JS-PROG: JavaScript Programming

Course Overview

The JS-PROG: JavaScript Programming course is designed to take students from foundational programming syntax to intermediate application development. The curriculum balances language fundamentals with interactive web application mechanics

Course Description

The JS-PROG: JavaScript Programming course introduces students to the core language of the modern web. Participants transition from basic programming concepts to building interactive web applications. The curriculum emphasizes clean code, logical problem-solving, and practical development skills.
Key Focus AreasCore Mechanics: Mastering modern syntax, data structures, and functional programming rules.Web Interaction: Connecting scripts to HTML/CSS to dynamically update web pages.Problem Solving: Debugging errors, managing data lists, and handling user inputs safely.

Learning Curriculum

Module 1

Introduction & Environment Setup

Core Concept: Understanding how JavaScript engine works.Setup: Setting up code editors like Visual Studio Code.Execution: Running scripts via browser developer consoles.Integration: Linking external JavaScript files into standard HTML documents

Module 2

Language Fundamentals

Variables: Declaring identifiers using let, const, and var keywords.Data Types: Working with primitives like String, Number, Boolean, Null, and Undefined.Operators: Using arithmetic, comparative, logical, and evaluation expressions.Type Conversion: Mastering intentional casting versus implicit type coercion mechanisms

Module 3

Control Flow & Logic Structures

Conditionals: Writing branching logic with if, else if, else, and switch statements.Ternary Operator: Implementing short-hand inline evaluations for cleaner logic paths.Loops: Automating tasks using standard for, while, and do...while blocks.Loop Control: Managing execution flow breaks cleanly using break and continue keywords

Module 4

Functions & Scope Mechanics

Declarations: Building code structures using standard function declarations versus expressions.ES6 Arrows: Writing modern concise functions via arrow block syntax rules.Scope: Navigating strict behavioral bounds between global scopes and local block levels.Closures: Working with state retention inside nested functional code execution loops

Module 5

Complex Data Structures

Arrays: Storing list configurations safely inside singular continuous memory references.Array Methods: Transforming arrays efficiently via .map(), .filter(), and .reduce() operations.Objects: Creating associative key-value property pairs using object literal structures.Context: Understanding the contextual assignment behavior of the underlying this keyword.

Module 6

Document Object Model (DOM) & Events

Targeting Elements: Locating individual target HTML layout nodes using querySelector or getElementById methods.Node Mutation: Modifying user-facing text strings or rendering dynamic inner layout wrappers.Event Listeners: Attaching real-time operational response blocks to page click actions.Form Handling: Reading interactive form submissions while injecting input safety evaluation protocols.

Module 7

Error Resolution & Testing Basics

Interception: Isolating runtime processing application crashes gracefully with try...catch...finally statements.Console Debugging: Reading execution terminal error stacks to resolve logic design oversights.Code Verification: Introducing unit test behaviors using assertions.

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