DAY-4 Hands-On Activities

Problem 1

Assessment Goal: Ensure learners understand responsiveness and screen adaptability.

Hands-on Tasks:

1. Add viewport meta tag to the HTML page
2. Use media queries to:
    - Change background color on mobile screen
    - Adjust font size for smaller screens
3. Convert navigation into vertical layout on mobile
4. Test the page using browser responsive mode

Expected Outcome:
A webpage that looks different and readable on mobile and desktop screens.

Problem 2: Student Grade Evaluator (Level-1)

Scenario

A school wants a simple JavaScript program to evaluate a student's performance based on marks obtained in a subject.

📌 Requirements

- Accept the student's marks as a variable
- Use if–else statements to assign grades:
    - Marks ≥ 75 → Grade A
    - Marks ≥ 60 → Grade B
    - Marks ≥ 40 → Grade C
    - Marks < 40 → Fail

Display the grade on the web page or console

🛠 Technical Constraints

- Use JavaScript variables (let or const)
- Use numeric data types
- Use comparison and logical operators
- No functions or arrays allowed
- Output using console.log() or document.write()

🎯 Learning Outcome

You should be able to:

- Declare and use variables
- Apply comparison operators
- Implement conditional logic using if–else
- Understand decision-making in JavaScript

Problem 3: Simple Discount Calculator (Level-1)

Scenario

An online store wants to apply a discount based on the total purchase amount.

📌 **Requirements**

- Store purchase amount in a variable
- Apply discount rules:
  - Amount ≥ 5000 → 20% discount
  - Amount ≥ 3000 → 10% discount
  - Amount < 3000 → No discount
- Calculate and display:
  - Discount amount
  - Final payable amount

🛠 **Technical Constraints**

- Use arithmetic operators
- Use if–else statements
- Use only primitive data types

No user input (hardcoded values allowed)

🎯 **Learning Outcome**

You will be able to:

- Perform calculations using operators
- Work with expressions
- Apply conditional statements
- Build real-world logic using JavaScript basics

Problem 4: Traffic Signal Simulator (Level-2)

Scenario

A traffic control system needs a JavaScript program that displays instructions based on traffic signal color.

📌 Requirements

- Store signal color in a variable ("red", "yellow", "green")
- Use a **switch statement** to display:
- Red → Stop
- Yellow → Get Ready
- Green → Go

Handle invalid signal input gracefully

🛠 Technical Constraints

- Must use switch–case
- Use string data types
- Use console.log() for output
- No if–else allowed

🎯 Learning Outcome

Learners should be able to:

- Use switch statements effectively
- Compare string values
- Handle multiple conditions cleanly
- Understand control flow alternatives

Problem 5: Number Analysis Tool (Level-2)

Scenario

A utility program is required to analyze numbers and provide insights such as positivity, parity, and range.

📌 Requirements

- Store a number in a variable
- Use **conditional (ternary) operator** to check:
- Positive or Negative
- Use **if–else** to check:
- Even or Odd
- Use a **loop** to print all numbers from 1 to the given number

🛠 Technical Constraints

- Store a number in a variable
- Use conditional (ternary) operator to check:
- Positive or Negative
- Use if–else to check:
- Even or Odd
- Use a loop to print all numbers from 1 to the given number

🎯 Learning Outcome

You will be able to:

- Combine multiple control flow techniques

- Use loops for iteration
- Apply conditional operators
- Build multi-step logical programs