

# Array And Object Assignment

## Assignment Questions



## 1. In the following shopping cart add, remove, and edit items

=> const shoppingCart = ['Milk', 'Coffee', 'Tea', 'Honey']

- add 'Meat' in the beginning of your shopping cart if it has not been already added
- add Sugar at the end of you shopping cart if it has not been already added
- remove 'Honey' if you are allergic to honey
- modify Tea to 'Green Tea'

## 2. The following is an array of 10 students ages:

=> const ages = [19, 22, 19, 24, 20, 25, 26, 24, 25, 24]

- Sort the array and find the min and max age.
- Find the median age(one middle item or two middle items divided by two)
- Find the average age(all items divided by number of items)
- Find the range of the ages(max minus min)
- Compare the value of (min - average) and (max - average), use abs() method

## 3. Object Extensibility and Sealing

- Use the Object.preventExtensions method to prevent any further additions of properties to the student object.
- Use the Object.isExtensible method to check if the student object is extensible. Store the result in a variable called extensibleStatus.
- Create a new object called teacher with a 'subject' property set to 'Math'.
- Use the Object.seal method to seal the teacher object, preventing any additions or deletions of properties.
- Use the Object.isSealed method to check if the teacher object is sealed. Store the result in a variable called sealedStatus.
- Print the extensibleStatus and sealedStatus to the console.

## 4. Assignment: Building a Student Management System

Description:

You are tasked with building a student management system using JavaScript. The system should allow you to perform various operations on a list of students, including adding, updating, deleting, and displaying student information.

Requirements:

Here is an initial array of students. Each student is represented as an object with the following properties: id, firstName, lastName, age, and grade.

JavaScript

```
const students = [  
  { id: 1, firstName: "John", lastName: "Doe", age: 20, grade:  
    "A" },  
  { id: 2, firstName: "Jane", lastName: "Smith", age: 22, grade:  
    "B" },  
  { id: 3, firstName: "Bob", lastName: "Johnson", age: 19, grade:  
    "A" },  
  // Add more students as needed  
];
```

Implement the following functions using pure JavaScript (without any external libraries or frameworks):

- Add a Student: Create a function to add a new student to the array.
- Update Student Information: Create a function to update a student's information based on their id.
- Delete a Student: Create a function to delete a student based on their id.
- List All Students: Create a function to display a list of all students.
- Find Students by Grade: Create a function to find all students who have a specific grade.
- Calculate Average Age: Create a function to calculate the average age of all students using array method.

**5. You are given a JavaScript object representing a student's information.** Your task is to use the 'for...in' loop to iterate over the properties of the object and perform various operations.

JavaScript

```
const student = {  
  name: "Alice",  
  age: 22,  
  major: "Computer Science",  
  GPA: 3.8,  
  isEnrolled: true  
};
```

- Create a function `displayStudentInfo` that takes the student object as a parameter. Inside this function, use a 'for...in' loop to iterate over the properties of the student object and print each property and its corresponding value to the console. The output should look something like this:

JavaScript

```
Property: name, Value: Alice  
Property: age, Value: 22  
Property: major, Value: Computer Science  
Property: GPA, Value: 3.8  
Property: isEnrolled, Value: true
```