```

Output:

10

Photo of T-diagram:



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Challenge 1:

```
1  function calculateSum(arr) {
2      let sum = 0;
3      for (let i = 0; i < arr.length; i++) {
4          sum += arr[i];
5      }
6      return sum;
7  }
8
9  let numbers = [1, 2, 3, 4];
10 console.log("Sum: ", calculateSum(numbers));
```

Output: 10

Variable	Value
numbers	[1, 2, 3, 4]
calculateSum	10

calculateSum

Variable	Value
sum	0 → 1 → 3 → 6 → 10
i	0 → 1 → 2 → 3

2. Challenge 2

Code:

```
function isEven(num) {
  if (num % 2 === 0) {
    return true;
  } else {
    return false;
  }
}

console.log(isEven(4));
console.log(isEven(7));
console.log(isEven(0));
```

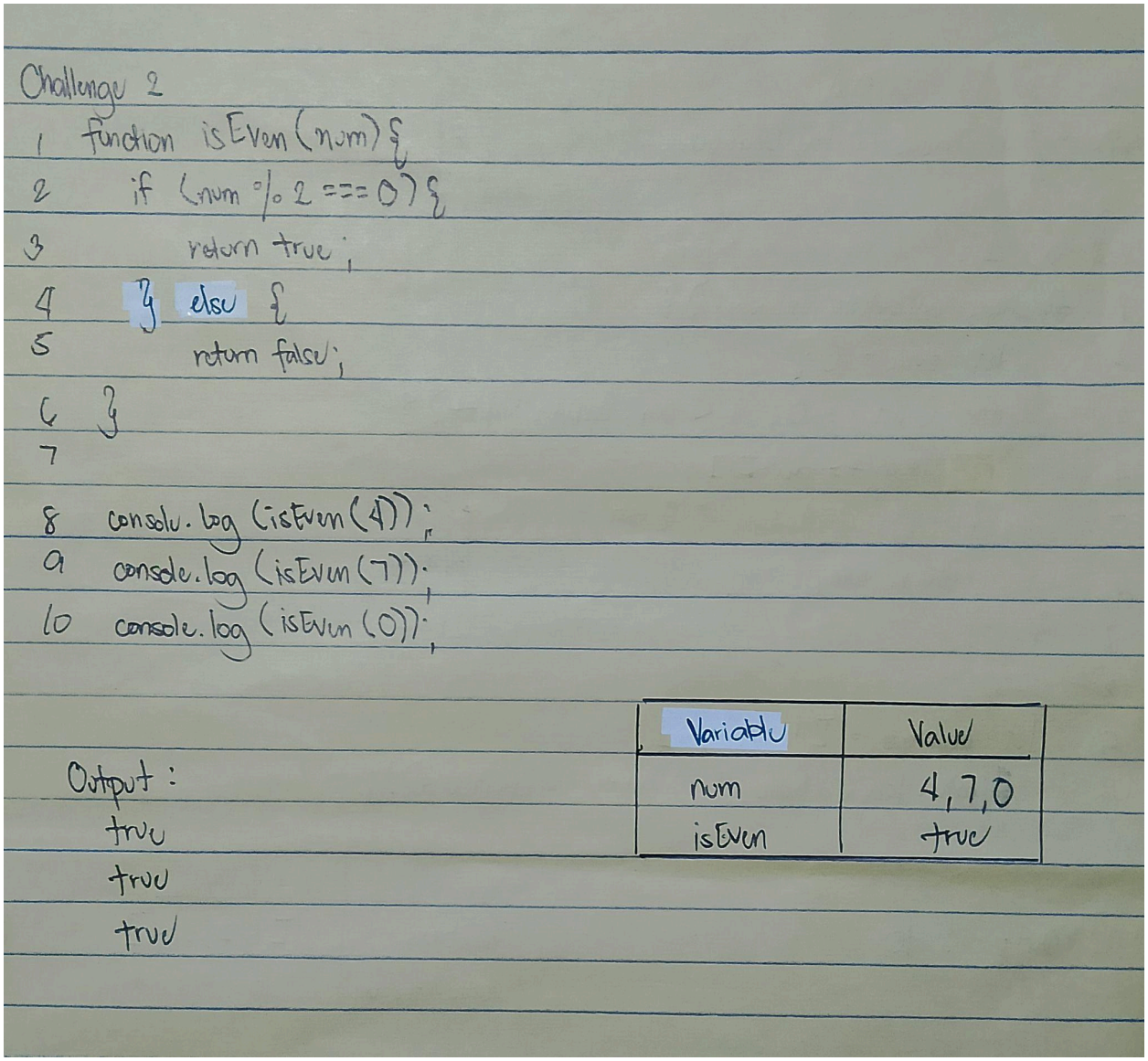
Output:

true

true

true

Photo of T-diagram:



Challenge 2

