Declare a function fullName, and now it takes firstName and lastName as parameters and returns your full name.

```
function fullName(firstName, lastName) {
    return firstName + " " + lastName;
}
console.log(fullName("perinpanathan", "umaivanan"));
```

Using console.log() print out the following statement:
The quote 'There is no exercise better for the heart than reaching down and lifting people up.' by John Holmes teaches us to help one another.

```
console.log("The quote 'There is no exercise better for the heart than reaching down and lifting people up.' by John Holmes teaches us to help one another.");
```

Use console.log() and escape characters to print the following pattern.

```
1 1 1 1 1
2 1 2 4 8
3 1 3 9 27
4 1 4 16 64
5 1 5 25 125
for (let i = 1; i <= 5; i++) {
        let row = `${i}\t1\t${i}\t${i * i}\t${i * i * i}`;
        console.log(row);
    }
```

Count the number of all and in the following sentence:
There is a commonly stated “rule” of grammar that beginning a sentence with and, or any other conjunction, is a mistake. But this is just not true. This supposed “rule” has no basis in actual writing, and even formal writing features plenty of sentences that start with and and other conjunctions. And we think that is really cool.

```
const sentence = "There is a commonly stated “rule” of grammar that beginning a sentence with and, or any other conjunction, is a mistake. But this is just not true. This supposed “rule” has no basis in actual writing, and even formal writing features plenty of sentences that start with and and other conjunctions. And we think that is really cool.";
    const countAnd = (sentence.match(/\band\b/g) || []).length;
    console.log("Number of 'and':", countAnd);
```

Use the Date object to do the following activities
What is the year now?

```
let currentDate = new Date();
let currentYear = currentDate.getFullYear();
console.log(`The current year is: ${currentYear}`);
```

What is the month now as a number?

```
let currentDate = new Date();
let currentMonth = currentDate.getMonth() + 1;
console.log(`The current month is: ${currentMonth}`);
```

What is the date today?

```
let currentDate = new Date();
let currentDayOfMonth = currentDate.getDate();
console.log(`Today's date is: ${currentDayOfMonth}`);
```

What is the day today as a number?

```
const today = new Date();
const dayOfMonth = today.getDate();
console.log("Today is the " + dayOfMonth + "th day of the month.");
```

Calculate the slope, x-intercept and y-intercept of y = 2x -2

```
const slope = 2;
const yIntercept = -2;
const xIntercept = -yIntercept / slope;
console.log("Slope: ", slope);
console.log("X-intercept: ", xIntercept);
console.log("Y-intercept: ", yIntercept);
```

Slope is m = (y2-y1)/(x2-x1). Find the slope between point (2, 2) and point(6,10)

```
let x1 = 2;
let y1 = 2;
let x2 = 6;
let y2 = 10;
let slope = (y2 - y1) / (x2 - x1);
console.log("The slope between the points (2, 2) and (6, 10) is: " + slope);
```

Write a script that prompts users to enter hours and rate per hour. Calculate the pay of the person.
Enter hours: 40
Enter rate per hour: 28
Your weekly earning is 1120

```
let WorkedHours = prompt("Enter hours :");
      let ratePerHour = prompt("Enter rate per hour:");
      WorkedHours = parseFloat(WorkedHours);
      ratePerHour = parseFloat(ratePerHour);
      let totalPay = WorkedHours * ratePerHour;
      console.log(`The total pay is: $${totalPay.toFixed(2)}`);
```

Using the prompt get the year the user was born and if the user is 18 or above allow the user to drive if not tell the user to wait a certain amount of years.

```
Enter birth year: 1995
You are 25. You are old enough to drive
Enter birth year: 2005
You are 15. You will be allowed to drive after 3 years.
let birthYear = prompt("Enter birth year:");
let currentYear = new Date().getFullYear();
let age = currentYear - birthYear;
if (age >= 18) {
  console.log(`You are ${age}. You are old enough to drive.`);
} else {
  let yearsToWait = 18 - age;
  console.log(`You are ${age}. You will be allowed to drive after ${yearsToWait} years.`);
}
```

