JavaScript Guide for Beginners to Intermediate Learners

Introduction to JavaScript

JavaScript is a versatile programming language primarily used for web development. It was created by Brendan Eich in 1995 and has since become a cornerstone of web technology, alongside HTML and CSS JavaScript is used to create interactive and dynamic web pages, server-side applications, and even mobile apps.

Syntax Overview

- Variables var, let, const
- Data Types Number, String, Boolean, Object, Undefined, Null
- Comments: Single-line (//), Multi-line (/* */)
- Operators: Arithmetic, Comparison, Logical

Control Flow

- If-else statements
- Switch statements
- Loops: for, while, do-while

Functions

- Regular functions
- Arrow functions
- Parameters and return values

Objects and Arrays

- Creation and initialization
- Properties and methods
- Nesting objects and arrays

DOM Manipulation

- Basic document access
- Query selectors
- Handling events

JavaScript Properties and Methods

- String methods: .length, .slice(), .toUpperCase()
- Array methods: .push(), .map(), .filter()
- Object methods: Object.keys(), Object.values()
- Math object: Math.random(), Math.floor()

ES6+ Concepts

- Let/const
- Template literals
- Destructuring
- Spread/rest operators
- Modules
- Classes

Event Handling

- addEventListener
- Event types
- Bubbling and capturing

Async JavaScript

- Callbacks
- Promises
- Async/Await with examples

Real-world Use Cases

- Validation
- Form handling
- Interactive UI

Mini Projects or Practice Examples

- Basic calculator
- To-do list