Day 6

Instruction for Students:

1. Watch the tutorial videos on the provided website
2. Complete **all the exercises** from the list below.

Arrays and Objects

You are building an online shopping cart. Each item in the cart is represented by an object with properties: id, name, price, and quantity. Write a function that calculates the total price of the cart, considering the quantity of each item.

You are working on a weather app that receives an array of weather data objects. Each object contains the temperature and city name. Write a function that returns an array of cities with temperatures above 30°C.

Your company is storing employee data in an array of objects. Each employee object has name, role, and salary. Write a function to find the highest-paid employee and return their name and salary.

You have an array of students, where each student is represented by an object with name, age, and score. Write a function that filters out students who scored less than 50 and returns an array of names of students who passed.

You are creating a task manager. Each task is an object with taskId, title, status, and dueDate. Write a function that accepts an array of tasks and returns an array of completed tasks.

Iterating Over Arrays and Objects

You have an array of products, each with name, price, and category. Write a function to iterate through this array and display all products under the "Electronics" category in the console.

You are managing a list of books, each represented by an object with properties title, author, and yearPublished. Write a function that iterates over the books and displays the names of books published after 2000.

You are building a library system. Each book in the library is an object with title, author, availableCopies. Write a function to iterate over the books and log the titles of books with more than 5 available copies.

You are developing an inventory system. Each product has a name, price, and stock quantity. Write a function to iterate over the inventory and return the names of products that are out of stock.

You have an array of customers where each customer is represented by an object with name, email, and phone. Write a function to loop through the customers and send an email to each (simulating email sending by logging to console).

Introduction to ES6+ Features (Template Literals, Destructuring)

You are building a user profile page. Write a function that takes the user object (with name, email, and age properties) and returns a welcome message using **template literals**: "Welcome [name], your email is [email] and you are [age] years old."

You have a user object containing firstName, lastName, and age. Using **destructuring**, extract firstName and lastName and log a message saying, "Hello, [firstName] [lastName]!"

You are designing a contact card. You have an object with properties name, phone, and address. Use **template literals** to return a formatted string with the contact details like: "Name: [name], Phone: [phone], Address: [address]."

You are building a feature for a movie database. Each movie object contains properties title, year, and director. Use **destructuring** to extract title and director and return a string like: "The movie [title] was directed by [director]."

You have an object with a location containing city, state, and country. Use **destructuring** to extract city and country and return a string: "You are in [city], [country]."

JavaScript Functions for Data Handling (map, filter, reduce)

You are creating a salary calculation system. You have an array of employee objects, each with a name and salary. Write a function using **map** that returns a new array of employees with their salaries increased by 10%.

You are working on a store system where you have an array of items, each with a name and price. Write a function using **filter** that returns an array of items that cost more than $100.

You are building a quiz app. Each question object contains question, options, and correctAnswer. Write a function using **map** that creates an array of questions with their question text and correctAnswer only.

You are creating a budgeting tool. You have an array of expenses, each with name, category, and amount. Write a function using **reduce** to calculate the total spending in all categories.

You are building a library app. You have an array of books, each with a title, author, and genre. Write a function using **filter** to return an array of books of the genre "Science Fiction."