

## Laboratory Activity 3: JavaScript Fundamentals 1

### Learning Outcomes:

By the end of this activity, students will be able to:

1. Apply conditional statements (if, else if, else) in solving problems.
2. Implement loops (for, while) to handle repetitive tasks.
3. Create and call reusable functions in a program.
4. Demonstrate problem-solving by coding unique variations of a task.

### Activity Instructions

- Each student will be assigned unique input values or scenarios based on their student ID.
- Write the program in JavaScript.
- Submit your file with the filename: LaboratoryActivity3\_<YourLastName>.js
- Screenshots of code execution must be attached in the lab report.

### Preparation per Student

Step 1: Use the last digit of your student ID (0–9) as your unique base number.

Step 2: Use this base number in all the problems below.

Example: If your ID ends with 7, your base number is 7.

### Problem Set

#### Problem 1: Grade Calculator

Write a function `calculateGrade(score)` that returns the grade based on this rule:

- 90–100: A
- 80–89: B
- 70–79: C
- 60–69: D
- Below 60: F

Use  $\text{score} = \text{base\_number} \times 10 + 5$ . Example: If  $\text{base} = 7 \rightarrow \text{score} = 75 \rightarrow \text{Grade} = \text{C}$ .

#### Problem 2: Star Pattern

Write a function `showStars(rows)` that prints a triangle of stars using loops.

Rows should be equal to your base number + 2. Example: If  $\text{base} = 4 \rightarrow \text{rows} = 6$ .

#### Problem 3: Prime Number Checker

Write a function `isPrime(n)` that checks if a number is prime.

Check if your base number + 10 is prime. Example: If base = 3 → check 13 → Prime.

#### **Problem 4: Multiplication Table**

Write a function multiplicationTable(n) that prints the multiplication table of n from 1 to 10.

Use n = base number. Example: If base = 5 → print the multiplication table of 5.

#### **Expected Output (per student)**

A program file (.js) implementing all 4 problems.

A short report containing:

- Source code screenshots.
- Sample outputs.
- Link of your GitHub repository for the activity