



# Modern Web and App Development

## Introduction

- **Modern:** Latest tools, frameworks, and best practices used in the industry today.
- **Web:** Websites and platforms that run on browsers, from simple pages to complex systems.
- **App Development:** Building applications that solve problems and work on both web and mobile devices.

This course will take you **from beginner to professional level**, step by step — starting with internet basics, moving into front-end development, mastering advanced JavaScript and TypeScript, learning modern frameworks like React and Next.js, building backend systems with Node.js and databases, and finally creating mobile apps with React Native.

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## Pre-requisites

- Minimum: Matriculation
- Basic computer familiarity (working with files, folders, browsing the internet)

# Books

HTML & CSS BY JON DUCKETT

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## JAVASCRIPT

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# A Smarter Way to Learn JavaScript

The new approach that uses technology to cut your effort in half



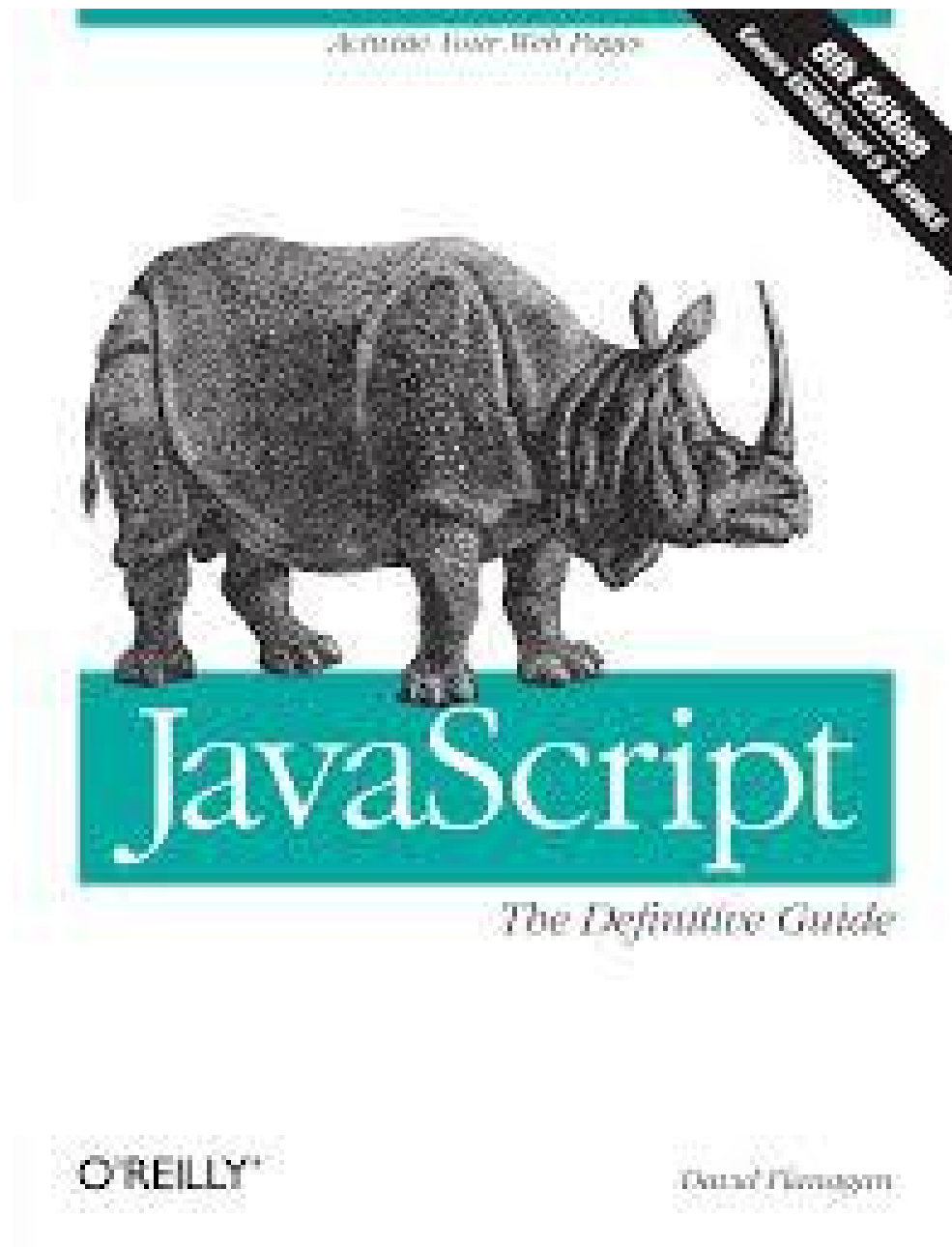
**1** Read a 10-minute chapter of this book to get each concept.

