JavaScript Assignments

# Beginner Level

* Create an Array of 10 Numbers and print all using a loop and forEach().
* Find the Maximum and Minimum in an Array using loops.
* Reverse an Array manually.
* Create a function to receive array and sort order as argument and Sort an Array in Ascending and Descending Order.
* Sum of All Elements using a loop and .reduce().

# Intermediate Level (Create a function for all programs)

* Remove Duplicates from an Array.
* Find Even and Odd Numbers in an Array.
* Merge Two Arrays and Remove Duplicates.
* Check if Two Arrays are Equal element-wise.
* Find the Second Largest Number in an Array.
* Filter Elements Greater than a Given Value using .filter().

# Advanced Level

* Flatten a Nested Array (e.g., [1, [2, [3, 4]], 5] to [1,2,3,4,5]).
* Remove Falsy Values from an Array (e.g., [0, 1, false, 2, '', 3] and remove all other than numbers the output will be [0,1,2,3]).

# Real-World Scenarios

* Shopping Cart Total: Calculate total bill from array of item objects. Consider an array of objects [ {“product”:”Abc”,price:120,quantity:2},{“product”:”xyz”,price:90,quantity:3}]. Create a function CalculateTotal to receive the object and return the total bill.

* To-Do List Manager Using Array: Add, update, delete tasks and manage completion status. In this case create a global task array to store the task and create functions for add, delete, update i.e.
* add function will take task name as argument add the task with attributes id, name and status to the array.
* Delete function will take the task name and delete the task from the array
* Update function will take the taskname and status of the task and update the status of task in the array.
* Write a switch case program to carry on the operations, and after each operation print the task array
* CALUCATE BILL – see to the statement below

You have been given 2 arrays of objects (menu and categories).

Below is the structure of **categories**:-

**const** categories = [{

**id** : "C1",

  categoryName : "Platters",

  superCategory : {

    superCategoryName : "South Indian",

**id** : "SC1"

  }

}, {...}];

Below is the structure of **menu**:-

**const** menu = [{ **id** : "item1",

    itemName : "Butter Roti",

    rate : 20,

    taxes : [

      {

        name : "Service Charge",

        rate : 10,

        isInPercent : false

      }, {

        name : "GST",

        rate : 5,

        isInPercent : true

      }

    ],

    category : {

      categoryId : "C2"

    }

  }, {...}];

A variable **bill** is being passed into the function **calculateBill()**.

**bill** has the following structure:-

bill = { **id** : "B1",

  billNumber : 1,

  opentime : "06 Nov 2020 14:19",

  customerName : "CodeQuotient",

  billItems : [

    {

**id** : "item2",

      quantity : 3,

      discount : {

        rate : 10,

        isInPercent : true

      }

    },

    {

**id** : "item3",

      quantity : 5,

      discount : {

        rate : 10,

        isInPercent : false

      }

    }, {...},

]

};

**Task:**Complete the given function **calculateBill()** to calculate the total amount of the order. It also stores the bill items information in variable billItems in the format given below.

**Bill Item Info Format:** <item name>@<item price per piece> x <item ordered quantity> = <total item amount>

**Input format:** function parameter bill will be passed a bill object value.

**Output format: calculateBill()** returns an array having two values as total bill amount and bill items array respectively.

**NOTES:**

**1. The menu & categories variables are already defined as per the above given definition.**

**2. Round of all the final prices to 2 decimal places. e.g. - 6.606666 will be rounded to 6.61**

**3. Taxes and charges will be calculated on the discounted price, i.e. calculate the discount before calculating the taxes and charges.**

**4. If 'isInPercent' is set to true, that means that particular discount/tax/charge will be calculated as the percentage of the base price or discounted price (e.g. 10% discount on 100 rupees would be 10 rupees). Otherwise it would be absolute (e.g. 5 rupee discount on 100 rupees).**

**Sample Testcase with Explanation:-**

**Sample Input:-**

{

 "id":"B1",

 "billNumber":10,

 "openTime":"12/01/2021, 10:43:39",

 "customerName":"CodeQuotient",

 "billItems":[

   {

    "id":"item2",

    "quantity":3,

    "discount":{

      "rate":10,

      "isInPercent":false

    }

   },

   {

    "id":"item1",

    "quantity":15,

    "discount":{

      "rate":10,

      "isInPercent":true

    }

   },

   {

    "id":"item4",

    "quantity":2,

    "discount":{

      "rate":20,

      "isInPercent":false

    }

   },

   {

    "id":"item3",

    "quantity":5,

    "discount":{

      "rate":5,

      "isInPercent":true

    }

   }

 ]

}

**Sample Output:-**

1391.00

Paneer Butter Masala@120 **x** 3 = 455.40

Butter Roti@20 **x** 15 = 345.60

Dosai Platter@150 **x** 2 = 286.00

Masala Dosai@50 **x** 5 = 304.00

**Explanation:-**

The first line of output is the total bill generated, i.e. 1391.00

1. **Item2** is Paneer Butter Masala and has a rate of 20 with service charge 10%, GST 18% & Service Tax of 10% & has a discount of 10.

Without taxes the price of the item is 120. After discount it will be 120-10 = 110.

Applying charges/taxes on it will be:

Service Charge: 10% of 110 = 11 ,

GST: 18% of 110 = 19.8

Service Tax: 10% of 110 = 11.

Price after Adding taxes on the item = 110 + 11 + 19.8 + 11 = 151.8

Total Price of the product = Price of Single Item(After adding taxes) \* quantity of the product = 151.8 \* 3 = 455.40

2. **Item1** is Butter Roti and has a rate of 20 with service charge 10% & GST 18% & has a discount of 10%.

 Without taxes the price of the item is 20. After applying discount it will be 20 - (10% of 20) = 20-2 = 18

 Applying charges/taxes on it will be:

Service Charge: 10% of 18 = 1.8

GST: 18% of 18 = 3.24

 Price after Adding Taxes on the item = 18 + 1.8 + 3.24 = 23.04

 Total Price of the product = Price of Single Item (After adding taxes) \* quantity of the product = 23.04 \* 15 = 345.60

**And similarly for other items....**