Declare an Array number and assign value (1,2,3,4,5,6,7). Print all even numbers using the filter method.

```
let numbers = [1, 2, 3, 4, 5, 6, 7];
let evenNumbers = numbers.filter(num => num % 2 === 0);
console.log(evenNumbers);
```

Declare an Array and assign value (1,2,3,4,5). Display all Square numbers using Map Method

```
      let numbers = [1, 2, 3, 4, 5];
      let squareNumbers = numbers.map(num => num * num);
      console.log(squareNumbers);
```

```
const books = [
{
 title: "To Kill a Mockingbird",
 author: "Harper Lee",
 genre: "Fiction",
 pages: 336,
 publication_year: 1925,
},
{
title: "1984",
author: "George Orwell",
genre: "Dystopian",
pages: 328,
publication_year: 1949,
 },
{
 title: "Pride and Prejudice",
 author: "Jane Austen",
 genre: "Romance",
 pages: 432,
 publication_year: 1813,
 },
{
 title: "The Great Gatsby",
 author: "F. Scott Fitzgerald",
 genre: "Classic",
 pages: 180,
 publication_year: 1925,
 },
 ];
```

1. MAP:

Get an array of all titles

```
const titles = books.map(book => book.title);
```

```
console.log(titles);


Get an array of all author
const authors = books.map(book => book.author);
console.log(authors);

Get an array of objects with just title and author properties
const titlesAndAuthors = books.map(book => ({ title: book.title, author: book.author }));
console.log(titlesAndAuthors);
```

2. REDUCE:

Get the total number of pages for all books

```
    const totalPages = books.reduce((acc, book) => {
        return acc + parseInt(book.pages);
    },0);
    console.log("Total number of pages is"+totalPages);
```

Get the total number of books by publication_year (using a map of publication_year to count):

```
    const booksByYear = books.reduce((acc,books) => {
      if (typeof acc[books.publication_year] === "undefined"){
       acc[books.publication_year]=1;


      }else{
       acc[books.publication_year]+=1;


      }
       return acc;
    }, {});
    console.log(booksByYear);
```

Get the total number of characters in all the book titles:

```
const totalTitleCharacters = books.reduce((acc, book) => acc + book.title.length, 0);
console.log(totalTitleCharacters);
```

Get the total number of books by genre (using a map of genre to count):

```
const booksByGenre = books.reduce((acc, book) => {
  const genre = book.genre;
  acc[genre] = (acc[genre] || 0) + 1;
  return acc;
}, {});


console.log(booksByGenre);
```

3. FILTER:

```
Filter books with more than 100 pages
const booksMoreThan100Pages = books.filter(book => book.pages > 100);
console.log(booksMoreThan100Pages);

Filter books with less than 200 pages
const booksLessThan200Pages = books.filter(book => book.pages < 200);
console.log(booksLessThan200Pages);

Filter books with a genre of "Fiction"
const fictionBooks = books.filter(book => book.genre === "Fiction");
console.log(fictionBooks);

Filter books with a genre of "Romance"
const romanceBooks = books.filter(book => book.genre === "Romance");
console.log(romanceBooks);
```

Write a function that given the input string name, returns the greeting statement Welcome <name> to the team.?

```
const greets = name => {
  //Your solution
};
```

```
console.log(greets('Ran')); // "Welcome Ryan to the team?"
console.log(greets('Sara')); // "Welcome  Sara to the team?"
const greets = name => {
return `Welcome ${name} to the team.`;
};


console.log(greets('Ran'));
console.log(greets('Sara'));
```

Balan drinks 0.5 litres of water per hour of cycling. Given the time in hours, you need to return the number of litres of water that Balan will drink, rounded to the smallest value.

```
const litres = time => {
  // Your solution
};
console.log(litres(0)); // 0
console.log(litres(2)); // 1
console.log(litres(1.4)); // 0
const litres = time => {
 return Math.floor(time * 0.5);
};
console.log(litres(0));
console.log(litres(2));
console.log(litres(1.4));
```

