PROGRAMMER TRAINEE | JAVA EXERCISES

Basic Exercises

- **Reverse a String**
  Write a function to reverse a given string. Example: "hello" → "olleh".
- **Palindrome Checker**
  Check if a given string is a palindrome (same forwards and backwards). Ignore casing and spaces.
- **Fibonacci Sequence**
  Write a function to generate the first n Fibonacci numbers.
- **Factorial Calculator**
  Create a function that calculates the factorial of a number.

Array Manipulations

- **Remove Duplicates**
  Write a function to remove duplicate elements from an array.
  Example: `[1, 2, 2, 3]` → `[1, 2, 3]`.
- **Find Largest Number**
  Create a function to find the largest number in an array.
- **Sort an Array**
  Sort an array of numbers in ascending or descending order.
- **Flatten Nested Arrays**
  Write a function to flatten a deeply nested array. Example: `[[1, 2], [3, [4]]]` → `[1, 2, 3, 4]`.

Object and Data Handling

- **Convert Object to Array**
  Write a function that converts an object into an array of `[key, value]` pairs.
  Example: `{a: 1, b: 2}` → `[["a", 1], ["b", 2]]`.
- **Merge Two Objects**
  Merge two objects into one. Handle conflicts in properties.
- **Count Occurrences**
  Count the occurrences of each character in a string and return an object.
  Example: "hello" → `{h: 1, e: 1, l: 2, o: 1}`.

DOM Manipulation (Browser-Based)

- **Create a Counter**
  Build a simple counter with "Increment" and "Decrement" buttons using HTML and JavaScript.
- **Dynamic List**
  Create a dynamic list where users can add and remove items from a list displayed on the web page.
- **Color Changer**
  Write a script to change the background color of the page every time a button is clicked.

Advanced Concepts

- **Promise Basics**
  Write a function that simulates a network request using `setTimeout` and returns a promise.
- **Fetch API Practice**
  Use the `fetch` API to get data from a public API (like https://jsonplaceholder.typicode.com) and display it dynamically.
- **Event Delegation**
  Implement a list where clicking on a list item triggers an alert showing the item's text.
- **Debounce Function**
  Create a debounce function that delays the execution of a callback until after a specified wait time.