

# JavaScript Foundation

## Assignment Questions



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## 1. Password Validator

Write a JavaScript program that checks if the entered password matches the confirmed password. If the passwords match, the program should log "Password Matched. Password validation Successful." to the console. Otherwise, it should log "Password didn't match. Password validation unsuccessful" to the console.

## 2. Calculator

Create a javascript program that takes in two numbers and a string operator. Make use of a switch statement to perform the operation on the two numbers.

The calculator function should:

- Take in two numbers, num1 and num2, and a string representing a mathematical operator, operator.
- Use a switch statement to determine which operation to perform based on the value of the operator.
- If the operator is one of the four valid operators (+, -, \*, /), perform the corresponding mathematical operation and store the result in a variable called result.
- If the operator is not one of the valid operators, log "Invalid operator" to the console.

## 3. Color Mixer

Write a JavaScript program that takes in two strings representing colors and uses a switch statement to determine the resulting color when the two colors are mixed. The program should print the resulting color based on the following criteria:

- If color1 is "red" and color2 is "blue" or vice versa, print "purple".
- If color1 is "red" and color2 is "yellow" or vice versa, print "orange".
- If color1 is "blue" and color2 is "yellow" or vice versa, print "green".
- If any other combination of colors is input, the program should print "Invalid color combination".

## 4. Highest Marks

A teacher wants to find out the highest marks scored by a student in a class of five students. The teacher enters the marks of all five students in an array called "marks". Write a program that iterates through the array and finds the highest marks scored by any student in the class. The highest marks must then be displayed to the teacher using the console. Make sure you use the ternary operator to find the student with the highest marks.

## 5. Capitalize

You are building a form where users can enter their names. You want to make sure that the first letter of the name is always capitalized, even if the user forgets to do so. Write a program that takes in the user's name as a string and uses the ternary operator to check if the first letter is lowercase. If it is, the program capitalizes it and returns the modified string. Otherwise, it returns the original string without any changes.

## 6. Vowel Counter

We want to count the number of vowels in a person's name. Given a name as input, the program should iterate through each character in the name, and check if it is a vowel or not. If the character is a vowel, it should be counted.

## 7. Remove Duplicates

In an online shopping application, customers can add multiple items to their cart. However, sometimes customers accidentally add the same item more than once, resulting in duplicate items in their cart. The duplicate items not only make it difficult for the customer to track the items they want to purchase but also affect the accuracy of the purchase order.

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To solve this problem, the application needs to remove duplicate items from the customer's cart. The program should take the customer's cart with duplicates as input, and return a new cart without duplicates.

Write a program to solve the problem of duplicate items in the cart by removing duplicates.

## 8. Inverted right-angled triangle pattern with asterisks

Write a program that takes an integer input  $i$  and prints an inverted right-angled triangle pattern of asterisks with  $i$  rows.

Inverted right-angled pattern:

If  $i=6$

## 9. Check for divisibility.

Write a program that takes an array of numbers and prints all the numbers that are divisible by 3, but not by 2. Use a for loop and continue statement.

## 10. Correct a bug

You are working on an e-commerce website where customers can add items to their cart. The cart stores the quantity of each item that the customer wants to purchase in an array of numbers. However, the website is currently experiencing a bug where the quantity of each item is being recorded incorrectly by reducing it to half. As a result, you need to write a JavaScript function that can double the quantity of each item in the cart array to correct the bug.

## 11. Unit converter

A local weather station needs to convert temperature data collected in Celsius to Fahrenheit before displaying it on its website. They want a function that can convert Celsius to Fahrenheit accurately and efficiently. The function should take input in Celsius and return output in Fahrenheit. This function will help the weather station to provide temperature readings that are easily understandable to a wider audience.

## 12. Calculate rental cost

A car rental company needs to calculate the cost of a rental based on the number of days rented and the type of car. They require a function that takes in the number of days rented and car type and returns the rental cost. The total cost would be the rental cost multiplied by the number of days rented.

The rental costs are

- Economy = Rs. 4000 /- per day.
- Midsize = Rs. 10,000 /- per day.
- Luxury = Rs. 20,000 /- per day.

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## 13. Bill splitter

A restaurant wants to calculate the total bill for a table based on the cost of each dish and the number of people sharing it. They require a function that takes in the cost of each dish and the number of people sharing it and returns an object that contains the total bill and the bill to be paid by each person in the group.

## 14. Calculate the final order price

A retail store needs to calculate the total cost of items in a customer's cart. A customer cart is an array of objects with unit price and quantity. Implement an arrow function to calculate the total cost of items, based on the unit price and quantity of each item.

## 15. Calculate the percentage of the discount

A retail store is offering a discount on its products and wants to calculate the percentage of the discount to show customers how much they can save. Given the original price and the discounted price of a product, implement an arrow function to calculate the percentage of the discount rounded off to two decimal places. This function could be useful for the store's marketing team to create promotions and offers that attract customers.

## 16. Generate a random number

Create a JavaScript program that generates a random number between 1 and 100 when the program starts. Use a self-invoking arrow function to generate the random number. This program can be used as a component in various games or applications that require a random number generator.

## 17. Build a banking application

A banking application needs to manage customer accounts and transactions. The user detail is stored in an object with a keys name and balance. Write functions using object methods to update a customer's account balance based on a deposit or withdrawal.

## 18. Change Text on Button click.

Create a simple HTML page with a heading and a button. The initial text must be "The most affordable learning platform", use JavaScript to change the heading text to "PW Skills" when the button is clicked. The button must toggle the text of a heading between "The most affordable learning platform" and "PW Skills" on each click.

## 19. Validate Password

You are building a login form for a website and need to validate user input using JavaScript. The form has two input fields: email and password, and a submit button.

Your task is to implement JavaScript code that validates the email and password input fields. The email field should contain the "@" symbol. The password field should have a minimum length of 8 characters. If either of these conditions is not met, an error message "Invalid email or password!" should be displayed in red color as a paragraph text below the form. If the password is valid the message "Valid email and password!" must be displayed in green color as a paragraph text below the form.

Your code should run when the user clicks the submit button and should prevent the form from submitting if the input is invalid. The input type of email must be text and the input type of password must be password without any minLength attribute specified.

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## 20. Dynamically Adding List Items to an Ordered List

Visit <https://pwskills.com/course/Full-Stack-web-development> page and look for "What you'll learn" section. The section consists of a list of information on what you will be learning in the course. You are required to write a JavaScript program that stores a pre-existing array of list items. On each button click, the program should add a new list item in sequential order. The program should verify if any remaining items are available in the list item array and add the next item to the list accordingly. If no items are left, the function should display a message indicating that all items have been added.

## 21. TODO App

Create a simple to-do app to add TODO items to the list through an input field and a button.

## 22. Progress Bar

Create a progress bar that fills up as the user scrolls down the page.

## 23. Change the color on click

Create a button that utilizes an array of colors and the Math.random method to change the background color of the page upon clicking.

## 24. Text Highlighting

Using the Document Object Model (DOM), highlight all words in a paragraph element that are greater than 8 characters. The highlighted words should be with a yellow background color.

## 25. Move the Image

The objective is to write a JavaScript program that enables an image to move according to the direction specified by the arrow keys. The program must be able to recognize and respond to the input from the arrow keys, and accordingly, update the position of the image on the screen. The program should be able to handle the movement of the image in all directions, including up, down, left, and right, in a smooth and responsive manner. Have a look at the event key codes before starting the project.