Day 4: JavaScript Fundamentals

Instruction for Students:

1. Watch all the tutorial videos provided on the given websites. These will give you a solid understanding of JavaScript's foundational concepts like data types, operators, control flow, and functions.
2. Complete **at least 12 exercises** from the list below. You must choose **at least 3 exercises** from each of the following areas:
    - JavaScript Data Types and Operators
    - Control Flow Statements (if-else, loops)
    - Functions (declaration, expressions, arrow functions)

JavaScript Data Types and Operators Exercises:

1. **Identify and log different data types:**
    - Declare variables with values of string, number, boolean, undefined, null, and object types.
    - Use `typeof` to log their types in the console.
2. **Create a program that adds and compares numbers:**
    - Declare two numbers.
    - Add, subtract, multiply, divide them.
    - Use comparison operators (>, <, ==, ===, etc.) and log results.
3. **Use logical operators in a login system simulation:**
    - Declare two variables: `isLoggedIn` and `isAdmin`.
    - Use logical AND (&&) and OR (||) to check and log different user access scenarios.
4. **Concatenate strings and numbers:**
    - Create variables for first name, last name, and age.
    - Combine them into a sentence using both + and template literals (`).
5. **Check if a value is even or odd using modulus operator:**
    - Prompt the user to enter a number.
    - Use % to determine if it's even or odd and display the result.

Control Flow Statements (if-else, loops) Exercises:

1. **Create a simple grading system using if-else:**
    - Accept a score input and display grade based on conditions: (e.g., A for 90+, B for 80–89, etc.)
2. **Check if a number is positive, negative, or zero:**
    - Prompt the user for a number.
    - Use if-else statements to determine and log the result.
3. **Print numbers from 1 to 20 using a loop:**
    - Use a `for` loop to display all numbers from 1 to 20.
4. **Print only even numbers from 1 to 50:**
    - Use a loop with an `if` condition to log only even numbers.
5. **Create a multiplication table for a given number:**
    - Use a `for` loop to generate the table (1 to 10) for a number input by the user.
6. **Guess the number game:**
    - Generate a random number between 1 and 10.
    - Prompt the user to guess the number.
    - Use `while` loop and condition to give feedback until guessed correctly.

Functions (Declaration, Expression, Arrow Functions) Exercises:

1. **Declare a function to calculate the square of a number:**
   - Use a standard function declaration.
   - Pass a number and return its square.
2. **Create a function expression to check if a number is prime:**
   - Assign a function to a variable using function expression syntax.
   - Return true if the number is prime, otherwise false.
3. **Use an arrow function to calculate the factorial of a number:**
   - Create a compact arrow function that uses a loop or recursion to calculate factorial.
4. **Create a function to reverse a string:**
   - Take a string input.
   - Reverse it using loop or built-in methods, and return the result.
5. **Create a reusable calculator function:**
   - Accept three parameters: number1, number2, and operator (+, -, *, /).
   - Use if or switch to perform the correct calculation and return the result.
6. **Write a function that counts vowels in a string:**
   - Pass a string to a function.
   - Count and return the number of vowels (a, e, i, o, u).