

## DAY-4 Hands-On Activities

### Problem 1: 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  $\geq 75 \rightarrow$  Grade A
  - Marks  $\geq 60 \rightarrow$  Grade B
  - Marks  $\geq 40 \rightarrow$  Grade C
  - Marks  $< 40 \rightarrow$  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 2: 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  $\geq 5000 \rightarrow 20\% \text{ discount}$
  - Amount  $\geq 3000 \rightarrow 10\% \text{ discount}$
  - Amount  $< 3000 \rightarrow \text{No discount}$
- 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 3: 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 4: Number Analysis Tool (Level-2)

### Scenario

A utility program is required **Number** 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