

Lab: Unit Testing and Error Handling

Problems for exercises and homework for the ["JavaScript Advanced" course @ SoftUni](#).

Submit your solutions in the SoftUni judge system at <https://judge.softuni.bg/Contests/2766/Unit-Testing-Lab>.

Error Handling

1. Sub Sum

Write a function to sum a **range** of **numeric elements** from an array.

The function takes **three parameters** - the first is an **array**, the second is the **start index** and the third is the **end index**. Both indexes are **inclusive**. Have in mind that the array elements **may not be** of **type Number** and **cast everything**. Implement the following **error handling**:

- If the **first element** is not an array, **return NaN**
- If the **start index** is less than zero, consider its value to be a **zero**
- If the **end index** is outside the bounds of the array, assume it points to the **last index of the array**

Input / Output

Your function must take **three parameters**. As output, **return the sum**.

Examples

Input	Output
[10, 20, 30, 40, 50, 60], 3, 300	150
[1.1, 2.2, 3.3, 4.4, 5.5], -3, 1	3.3
[10, 'twenty', 30, 40], 0, 2	NaN
[], 1, 2	0
'text', 0, 2	NaN

2. Playing Cards

Create a JS **factory function** that returns a **Card object** holding the card's **face** and **suit**. **Throw an error** if the card is **initialized** with an **invalid face**.

- Valid card faces are: 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A
- Valid card suits are: S (♠), H (♥), D (♦), C (♣)

Both face and suit are expected as an **uppercase string**. The object also needs to have a **toString()** method that **prints** the card's face and suit **as a string**. Use the following UTF code literals to represent the suits:

- \u2660 – Spades (♠)
- \u2665 – Hearts (♥)
- \u2666 – Diamonds (♦)
- \u2663 – Clubs (♣)

Input / Output

The factory function takes **two string parameters**. The `toString()` method of the returned object must **return a string**.

Examples

Input	Output
'A', 'S'	A♠
'10', 'H'	10♥
'1', 'C'	Error

3. Deck of Cards

Write a function that takes a **deck of cards** as an **array of strings** and **prints** them as a **sequence** of cards (**space separated**). Use the solution from the **previous task** to generate the cards.

Print `Invalid card: ${card}` when an **invalid card** definition is passed as input.

Input / Output

The function takes an **array of strings** as a parameter. **Print** the list of cards as **string, separated by space**.

deckOfCards.js
<pre>function printDeckOfCards(cards) { function createCard () { // Use the solution from the previous task } // TODO }</pre>

Examples

Sample Input	Sample Output
['AS', '10D', 'KH', '2C']	A♠ 10♦ K♥ 2♣
['5S', '3D', 'QD', '1C']	Invalid card: 1C

Unit Testing

You are required to **submit only the unit tests** for the **object/function** you are testing.

4. Sum of Numbers

Write tests to check the functionality of the following code:

sumNumbers.js
<pre>function sum(arr) { let sum = 0; for (let num of arr){ sum += Number(num); } return sum; }</pre>

Your tests will be supplied with a function named 'sum()'. It should meet the following requirements:

- Take an **array of numbers** as an argument
- **Return** the **sum** of the values of **all elements** inside the array

5. Check for Symmetry

Write tests to check the functionality of the following code:

checkForSymmetry.js
<pre>function isSymmetric(arr) { if (!Array.isArray(arr)){ return false; // Non-arrays are non-symmetric } let reversed = arr.slice(0).reverse(); // Clone and reverse let equal = (JSON.stringify(arr) == JSON.stringify(reversed)); return equal; }</pre>

Your tests will be supplied with a function named 'isSymmetric()'. It should meet the following requirements:

- Take an **array** as an argument
- **Return false** for any input that isn't of the **correct type**
- **Return true** if the input array is **symmetric**
- Otherwise, **return false**

6. RGB to Hex

Write tests to check the functionality of the following code:

rgb-to-hex.js
<pre>function rgbToHexColor(red, green, blue) { if (!Number.isInteger(red) (red < 0) (red > 255)){ return undefined; // Red value is invalid } if (!Number.isInteger(green) (green < 0) (green > 255)){</pre>

```

    return undefined; // Green value is invalid
  }
  if (!Number.isInteger(blue) || (blue < 0) || (blue > 255)){
    return undefined; // Blue value is invalid
  }
  return "#" +
    ("0" + red.toString(16).toUpperCase()).slice(-2) +
    ("0" + green.toString(16).toUpperCase()).slice(-2) +
    ("0" + blue.toString(16).toUpperCase()).slice(-2);
}

```

Your tests will be supplied with a function named `'rgbToHexColor()'`, which takes **three arguments**. It should meet the following requirements:

- Take three **integer numbers**, representing the red, green, and blue values of RGB color, each **within the range [0...255]**
- **Return** the same color in hexadecimal format as a **string** (e.g. `'#FF9EAA'`)
- **Return undefined** if **any** of the input parameters are of an **invalid type** or **not** in the **expected range**

7. Add / Subtract

Write tests to check the functionality of the following code:

addSubtract.js

```

function createCalculator() {
  let value = 0;
  return {
    add: function(num) { value += Number(num); },
    subtract: function(num) { value -= Number(num); },
    get: function() { return value; }
  }
}

```

Your tests will be supplied with a function named `'createCalculator()'`. It should meet the following requirements:

- **Return a module (object)**, containing the functions `add()`, `subtract()` and `get()` as **properties**
- Keep an **internal sum** that **can't be modified** from the outside
- The functions `add()` and `subtract()` take a parameter that can be **parsed as a number** (either a number or a string containing a number) that is added or subtracted from the **internal sum**
- The function `get()` **returns** the value of the **internal sum**