**JS Advanced Exam**

**Problem 3. Unit Testing**

**Your Task**

Using **Mocha** and **Chai** write **JS Unit Tests** to test a variable named **carService**, which represents an object. You may use the following code as a template:

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| --- |
| describe(**"*Tests* …"**, **function**() {  describe(**"*TODO* …"**, **function**() {  ***it***(**"*TODO …*"**, **function**() {  *//* ***TODO:*** …  });  });  *//* ***TODO:*** …  }); |

The object that should have the following functionality:

**isItExpensive (issue) -** A function that accepts one parameter: **string**.

* If the value of the parameter **issue** is equal to "**Engine**" or "**Transmission**",

return: **`The issue with the car is more severe and it will cost more money`**

* Otherwise, if the above conditions are not met, **return** the following message:

**`The overall price will be a bit cheaper`**

* There is **no** need for **validation** for the **input**, you will always be given a string.

**discount (numberOfParts, totalPrice) -** A function that accepts two parameters: **number** and **number**.

* Percentage of discount based on the **numberOfParts:**
  + **15%** when **numberOfParts** is higher than 2 and smaller or equal to 7
  + **30%** when **numberOfParts** is higher than 7
* You need to **calculate** and **return** the **price** you will save, depending on the **discount**.
* If the **numberOfParts** is smaller or equal to **2,** return**:**

**"You cannot apply a discount"**

* Otherwise, calculate the discount and **return** the following message:

**`Discount applied! You saved ${result}$`**

* You need to validate the input, if the **numberOfParts** and **totalPrice** are not a **number**, **throw** an error: "**Invalid input**"

**partsToBuy** **(partsCatalog, neededParts) -** A function that accepts two arrays.

* + The **partsCatalog** array will store the parts and the price for them ([{ **part**: "**blowoff valve**", **price**: **145** }, { **part: "coil springs", price: 230** } ...])
  + The **neededParts** array will store the parts that you need to buy (["**blowoff valve**", "**injectors**" ...])
  + You must iterate through both the arrays and calculate the **total price** of the **parts** that are equal to the **neededParts**.
  + If **partsCatalog** is empty**,** return **0**
* Finally, **return** the total price of all parts needed.
  + There is a need for validation for the input, may not always be valid. In case of submitted **invalid** parameters, **throw** an error "**Invalid input**":
    - If passed **partsCatalog** or **neededParts** parameters are not an arrays.

**JS Code**

To ease you in the process, you are provided with an implementation that meets all of the specification requirements for the **carService** object:

|  |
| --- |
| **carService.js** |
| const carService = {    isItExpensive(issue) {      if (issue === "Engine" || issue === "Transmission") {        return `The issue with the car is more severe and it will cost more money`;      } else {        return `The overall price will be a bit cheaper`;      }    },    discount(numberOfParts, totalPrice) {      if (        typeof numberOfParts !== "number" ||        typeof totalPrice !== "number"      ) {        throw new Error("Invalid input");      }      let discountPercentage = 0;      if (numberOfParts > 2 && numberOfParts <= 7) {        discountPercentage = 15;      } else if (numberOfParts > 7) {        discountPercentage = 30;      }      let result = (discountPercentage / 100) \* totalPrice;      if (numberOfParts <= 2) {        return "You cannot apply a discount";      } else {        return `Discount applied! You saved ${result}$`;      }    },    partsToBuy(partsCatalog, neededParts) {      let totalSum = 0;      if (!Array.isArray(partsCatalog) || !Array.isArray(neededParts)) {        throw new Error("Invalid input");      }      neededParts.forEach((neededPart) => {        partsCatalog.map((obj) => {          if (obj.part === neededPart) {            totalSum += obj.price;          }        });      });      return totalSum;    },  }; |

**Submission**

Submit your tests inside a **describe()** statement, as shown above.