Given an array of numbers, write a function that returns the sum of all of the positive ones. If the array is empty, the sum should be 0.

```
const positiveSum = arr => {
  // Your solution
};

console.log(positiveSum([1, 2, 3, 4, 5])); // 15
console.log(positiveSum([1, -2, 3, 4, 5])); // 13
console.log(positiveSum([-1, 2, 3, 4, -5])); // 9
console.log(positiveSum([-1, -2, -3, -4, -5])); // 0
console.log(positiveSum([])); // 0
    const positiveSum = arr => {
let sum = 0;
 for (let num of arr) {
```

```
  if (num > 0) {
    sum += num;
  }
 }
 return sum;
};
console.log(positiveSum([1, 2, 3, 4, 5]));
console.log(positiveSum([1, -2, 3, 4, 5]));
console.log(positiveSum([-1, 2, 3, 4, -5]));
console.log(positiveSum([-1, -2, -3, -4, -5]));
console.log(positiveSum([]));
```

Body mass index(BMI) is calculated as follows: bmi = weight in Kg / (height x height) in m2. Write a function which calculates bmi. BMI is used to broadly define different weight groups in adults 20 years old or older. Check if a person is underweight, normal, overweight or obese based the information given below.
The same groups apply to both men and women.
Underweight: BMI is less than 18.5
Normal weight: BMI is 18.5 to 24.9
Overweight: BMI is 25 to 29.9
Obese: BMI is 30 or more

```
const calculateBMI = (weightKg, heightM) => {
 const bmi = weightKg / (heightM * heightM);
 if (bmi < 18.5) {
   return "Underweight";
 } else if (bmi >= 18.5 && bmi <= 24.9) {
   return "Normal weight";
 } else if (bmi >= 25 && bmi <= 29.9) {
   return "Overweight";
 } else {
   return "Obese";
 }
};
console.log(calculateBMI(70, 1.75));
console.log(calculateBMI(90, 1.75));
```

```
console.log(calculateBMI(100, 1.75));
console.log(calculateBMI(50, 1.65));
```

Part 2
Condition
Write a program that determines whether a given number is positive or negative. (Tenary)

```
let y = -5;
let Number = y < 0 ? "Negative" : "Positive";
console.log(Number);
```

number is even or odd. (ternary)

```
let num=4;
let evennumber = (num % 2 === 0) ? "even" : "odd";
console.log (evennumber)
```

Write a program to determine the greater of two numbers. (ternary)

```
let num1 = 50;
let num2 = 20;
let maximum = num1 > num2 ? num1 : num2;
console.log(maximum);
```

Write a program that calculates the ticket price based on age with the following conditions: ages below 12 pay a ticket price of 5, ages below 18 pay a ticket price of 10, ages below 60 pay a ticket price of 20, aged over 60 play a ticket price of 15.

```
function calculateTicketPrice(age) {
  return age < 12 ? 5 :
       age < 18 ? 10 :
       age < 60 ? 20 : 15;
}
let age= 8;
console.log(`The ticket price for age ${age} is $${calculateTicketPrice(age)}.`);
```

Write a program that determines if a year is a leap year.

```
function isLeapYear(year) {
return (year % 4 === 0 && year % 100 !== 0) || (year % 400 === 0);
}
function processUserInput() {
  let userInput = prompt("Enter a year to check if it's a leap year:");
  let year = parseInt(userInput);
  if (isNaN(year) || year <= 0) {
     console.log("Invalid input. Please enter a valid year.");
  } else {
     if (isLeapYear(year)) {
        console.log(`${year} is a leap year.`);
     } else {
        console.log(`${year} is not a leap year.`);
     }
  }
}
processUserInput();
```

Write a program that calculates a discount based on the purchase amount. Prices equal to or over 100 discount have a discount of 20. Prices equal to or over 50 have a discount of 10. Otherwise, the discount is 0

```
function calculateDiscount(amount) {
  return amount >= 100 ? 20 :
        amount >= 50 ? 10 : 0;
}
let amount= 120;
console.log(`The discount for a purchase amount of $${amount} is
$${calculateDiscount(amount)}.`);
```