**2** Code for 20 minutes at ASmarterWayToLearn.com to own the skill. (It's free.)

**Mark Myers**

## THE DEFINITIVE GUIDE

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# Course Roadmap

## Module 1: Internet & Web Fundamentals (2.5 Months)

**Objective:** Build a strong foundation in internet concepts and website basics.

**Topics:**

- Internet basics & how it works
- HTTP, Domain, Hosting, DNS, Browsers
- HTML5 & CSS3 (with books & references)
- CSS animations & media queries
- Flexbox & Bootstrap
- Fonts & Icons (Google Fonts, Font Awesome)
- Figma (Plugins, Developer Mode, Pixel Perfect UI, AI tools)
- Web Accessibility
- Hosting on Netlify
- Git & GitHub basics
- Domain & Hosting (Deployment via Namecheap)

**Assessments:**

- Quizzes on HTML5 & CSS3
- Hackathon after module completion

## **Module 2: Front-End Development (4.5 Months)**

**Objective:** Learn advanced programming with JavaScript & TypeScript.

**Topics:**

- JavaScript (basics to advanced ES versions)
- Fetch API & AJAX
- Closures, Template Literals, Destructuring, Rest/Spread, Arrow Functions
- Promises, Callbacks, Async/Await
- Classes, Modules, Iterators, Generators
- Array methods & Higher-order functions
- Optional Chaining, Ternary Operator
- TypeScript (Compiler, Annotations, Interfaces, Classes, Generics, Enums)
- Advanced Git (Branches, PR, Merge, Rebase, Cherry Pick)
- GSAP Animations
- Supabase (Authentication, Database, Storage)

**Assessments:**

- Quizzes (JavaScript Chapters 1–89, TypeScript, Git)
- Hackathon after module completion

## **Module 3: Modern Front-End Development (3 Months)**

**Objective:** Build production-ready web apps using React & Next.js.

**Topics:**

- Node runtime & Package Managers (NPM, Yarn)
- ReactJS v19 (CRA, Vite)
- Linters & Formatters, Module Bundlers
- State Management (Context API, Redux Toolkit, TanStack Query, Zustand optional)
- API Integration with Axios
- Tailwind CSS & ShadCN
- Authentication Strategies & Web Security (CORS, HTTPS, CSP, OWASP risks)
- Next.js Introduction
- Testing (Playwright, Vitest)

**Assessments:**

- Quiz on ReactJS
- Hackathon after module completion

## **Module 4: Back-End App Development (4 Months)**

**Objective:** Build scalable backend services with Node.js, Express, and Databases.

**Topics:**

- Node.js & Express.js
- RESTful APIs (routes, architecture, CRUD)
- Authentication & Middleware (JWT, Protected Routes, Bcrypt)
- WebSockets, Socket.IO
- File System, Messaging Queues, Redis, Node-cache
- Cloudinary (media storage)
- MongoDB & PostgreSQL (CRUD, Queries)
- Payment Integration (Stripe, PayPal)
- Linux basics & Deployment (Google Cloud)

**Assessments:**

- Quizzes (Node.js/Express, MongoDB, PostgreSQL)
- Hackathon after module completion



## **Module 5: Mobile App Development (1 Month)**

**Objective:** Learn how to build mobile apps with React Native.

**Topics:**

- React Native (CLI & Expo)
- Building mobile apps for iOS & Android
- Publishing apps on stores

**Assessments:**

- Quiz on React Native
- Hackathon after module completion