Web Developer Roadmap [Beginner]

12 Week Plan Overview

Things You Will Learn In This 12 Weeks

- HTML deep dive
- CSS deep dive
- JavaScript fundamentals
- Web Development fundamentals
- Chrome developer tools
- Git Basics
- Interview Prep

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12 Week Plan Details

Week 1

- HTML
  - Anatomy of HTML
    - history, what can HTML do
  - What is DOM
    - What are DOM nodes
  - Tags - `HTML, Body, Head, Nav`
  - Tags - `Div, P, Section, Span`
- CSS
  - What is Box-model
  - Selectors - `Id, Class, Element-tag`
  - Properties - `Color, Background-color, Border`
  - Properties - `Margin, Padding`
- Chrome Developer Tools
  - Elements tab
    - select DOM element through dev-tool
  - Inspect an element
  - Inspect styles of the element
  - Change styles through the inspect tool
  - Delete classes from the element
  - Add new class to the element through the dev tool
- Exercise
  1. Create HTML page

2. Add Navigation bar with items - Home, About, Contact Us
3. Set background color of navigation bar to Blue
4. Add a text paragraph inside Div element below navigation bar

Week 2

- HTML
  - Formatting: `Strong, Italicize, Subscript, Strikeout`
  - Inner HTML
  - `Anchor` tag
  - `Images`
    - add image
    - set height-width
    - repeat property
    - size property
  - DOM Manipulation through dev tools
    - change inner HTML
    - delete DOM node
- CSS
  - Decoupling CSS from HTML
  - Write CSS in a file
  - Import CSS from CDN
  - What is CDN
  - Why to use CDN
  - Playing with Fonts, font size, weight, family
  - Height and Width
  - Position properties
  - Display properties
- JavaSCript
  - Hello World
  - What and Why JavaScript
  - Writing comments - single, multi-line
  - Variables - `var, let, const`
    - What is the difference between them
    - When to use which type of declaration
  - Operators
    - `add, subtract, multiple, divide, mod`
- Exercise
  1. Edit style of an element from dev tool

2. Edit inner HTML of an element from dev tool
3. Edit class and other attributes from dev tool
4. Add image with a link that will take you to google.com

Week 3

- HTML
  - Unordered Lists
  - Ordered Lists
  - Attributes vs Properties
  - Builtin and Custom attributes
- CSS
  - Fun with borders - `style, dash, dotted, width`
  - Fun with shadows
  - Using Google Font Icons
    - Add phone, home, facebook, instagram icon
    - Use Font awesome icons
  - Working with floats
    - Left, right float
  - Centering elements and other position quirks
  - `px` vs `%` units
- JavaScript
  - Operators - `%, +=, -=, *=, /=`
  - Primitive data types
    - `Numbers, Boolean, String, etc`
  - Complex data types
    - objects, arrays
  - `null` and `undefined`
- Exercises
  1. CSS selectors - grab element by id, class, and tag and change their property
  2. Make image float to the right of the text-paragraph
  3. Simple project - make a list of grocery
  4. Perform addition, subtraction, division, and multiplication of two numbers

Week 4

- HTML
  - Input and Button tags
  - Web storage, local storage, session storage
    - Why do we need them
    - When to use which type of storage
  - Intro to Canvas and SVG
    - Difference between them
  - Accessibility
    - Why is this important
    - How to add accessibility attributes on Anchor, Buttons, Image elements
- CSS
  - Parents, siblings, and other selectors
  - Pseudo classes
  - Pseudo elements
    - What and why do we use them?
  - CSS Gradients
- JavaScript
  - `Truthy and Falsy` values
    - List of such values
    - How to check if a variable is truthy or falsy
  - Conditionals - `if, else, switch, ternary`
    - How to write nested ternary
  - Loops
    - `for, while`
    - When to use which?
    - Are there any performance differences between them?
  - Arrays and collections
    - When to use arrays?
    - How to traverse arrays?
- Chrome Developer Tools
  - Debugging your function using console logs
  - What is JSON
  - JSON.Stringify
    - Change JavaScript Object to JSON
    - Change JSON to JavaScript Object
  - Tip and tricks of using dev tools
- Exercises
  1. Create 3 beautiful colored gradient squares
  2. Add alternate text to an image
  3. Swap values of 2 variables in JavaScript
  4. Display if this year is a leap year on a webpage

Week 5

- HTML
  - Script tag
    - Add JS code in `Script` tag
    - Add JS from external file
  - `Form` tag
  - Input types - `text, password, email, etc.`
- CSS
  - Changing CSS with pure JavaScript
  - `Add, remove, and toggle classes` with JavaScript
- JavaScript
  - `document vs window object`
  - Event listeners
  - Event handling
  - Event bubbling and Event delegation
  - JavaScript as OOP
- Git
  - What and why Git
  - Create a Git repo
  - What are branches
  - Committing, pushing, and pulling changes
    - What are the commands for these operations?
    - What flags do they take
- Exercise
  1. Write JavaScript in a separate file and use it in your HTML
  2. Change paragraph text color from black to red using JavaScript
  3. Create a simple login form and create an onClick event handler that will log a message to the console
  4. Grab element by its ID and change its inner HTML
  5. Print first 100 prime numbers

