JavaScript Practice Worksheet with case study

Mode: Browser Console (DevTools)
Tools: Chrome / Edge
Prerequisite: Basic HTML page opened in browser

Lab Instructions (Read First)

1. Open Chrome Browser
2. Press F12 or Right Click → Inspect
3. Go to Console tab
4. Execute each task one by one
5. Do not refresh unless instructed

Section 1: Introduction & Output

Task No	Task Description	Expected Action
1.1	Print a message	Use console.log()
1.2	Print your name	Store in variable and log
1.3	Display current year	Use new Date()

Section 2: Variables & Data Types

Task No	Task Description

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2.1	Declare variables using var, let, const
2.2	Store number, string, boolean
2.3	Check data type using typeof
2.4	Try changing a const value (observe error)

Section 3: Type Conversion

Task No	Task Description
3.1	Convert string "100" to number
3.2	Convert number 25 to string
3.3	Add "5" and 5 and observe output
3.4	Use Number(), String(), Boolean()

Section 4: Operators

Task No	Task Description
4.1	Perform addition, subtraction, multiplication
4.2	Compare two numbers using == and ===
4.3	Use logical operators &&, `
4.4	Increment and decrement a variable

Section 5: Conditional Statements

Task No	Task Description
5.1	Check if number is positive or negative
5.2	Check voting eligibility

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5.3	Use if…else if…else
5.4	Use switch for day of week

Section 6: Looping Statements

Task No	Task Description
6.1	Print numbers 1 to 10
6.2	Print even numbers using for
6.3	Use while loop
6.4	Use do…while loop

Section 7: Functions & Scope

Task No	Task Description
7.1	Create function to add two numbers
7.2	Call function with different values
7.3	Create arrow function
7.4	Demonstrate local vs global scope

Section 8: Arrays

Task No	Task Description
8.1	Create array of 5 subjects
8.2	Access first and last element
8.3	Add element using push()
8.4	Remove element using pop()

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8.5	Loop through array

Section 9: Strings

Task No	Task Description
9.1	Find string length
9.2	Convert to uppercase
9.3	Extract substring
9.4	Replace word in string
9.5	Check if string contains a word

Section 10: Mini Challenges (Console Only)

Task No	Challenge
10.1	Reverse a string
10.2	Find largest number in array
10.3	Count vowels in a string
10.4	Print multiplication table
10.5	Check palindrome

Submission Instructions (GitHub)

Step	Action
1	Create js-console-lab.md
2	Paste screenshots of Console outputs
3	Add comments explaining logic

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4	Push to GitHub repository
5	Share repository link

Case Study: Smart Retail Order Processing System (Console-Based JavaScript)

Business Context

A retail organization wants to validate and process customer orders using JavaScript logic before integrating with backend systems. All operations are simulated using browser developer tools (Console).

User Stories – Functional Requirements

User Story ID	Role	User Story Description	Acceptance Criteria
US-01	Sales Executive	As a Sales Executive, I want to create an order containing multiple items so that customer purchases can be processed.	Order contains item name, price, quantity and is stored as an array of objects
US-02	System	As a System, I want to validate item quantity so that zero or negative values are rejected.	Quantity must be greater than zero
US-03	Inventory System	As an Inventory System, I want to verify available stock so that orders do not exceed inventory.	Ordered quantity must be less than or equal to stock
US-04	Billing Engine	As a Billing Engine, I want to calculate subtotal for each item so that the total amount is accurate.	Subtotal = price × quantity
US-05	Billing Engine	As a Billing Engine, I want to calculate the total order value so that billing can proceed.	Total equals sum of all subtotals

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US-06	Marketing System	As a Marketing System, I want to apply discounts based on total amount so that promotional rules are enforced.	Discount applied as per defined slabs
US-07	Finance System	As a Finance System, I want to calculate GST on the discounted amount so that tax compliance is ensured.	GST calculated correctly
US-08	System	As a System, I want to handle invalid price inputs so that calculation errors are avoided.	Price must be numeric and greater than zero
US-09	Customer	As a Customer, I want to view an order summary so that I can understand my purchase details.	Summary displays items, total, tax, and final payable amount
US-10	System	As a System, I want to generate readable console logs so that debugging and validation are easy.	Logs are clear and well-formatted

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Discount Rules Reference

Order Value	Discount Applied
Above 10,000	10%
5,000 – 10,000	5%
Below 5,000	No Discount

Technical Constraints

Constraint	Description
Execution Mode	Browser Console only
Language	JavaScript (ES6 basics)
UI	Not required
Libraries	Not allowed

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Data Storage	In-memory variables

Expected Deliverables

Deliverable	Description
JavaScript File	Contains complete order processing logic
Console Output	Screenshots of execution
README	Explanation of business logic
GitHub Repository	Public repo with proper structure

Evaluation Criteria

Criteria	Weightage
Business Logic Accuracy	High
Use of JS Fundamentals	High
Error Handling	Medium
Code Readability	Medium
Console Output Clarity	Medium

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