1. Introduction to JavaScript

- What is JavaScript?
- History and Evolution of JavaScript
- JavaScript's Role in Web Development (Client-Side vs Server-Side)
- Setting Up JavaScript (Browser Console, Code Editors, Running Code)

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2. Basic Syntax and Structure

- Writing Your First JavaScript Program
- JavaScript Statements and Expressions
- Semicolons and Line Breaks
- Comments (Single-line and Multi-line)

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3. Variables and Data Types

- **Declaring Variables**
  - `var`, `let`, `const` and their differences
- **Primitive Data Types**
  - String, Number, Boolean, Undefined, Null, Symbol, BigInt
- **Reference Data Types**
  - Object, Array, Function
- **Type Conversion**
  - Implicit and Explicit Conversion, `Number()`, `String()`, `Boolean()`

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4. Operators in JavaScript

- Arithmetic Operators (`+`, `-`, `*`, `/`, `%`, `++`, `--`)
- Assignment Operators (`=`, `+=`, `-=`, `*=`, `/=`)
- Comparison Operators (`==`, `===`, `!=`, `>`, `<`, `>=`, `<=`)
- Logical Operators (`&&`, `||`, `!`)
- Ternary Operator (`condition ? expr1 : expr2`)
- Bitwise Operators

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5. Control Flow

- **Conditional Statements**
  - `if`, `else if`, `else`
  - `switch` statement
- **Loops**
  - `for` loop
  - `while` loop
  - `do...while` loop
  - `for...in` and `for...of` loops (for iterating over objects and arrays)
- **Break and Continue**

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6. Functions

- **Defining Functions**
  - Function Declaration vs. Function Expression
  - Arrow Functions (ES6)
- **Function Parameters and Arguments**
  - Default Parameters
  - Rest Parameters (`...args`)
- **Return Values**
- **Scope and Closures**
- **Callback Functions**

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7. Arrays and Objects

- **Arrays**
  - Creating Arrays, Accessing Elements
  - Methods: `push()`, `pop()`, `shift()`, `unshift()`, `slice()`, `splice()`, `map()`, `filter()`, `reduce()`
  - Iterating through Arrays (`forEach()`, `map()`, `for...of`)
- **Objects**
  - Creating Objects, Accessing Properties
  - Methods: `Object.keys()`, `Object.values()`, `Object.entries()`
  - Object Destructuring
  - `this` Keyword

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8. Error Handling

- **Try-Catch Block**
  - Throwing Custom Errors
- **Handling Asynchronous Errors**
  - Promises, `catch()`

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9. DOM Manipulation

- **Selecting Elements**
  - `getElementById()`, `querySelector()`, `querySelectorAll()`
- **Modifying Elements**
  - Changing Content: `.innerHTML`, `.textContent`
  - Changing Attributes: `.setAttribute()`, `.getAttribute()`
  - Changing Styles
- **Event Handling**
  - Event Listeners (`click`, `submit`, `keydown`, etc.)
  - Event Propagation: `event.stopPropagation()`, `event.preventDefault()`
  - Event Delegation

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10. Asynchronous JavaScript

- **Callbacks**
  - Understanding Callbacks and Callback Hell
- **Promises**
  - Creating and Using Promises
  - `then()`, `catch()`, `finally()`
- **Async-Await (ES7)**
  - Syntax and Working with `async` and `await`
- **Fetching Data (AJAX)**
  - Using `fetch()` API
  - Making GET, POST, PUT, DELETE requests
  - Handling JSON Data

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11. JavaScript ES6 and Beyond

- **Let and Const** (Scope)
- **Arrow Functions**
- **Template Literals**
- **Destructuring Assignment**
    - Array and Object Destructuring
- **Spread and Rest Operators**
    - Spread for Arrays and Objects
    - Rest for Function Parameters
- **Modules (import/export)**
    - Importing and Exporting Functions, Objects, and Variables

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12. Object-Oriented JavaScript (OOP)

- **Classes and Objects**
    - Creating Classes, Constructors
    - Methods in Classes
- **Inheritance**
    - Prototype Chain and `extends`
- **Encapsulation and Abstraction**
- **Polymorphism**
- **Getters and Setters**

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13. Working with APIs

- **Understanding RESTful APIs**
- **Consuming APIs in JavaScript**
    - `fetch()`, `XMLHttpRequest`
    - Sending Requests and Handling Responses
- **CORS (Cross-Origin Resource Sharing)**
    - Resolving CORS Issues

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14. JavaScript Frameworks and Libraries

- **Introduction to Libraries**
  - jQuery, Lodash, Moment.js, etc.
- **Frameworks**
  - React.js, Angular, Vue.js (Overview and Purpose)

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15. Advanced JavaScript Concepts

- **Higher-Order Functions**
  - Functions as Arguments
- **Currying and Partial Application**
- **Generators and Iterators**
- **Memory Management and Garbage Collection**
- **Event Loop and Call Stack**
- **Design Patterns**
  - Singleton, Factory, Module

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16. Testing and Debugging

- **Using `console.log()` for Debugging**
- **Browser DevTools**
- **Unit Testing with Jest or Mocha**
- **Test-Driven Development (TDD)**