Week 6

- HTML
  - Radio buttons
  - Checkboxes
  - When to use Radio buttons vs When to use Checkboxes
- CSS
  - Introduction - What and Why Flexbox
  - Flexbox properties
    - `flex-direction`
    - `flex-wrap`
    - `just-content`
    - `align-items`
- JavaScript
  - Builtin Functions
  - Custom Functions and Methods
    - Write a custom function
    - Call that custom function from another function
  - Scoping in JavaScript
    - Function scope vs Block scope
  - What is hoisting
- Git
  - Install Git locally
  - Use `git -v` command on command line
  - Merging remote branch X into your local branch Y
  - Deleting a local branch
- Exercise
  1. Dynamically update the image source
  2. Create a dropdown list using flexbox and list elements
  3. Write a function to alert "Hello World" message
  4. Write a function that takes in a string and a number as arguments and console logs its value
  5. Find length of this string - "I love JavaScript"
  6. Change the case to all-capital for this string - "I love JavaScript"

Week 7

- CSS
  - `“Initial”, “Inherit” and “Unset”` Properties
  - Normalizing and Validating your CSS
    - Why to do it
    - How to do it
  - What are CSS Sprites
    - When and why to use them
- JavaScript
  - The `"new"` keyword
    - How to create new objects in JavaScript
  - The `"this"` keyword
    - How is `this` different in JavaScript
    - Examples of how `this` is different depending on the context
  - Function as first-class citizens
    - What do first-class citizens mean?
  - What is JavaScript closures
- Web Development
  - HTTP fundamentals
    - What is HTTP
    - How does internet work?
  - How does browser work?
  - What happens behind the scenes when you visit any site?
    - Search about this on `ngninja.com`
- Git
  - Writing good commit messages
    - Format to follow
    - Why writing good commit messages is important?
- Exercise
  1. Validate your CSS file and fix the errors
  2. Pass a function-object as a parameter to another function X and call that function-object argument inside function X
  3. Explain JavaScript closures to a 12-year old

Week 8

- CSS
    - Media queries
        - Target mobile, tab, and desktop resolutions
    - Writing responsive CSS for all the major platforms
- JavaScript
    - Intervals and Timers
    - Intro to Ajax
        - What is it?
        - Why is used?
        - Who uses it?
    - What are Callback functions
    - Objects and Prototypes
        - What are prototypes?
        - What is prototype chaining?
    - Prototypal Inheritance
        - How is this different than Class-based Inheritance?
- Web Development
    - Different HTTP Headers
    - Caching in browser
    - Application tab in Chrome Development Tool
- Exercise
    1. Fix the CSS of your website to make it responsive on mobile platforms
    2. Implement inheritance in JavaScript for the following hierarchy - LivingThing -> Animal -> Cat

Week 9

- CSS
    - 2D and 3D transformations
    - Animations
- JavaScript
    - Recursion

        - Why to use recursion?
    - Fun with array methods
        - `map, reduce, filter`
    - More Fun with array methods
        - `find, concat, reverse`
- Web Development
    - What is REST API
    - Measure your website performance
    - How to reduce page load time?
    - What are package management services like NPM, Yarn?
- Exercise
    1. Create a bouncing ball using just CSS and HTML
    2. Get sum of numbers in array using "reduce" method
    3. Find a number in an array
    4. Measure the time taken by your website to load and to the first-render

Week 10

- CSS
    - What is Shadow DOM?
    - Why is Shadow DOM important?
- JavaScript
    - ES6+ introduction
        - New features added in ES+
        - Make a list of them and learn them one at a time - practice them
    - Introduction to Classes and constructors
        - What are Classes in JavaScript?
        - How are they different than any other class-based language?
- Web
    - Introduction to web security
        - Why is web security important?
        - How the internet has become insecure now?
    - Basics of famous web security attacks
        - `XSS, Brute Force, DDoS`
- Mini project
    - Build a Tic-tac-toe game with pure JavaScript, HTML, and CSS
        - Create a border for the tic-tac-toe game
        - Add click-handler that will render X on odd click numbers
        - Add click-handler that will render O on even click numbers

        - At the end reveal the winner in GREEN color -> Even Or Odd

Week 11

- Real world project 1
    - A fun TODO app
        - Create a TODO item
        - Mark a TODO item as complete
        - Set a due date for the TODO item
        - Earn virtual coins every time you complete item within its due date

Week 12

- Real world project 2
    - Food recommendation app
        - App that gives random suggestion to cook food for today
        - Add JSON list of food that will be your database
        - Button to generate a random suggestion
        - Swipe left or right to dislike or like the food (or Click buttons)
        - Share the food recommendation on Facebook or Twitter

Further Reading

If you liked this roadmap, I have more surprises for you.

I'm gonna teach web development to 10,000 students this year, with your help!

What if I told you I can help you master JavaScript in 3 months? I need only 30 minutes of your time everyday or 2 hours per week.

You'll learn all about these JavaScript concepts - and much more:

- Rest, Spread, Destructuring
- map, filter, reduce - more array functions
- Closures, hoisting, event handling, IIFE
- Arrow functions, execution context
- "new", "this" - working and nuisances
- Weekly challenges

If you are interested - check out this link to the FREE trial of my JavaScript mastery bootcamp.

Hundreds of students have already enrolled ⭐⭐⭐⭐⭐