```
1  function isEven(num){
2      if (num % 2 === 0){
3          return true;
4      } else {
5          return false;
6      }
7
8  console.log(isEven(4));
9  console.log(isEven(7));
10 console.log(isEven(0));
```

Variable	Value
num	4, 7, 0
isEven	true

Output:

true
true
true

3. Challenge 3

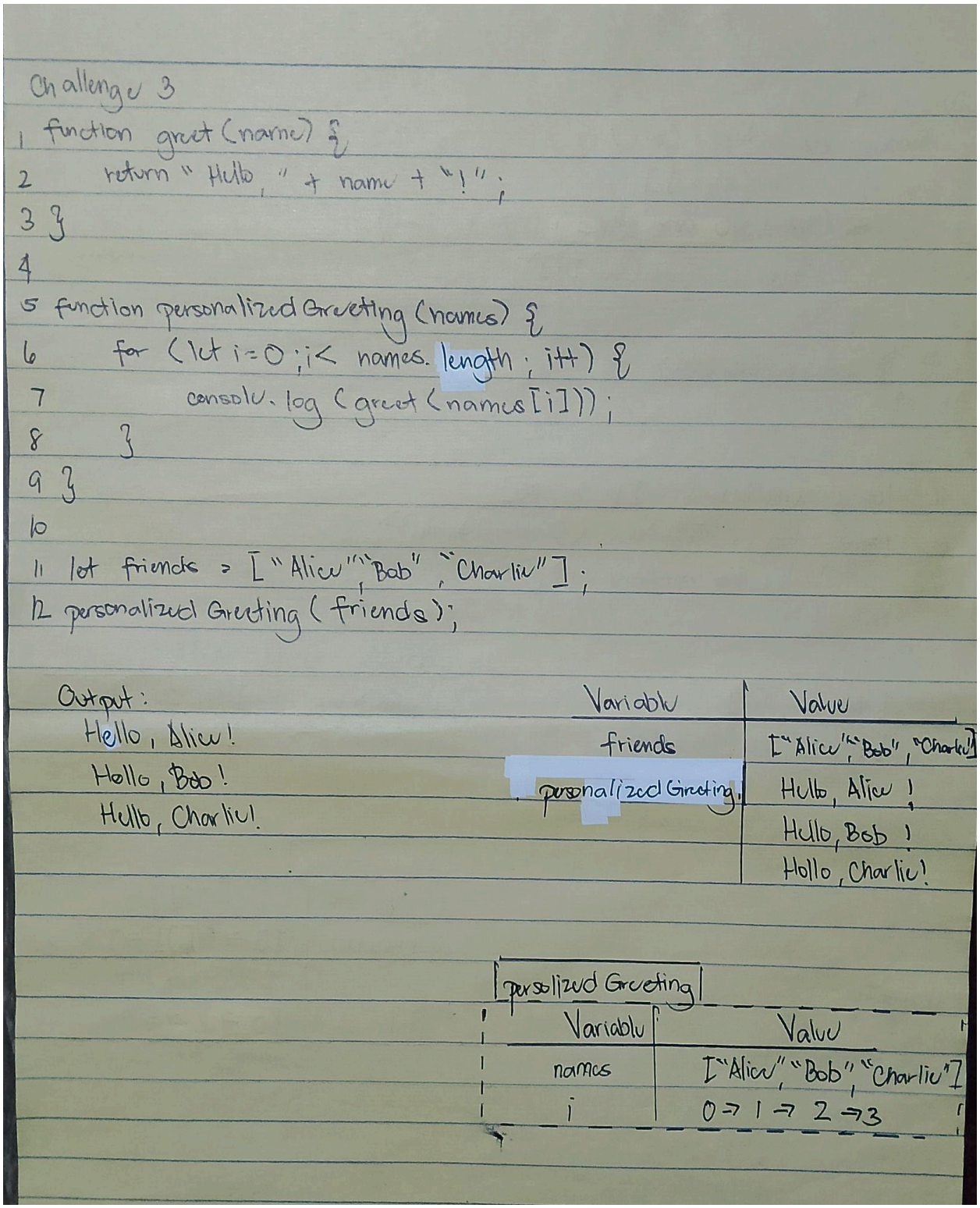
Code:

```
function greet(name) {
  return "Hello, " + name + "!";
}

function personalizedGreeting(names) {
  for (let i = 0; i < names.length; i++) {
    console.log(greet(names[i]));
  }
}

let friends = ["Alice", "Bob", "Charlie"];
personalizedGreeting(friends);
```

Output:

Hello, Alice!
Hello, Bob!
Hello, Charlie!

Photo of T-diagram:



Challenge 3

```
1 function greet(name) {
2     return "Hello, " + name + "!";
3 }
4
5 function personalizedGreeting(names) {
6     for (let i=0; i< names.length; i++) {
7         console.log(greet(names[i]));
8     }
9 }
10
11 let friends = ["Alice", "Bob", "Charlie"];
12 personalizedGreeting(friends);
```

Output:

Hello, Alice!
Hello, Bob!
Hello, Charlie!

Variable	Value
friends	["Alice", "Bob", "Charlie"]
personalizedGreeting	Hello, Alice! Hello, Bob! Hello, Charlie!

personalizedGreeting

Variable	Value
names	["Alice", "Bob", "Charlie"]
i	0 → 1 → 2 → 3

4. Challenge 4

Code:

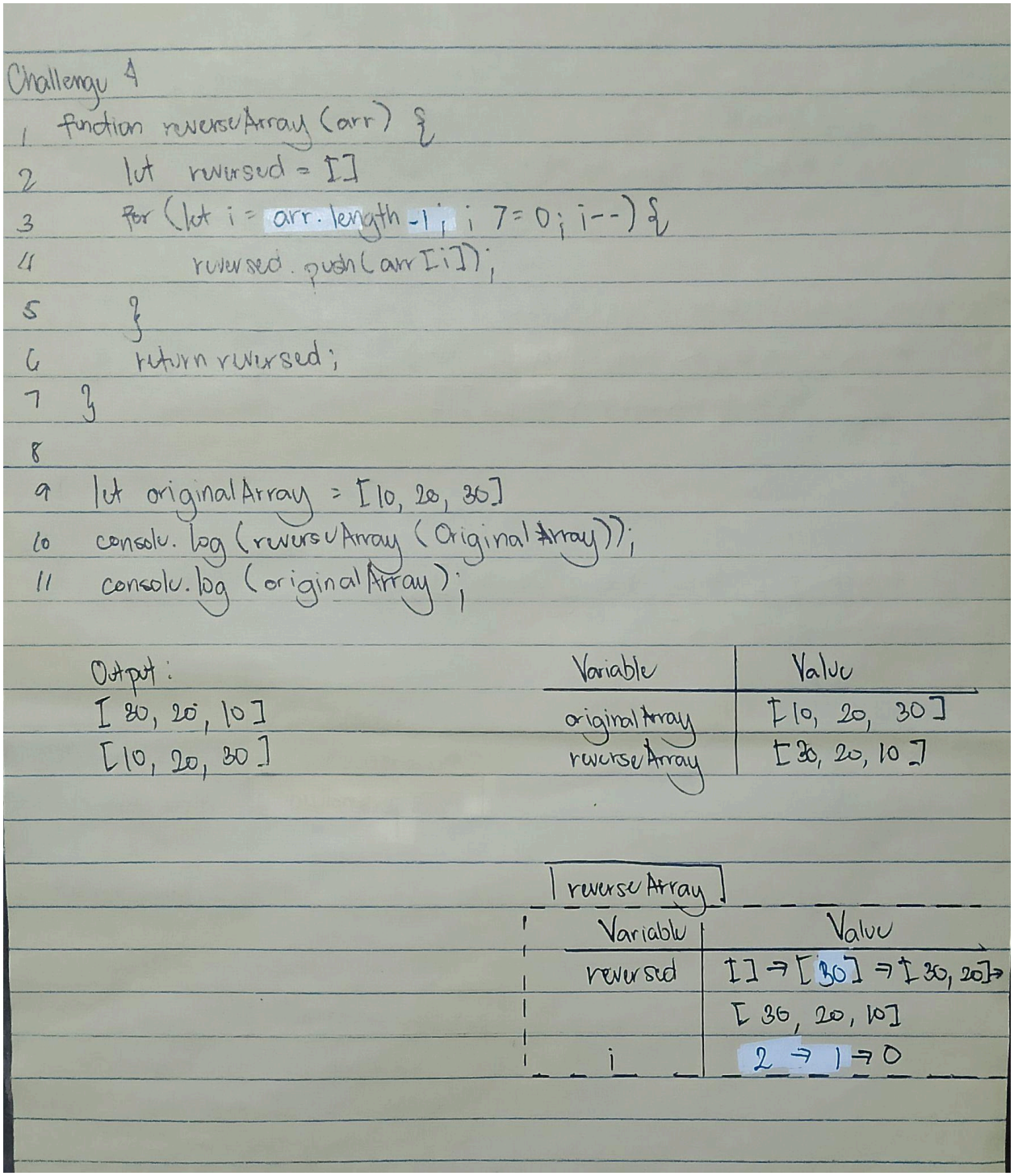
```
function reverseArray(arr) {
  let reversed = [];
  for (let i = arr.length - 1; i >= 0; i--) {
    reversed.push(arr[i]);
  }
  return reversed;
}

