1. Examine test01.html and then open test01.js in your editor. Modify the JavaScript file to implement the following functionality. **5 points**
2. Provide a prompt to the user to enter a bill total.
3. Convert this user input to a number (don’t worry about error handling for non-numbers).
4. Calculate the tip amount assuming 10% (simply multiply the user input by 0.1).
5. Use a const to define the 10% tip percentage.
6. Display the bill total and tip amount on the same console output line, for

example,

For bill of $20 the tip should be $2

1. Modify your results from previous Question (or create a copy of previous version) and implement the following functionality. **5 points**
2. Display an error message to the console if the user input is not a valid number.
3. Modify your results from the previous Question (or create a copy of the previous version) and implement the following functionality. **5 points**
4. Comment out code retrieving and validating the bill total from the user (we are going to replace user input with data from an array).
5. Define an array called billTotals that contains an array of numeric values—

for example, values of 50, 150, 20, 500, etc.

1. Define a new empty array called tips.
2. Loop through billTotals and first determine the tip percentage for each num-ber in the billTotals array using this logic: if total > 75 then tip% = 10%, if total between 30 and 75 then tip% = 20%, else if total < 30 then tip% = 30%.
3. Calculate tip by multiplying individual billAmount element by the appropriate

tip percentage.

1. Add (push) this tip to the tips array.
2. Once all the tips are calculated, then output to the console each bill total and tip

amount on a separate console line using the same format as you used in Q1(as is shown in the figure below) . This will require another loop (a for loop) that will iterate the billTotals array but reference both billTotals and tips arrays.

A screenshot of a computer

Description automatically generated

1. In this Question, you will be working with objects and arrays. You will use a variety of array manipulation functions along with loops and conditionals. **10 points**
2. The starting files test04.html, test04.js, and data.js have been provided. You will be editing test04.js.
3. Examine data.js to see the data variables you will be manipulating.
4. Modify test04.js and implement the following tasks. For each task, output
5. the transformed array or string via console.log. Use the online Mozilla Documentation1
6. for usage information about the various array functions.
   * Create a new variable named countries whose value is an array returned from the split() function. Pass the supplied csv variable as an argument to split().
   * Convert the countries array into the delimited string using join().
   * Output if csv and countries are arrays using isArray().
   * Sort the countries array using sort().
   * Reverse the sort using reverse().
   * Remove the first element in countries using shift().
   * Remove the last element in countries using pop().
   * Add two new elements to the front of the array using unshift().
   * Search for the country named Germany using includes().
   * Find the index for the country named Germany using indexOf().
   * Make a new array by extracting from the countries array using splice()
7. Modify test04.js and implement the following tasks using the other vari-ables in data.js.
   * Use a loop to output all cities whose continent=="NA".
   * Use a loop to output gallery name property whose country=="USA".
8. Modify your results from Q3 (or create a copy of previous ver-sion) and implement the following functionality: **5 points**
9. Define a function named calculateTip that takes a single parameter named

total that contains the individual bill total for which the tip is going to be

calculated.

1. In the function, calculate the tip using the same logic as the Q3. Your function should return the tip.
2. Change your previous code so that your loop uses this new function to calculate

the tip for each number in the array

Deliverables :

1. Screen shots of code and output
2. Zip all the files with proper naming conventions and submit the folder.

Grading Rubric :

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| Task | Description | Points |

|------|-------------|--------|

| \*\*Question 1\*\* | |

| i. | Provide a prompt to the user to enter a bill total. | 1 |

| ii. | Convert user input to a number. | 1 |

| iii. | Calculate the tip amount (10%). | 1 |

| iv. | Use a const to define the 10% tip percentage. | 1 |

| v. | Display bill total and tip on the console. | 1 |

| \*\*Question 2\*\* | |

| 1. | Display an error message if the user input is not a valid number. | 5 |

| \*\*Question 3\*\* | |

| i. | Comment out user input code. | 1 |

| ii. | Define an array called 'billTotals'. | 1 |

| iii. | Define a new empty array called 'tips'. | 1 |

| iv. | Loop through billTotals, determine tip percentage based on logic. | 1 |

| v. | Calculate tip, push to 'tips' array. | 1 |

| vi. | Output each bill total and tip on the console. | 1 |

| \*\*Question 4\*\* | |

| i. | Create a new variable 'countries' using split(). | 1 |

| ii. | Convert 'countries' array into a delimited string using join(). | 1 |

| iii. | Output if 'csv' and 'countries' are arrays using isArray(). | 1 |

| iv. | Sort 'countries' array using sort(). | 1 |

| v. | Reverse the sort of 'countries' using reverse(). | 1 |

| vi. | Remove the first element in 'countries' using shift(). | 1 |

| vii. | Remove the last element in 'countries' using pop(). | 1 |

| viii.| Add two new elements to the front of 'countries' using unshift(). | 1 |

| ix. | Search for the country named Germany using includes(). | 1 |

| x. | Find the index for the country named Germany using indexOf(). | 1 |

| xi. | Make a new array by extracting from 'countries' using splice(). | 1 |

| xii. | Output all cities whose continent=="NA" using a loop. | 1 |

| xiii.| Output gallery name property whose country=="USA" using a loop. | 1 |

| \*\*Question 5\*\* | |

| i. | Define a function 'calculateTip' with parameter 'total'. | 1 |

| ii. | Calculate tip using the same logic as Q3, return the tip. | 1 |

| iii. | Modify loop to use 'calculateTip' function for tip calculation. | 1 |

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| \*\*Total Points\*\* | | \*\*30\*\* |

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