Class 3 Recap

We learned what a **list/array** is which is just a collection of items (I.e. list of strings, list of numbers)

```
// Array: list of items in JS

var listOfNumbers = [1,4,5,7,0];
```

We learned that we can do 4 things to a list

1) Add to a list

```
// Add to the list
listOfNumbers.push(10);
```

2) Update an item in the list, reminder JS uses **0-based indexing** which means we count items starting from 0 **not** 1 like you do in real life.

```
// Update an element in the list
// JS uses 0-based indexing, when counting up, we start from 0 not 1
listOfNumbers[0] = 99;
console.log(listOfNumbers)
// i want to update the third element in the list to 100, we use index 2
listOfNumbers[2] = 100;
```

3) Delete an item in the list, use the pop() function

```
// Delete from the list
listOfNumbers.pop()
```

4) Check how many items in the list

```
var listLength = listOfNumbers.length;
```

We learned what a **for-loop** is which is a framework in Javascript we use to **iterate** (or “go through”) each item in the list, and do something every time we loop through the list

```
// Iterating through the list
// Go through each element in the list
let listOfWords = ["hello", "my", "name", "is", "Ansel"] // list of string

// for-loop
let i; // i is a counter
// i++ means increase the value of i by +1 each time the for-loop run
```

```
// i < listOfWords.length is a guard condition to make sure the for loop only run
s listOfWords.length times
for(i = 0; i < listOfWords.length; i++) {
  console.log(listOfWords[i])
}
```

We also started on a calculator project, we create a function that takes in a string input like “3x4” and want the function to output the result based on basic arithmetic calculations.

```
// x is mulitplication, / is division, + is addition, - is substraction
function calculator(stringInput){
  // Step 1: iterate through the string, make the string into a list
  let listOfCalculatorItems = stringInput.split("")
  console.log(listOfCalculatorItems)

  // Step 2: figure out what is the operator being inputted
  let operator = listOfCalculatorItems[1];
  console.log(operator)

  // Step 3: to "parse" the numbers into actual numbers
  let firstNumber = parseInt(listOfCalculatorItems[0]);
  let secondNumber = parseInt(listOfCalculatorItems[2])

  // Step4: bunch of if stateements depending on what the operator is:
  let result;
  if (operator == "x") {
    result = firstNumber * secondNumber;
  } else if (operator == "/") {
    result = firstNumber / secondNumber;
  } else if (operator == "+") { // addition
    result = firstNumber + secondNumber;
  } else if (operator == "-") { // substration
    result = firstNumber - secondNumber;
  }

  return result;
}
```

We make **test cases** using console log and calling the function to ensure we get the right results when running the function:

```
// Calculator
let testCase1 = "3x5" // Data type? : string (text)
let testCase2 = "5+9"
let testCase3 = "7-3"
// Test cases
console.log(calculator(testCase1) == 15) // == checks if the value are the same
console.log(calculator(testCase2) == 14)
console.log(calculator(testCase3) == 4)
```

CHALLENGE TASKS:

Improve the calculator function so that it does not accept invalid inputs like “hello” or “3xx5”, and return a result like “Invalid input” message. Right now if you input things like “hello” the function just blows up and errors out, find a way to handle it.