let originalArray = [10, 20, 30];
console.log(reverseArray(originalArray));
console.log(originalArray);
```

Output:

[30, 20, 10]

[10, 20, 30]

Photo of T-diagram:



Challenge 4

```
1  function reverseArray(arr) {
2      let reversed = []
3      for (let i = arr.length-1; i >= 0; i--) {
4          reversed.push(arr[i]);
5      }
6      return reversed;
7  }
8
9  let originalArray = [10, 20, 30]
10 console.log(reverseArray(originalArray));
11 console.log(originalArray);
```

Output:

[30, 20, 10]
[10, 20, 30]

Variable	Value
originalArray	[10, 20, 30]
reverseArray	[30, 20, 10]

reverseArray

Variable	Value
reversed	[] → [30] → [30, 20] → [30, 20, 10]
i	2 → 1 → 0

5. Challenge

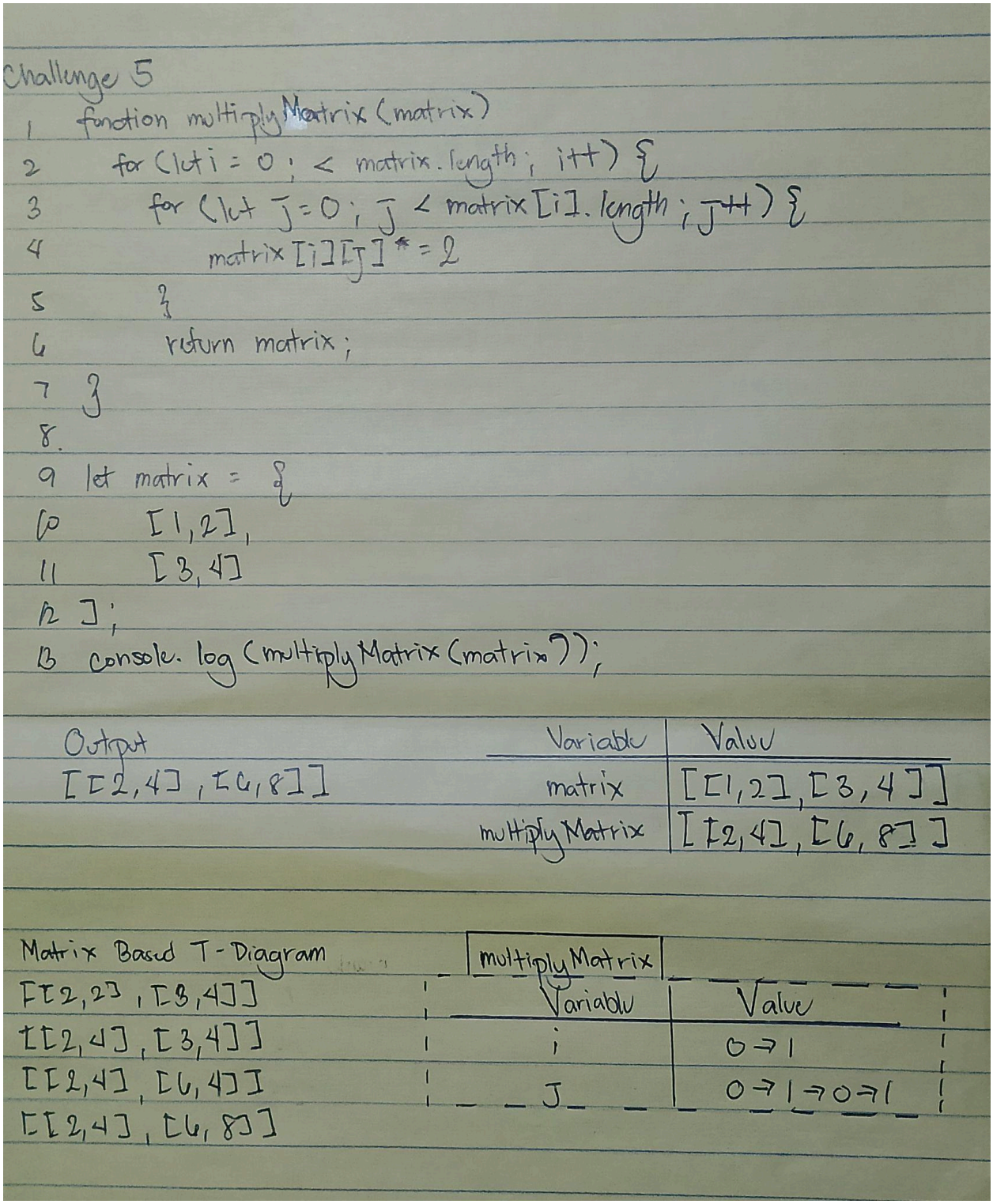
Code:

```
function multiplyMatrix(matrix) {
  for (let i = 0; i < matrix.length; i++) {
    for (let j = 0; j < matrix[i].length; j++) {
      matrix[i][j] *= 2;
    }
  }
  return matrix;
}

let matrix = [
  [1, 2],
  [3, 4],
];
console.log(multiplyMatrix(matrix));
```

Output:

[[2, 4], [6, 8]]

Photo of T-diagram:



Challenge 5

```
1  function multiplyMatrix(matrix)
2    for(let i = 0; < matrix.length; i++) {
3      for(let j=0; j < matrix[i].length; j++) {
4        matrix[i][j] *= 2
5      }
6      return matrix;
7  }
8.
9  let matrix = [
10     [1,2],
11     [3,4]
12 ];
13 console.log(multiplyMatrix(matrix));
```

Output

[[2,4],[6,8]]

Variable	Value
matrix	[[1,2],[3,4]]
multiplyMatrix	[[2,4],[6,8]]

Matrix Based T-Diagram

[[2,2],[3,4]]

[[2,4],[3,4]]

[[2,4],[6,4]]

[[2,4],[6,8]]

multiplyMatrix

Variable	Value
i	0→1
j	0→1→0→1