Write a program that greets the user based on the time of day. Display good morning, good afternoon or good evening based on the time of day when you run the code.

```
function getGreeting() {
  const currentHour = new Date().getHours();
```

```
  return currentHour < 12 ? "Good Morning" :
        currentHour < 18 ? "Good Afternoon" : "Good Evening";
}
const greeting = getGreeting();
console.log(greeting);
```

Write a simple number-guessing game. Provide a secret number and a guess. Based on those numbers give players clues if their guess is higher, lower or correct.

```
function numberGuessingGame(secretNumber, guess) {
  return guess < secretNumber ? "Your guess is too low." :
        guess > secretNumber ? "Your guess is too high." : "Congratulations! You guessed the
correct number.";
}
const secretNumber = 42;
const userGuess = 37;
const result = numberGuessingGame(secretNumber, userGuess);
console.log(result);
```

Part 3: Loops
sumprints from 0 to 5.

```
for (let i = 0; i <= 5; i++) {
  console.log(i);
}
```

all the numbers from 0 to 99

```
function sumNumbersFromZeroToN(n) {
  let sum = 0;
  for (let i = 0; i <= n; i++) {
     sum += i;
  }
  return sum;
}
let result = sumNumbersFromZeroToN(99);
console.log("Sum of numbers from 0 to 99:", result);
```

sum only even numbers from 10 to 100

```
function sumEvenNumbersFrom10To100() {
let sum = 0;
for (let i = 10; i <= 100; i += 2) {
sum += i;
}
return sum;
}
let result = sumEvenNumbersFrom10To100();
console.log("Sum of even numbers from 10 to 100:", result);
```

Using a for loop outputs the elements in reverse order

```
let arr = [43, "what", 9, true, "cannot", false, "be", 3, true];
// Example output:
// true 3.5  be  false cannot  true 9 what 43 OR each item on a new line
let arr = [43, "what", 9, true, "cannot", false, "be", 3, true];
let output = "";
for (let i = arr.length - 1; i >= 0; i--) {
  output = `${output} ${arr[i]} `;
}
console.log(output.substring(0, output.length ));
```

Given two arrays of integers. Add up each element in the same position and
create a new array containing the sum of each pair. Assume both arrays are of the same length.

```
let arr_3   = [4, 6, 7];
let arr_4    = [8, 1, 9];
// Example output:
// [12, 7, 16]
let arr_3 = [4, 6, 7];
let arr_4 = [8, 1, 9];
let result = [];
for (let i = 0; i < arr_3.length; i++) {
   result.push(arr_3[i] + arr_4[i]);
}
console.log(result);
```

Given a string change the every second letter to an uppercase ‘Z’. Assume
there is no space.

```
let str1 = "javascript";
// Example output:
// jZvZsZrZpZ OR each letter on a new line
// HINT: You can use  if((i+1) % 2 == 0) to check for even indexes
let str1 = "javascript";
let result = "";
for (let i = 0; i < str1.length; i++) {
```

```
  if ((i + 1) % 2 === 0) {
    result += 'Z';
  } else {
    result += str1[i];
  }
}
console.log(result);
```

Get the sum of two arrays…actually the sum of all their elements.
P.S. Each array includes only integer numbers. Output is a number too.

```
let arr_1 = [3, 5, 22, 5,  7,  2,  45, 75, 89, 21, 2]; // --> 276
let arr_2 = [9, 2, 42, 55, 71, 22, 4,  5,  90, 25, 26]; // --> 351
// Example output:
// 276 + 351 = 627

let arr_1 = [3, 5, 22, 5, 7, 2, 45, 75, 89, 21, 2];
let arr_2 = [9, 2, 42, 55, 71, 22, 4, 5, 90, 25, 26];


let sum1 = arr_1.reduce((acc, current) => acc + current, 0);
let sum2 = arr_2.reduce((acc, current) => acc + current, 0);
let totalSum = sum1 + sum2;
console.log(`${sum1} + ${sum2} = ${totalSum}`);
```