

# Course Title: Front-end Development using JavaScript

## Course Description:

This course will teach you the basics of JavaScript, one of the most popular and powerful programming languages for front-end development. You will learn how to write JavaScript code, use variables, data types, operators, control structures, functions, objects, arrays, events, DOM manipulation and more. You will do multiple projects and activities to nourish your JavaScript knowledge.

## Course Prerequisites:

Before enrolling in the course, you need to know about:

- Basics of HTML, HTML tags, HTML structuring
- Basics of CSS, class and id selectors, different styling properties
- Fundamentals of Bootstrap

## Course Details:

**Total sessions:** 12

**Session's duration:** 1 hour

**Session's schedule:** Every Saturday and Wednesday

**Course Project Demo:** [Book Rating \(shz-code.github.io\)](https://shz-code.github.io/Book-Rating/)

## Course Objectives:

By the end of this course, you will be able to:

- Write JavaScript code that follows the syntax and style rules
- Declare and use variables, data types, operators, and expressions in JavaScript
- Use control structures such as if-else statements, loops, and switch cases to control the flow of your code
- Define and use functions, parameters, arguments, and return values in JavaScript
- Create and use objects, properties, methods in JavaScript
- Create and use arrays, methods, loops, and array methods in JavaScript
- Handle user input and output using events, event listeners, event handlers in JavaScript
- Manipulate the HTML document using the Document Object Model (DOM) methods and properties in JavaScript

## Course Sessions:

### Session 1: Introduction to Course Support Tools (20 May)

- Description: This session will introduce you to tools like Git, GitHub, browser dev tools, code editor setup.
- Topic:
  - Basic Git commands (add, commit, push config)
  - Basic GitHub understanding
  - Browser dev tools.

### Session 2: Variables, Data Types, Operators and Simple Problem Solving (24 May)

- Description: This session will teach you how to declare and use variables, data types, and operators in JavaScript. You will learn about the difference between var, let, and const keywords, the basic data types such as numbers, strings, Booleans, null, and undefined, and the common operators such as arithmetic, assignment, comparison, logical, and ternary operators.
- Topics:
  - Variables: declaration, assignment
  - Data types: numbers, strings, Booleans, null, undefined
  - Operators: arithmetic, assignment, comparison, logical, ternary
  - Problem solving using the gained knowledge
- Activities:
  - Assignment: (5-6) problems will be given for you to solve at home.

### Session 3: Control Flow (27 May)

- Description: This session will teach you how control flow works using if-else statement, loops, switch and solve related problems.
- Topics:
  - If-else statements: syntax, examples, nested if-else statements
  - Loops: syntax, examples, types of loops (for loop, while loop, do-while loop), break and continue statements
- Activities:
  - Assignment: (5-6) problems will be given for you to solve at home.

### Session 4: Array, Objects and Function (31 May)

- Description: This session will teach you how to define and use functions, arrays and objects in JavaScript. You will learn how to create functions using function declarations and function expressions, use case of array and objects
- Topics:
  - Array: declaration, assignment
  - Object: declaration, assignment
  - Function: declaration, assignment
  - Array methods (pop, push, shift, unshift, map, slice, find, filter, forEach etc.)
  - Array of objects
- Activities:
  - Assignment: (5-6) problems will be given for you to solve at home.

### **Session 5: Project Design using Bootstrap (3 June)**

- Description: In this session you will start designing your course project using Bootstrap
- Topics:
  - Bootstrap design understanding and implementation
  - Usage of CSS variables

### **Session 6: DOM Manipulation (7 June)**

- Description: This session will teach you what is DOM and how to manipulate it using JavaScript and why DOM manipulation is important for interactive front-end.
- Topics:
  - DOM methods: getElementById, getElementsByName, getElementsByTagName, etc.
  - DOM properties: innerHTML, style, innerText, value
- Activities:
  - Assignment: Sample website will be provided. You need to apply specified DOM operations at your home.

### **Session 7: JavaScript Event Handling (10 June)**

- Description: This session will teach you what are events and event handlers in JavaScript, and why they are useful for creating dynamic and interactive web pages with some common examples.
- Topics:
  - Event handling using property.
  - Event handling using method.
- Activities:
  - Assignment: Sample website will be provided. You need to apply specified event handlers at your home.

## Session 8: Advanced DOM Manipulation (14 June)

- Description: This session will teach you advanced DOM manipulation techniques that will enhance your DOM manipulation knowledge and achieve greater results.
- Topics:
  - DOM methods: `querySelector`, `querySelectorAll`
  - `NodeList` operations
  - Complex event handling
- Activities:
  - Assignment: Sample website will be provided. You need to apply specified DOM operations at your home.

## Session 9: JavaScript Project Implementation (17 June)

- Description: In this session you will start implementing JavaScript in your project and understand different use cases.
- Topics:
  - Required DOM elements selection
  - Navigation using JavaScript
  - Render Items Dynamically using JavaScript

## Session 10: JavaScript Project Implementation (21 June)

- Description: In this session you will finish implementing JavaScript in your project and understand different use cases.
- Topics:
  - Filtering
  - Add new Item

## Session 11: Understanding API and Asynchronous Functions (24 June)

- Description: This session will teach you what is API and asynchronous functions in JavaScript.
- Topics:
  - Asynchronous Functions: `async`, `await`, paradigm
  - API: definition and usage
  - JSON file format
  - Fetch API
  - Different API requests
- Activities:
  - Assignment: Sample API will be provided. You need to call the API and show results in the DOM.

## Session 12: Project API Implementation (5 July)

- Description: In this session you will implement API in your project. You will get and post data from and to the API.
- Topics:
  - API setup.
  - Data fetching and rendering
  - Data submit

