JavaScript Assignment

Part A: Practice Tasks

1. Variables & Data Types

- Declare variables for the following:
- Name
- Birth year
- Learning status (boolean)
- Favorite programming languages
- Profile details (object)
- Log each value along with its data type using `typeof`.

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2. Array & Object Operations

Create an array named `products` containing objects with the following properties: - `id` - `name` - `price` - `inStock`

Perform the following operations: - Add a new product to the array - Remove an existing product from the array - Update the price of a product - Print all product names - Filter and display only the products that are in stock

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3. Conditional Logic

- Write a program to check whether a given number is:
- Positive
- Negative
- Zero

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4. Loops

Using loops: - Print numbers from **1 to 20** - Print all **even numbers** between 1 and 20 - Print numbers from **10 to 1** in reverse order

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5. Functions

Create functions for the following: - Convert temperature from Celsius to Fahrenheit - Check whether a number is even or odd - Find and return the largest number among two numbers

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Part B: Assessment (Attempt ALL Questions)

1. Count Vowels in a String

Write a function that counts the number of vowels in a given string.

Input / Output Examples: - Input: `"javascript"` → Output: `3` - Input: `"education"` → Output: `5`

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2. Reverse an Array

Reverse an array **without using** the built-in `reverse()` method.

Input / Output Examples: - Input: `[1, 2, 3, 4]` → Output: `[4, 3, 2, 1]` - Input: `[10, 20, 30]` → Output: `[30, 20, 10]`

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3. Second Largest Number

Find the second largest number in a given array of numbers.

Input / Output Examples: - Input: `[10, 40, 30, 20]` → Output: `30` - Input: `[5, 15, 25, 10]` → Output: `15`

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4. Remove Duplicate Elements

Remove duplicate elements from a given array and return a new array with unique values.

Input / Output Examples: - Input: `[1, 2, 2, 3, 4, 4]` → Output: `[1, 2, 3, 4]` - Input: `["a", "b", "a", "c"]` → Output: `["a", "b", "c"]`

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5. Palindrome Check

Write a function to check whether a given string is a palindrome.

Input / Output Examples: - Input: `"madam"` → Output: `true` - Input: `"hello"` → Output: `false`

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6. Longest Substring Without Repeating Characters

Write a function that returns the length of the longest substring without repeating characters.

Input / Output Examples: - Input: `"pwwkew"` → Output: `3` - Input: `"dvdf"` → Output: `3` - Input: `"abcdef"` → Output: `6`

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7. Merge Two Sorted Arrays

Merge two sorted arrays into a single sorted array **without using** the built-in `sort()` method.

Input / Output Examples: - Input: `[1,4,7]`, `[2,3,6]` → Output: `[1,2,3,4,6,7]` - Input: `[-5,0,3]`, `[-2,1,4]` → Output: `[-5,-2,0,1,3,4]`

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8. Longest Common Prefix

Find the longest common prefix among an array of strings.

Input / Output Examples: - Input: `["interview", "internet", "internal"]` → Output: `"inte"` - Input: `["apple", "banana", "cherry"]` → Output: `""`

Part C: Mini Projects (Choose Any ONE)

1. User List Application

- Add user names
- Display the list of users
- Delete a user on click

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2. Todo Application

- Add new tasks
- Mark tasks as completed
- Delete tasks from the list

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3. Quiz Application

- Create 10 multiple-choice questions
- Add a timer for each question
- Display the final score at the end

Submission Guidelines

- Submit JavaScript source code
- Attach screenshots of output
- Follow proper variable and function naming conventions
- Ensure code is readable and well-commented

Happy Coding 🚀