**Summary**

This six-week crash course on web development for complete beginners is designed to provide a comprehensive and practical introduction to the key technologies and concepts in web development. The course is structured into three modules, each spanning two weeks, with three sessions per week. Each session includes hands-on exercises to reinforce learning, and each week culminates with an assignment to solidify the content covered.

**Objectives**

1. **Understand how the web works** and the roles of web servers, clients, and browsers.
2. **Learn the basics of HTML and CSS** to create and style web pages.
3. **Gain proficiency in JavaScript** to add interactivity to web pages.
4. **Use version control with Git and GitHub** for project collaboration and management.
5. **Implement responsive design with Bootstrap** to create mobile-friendly web pages.
6. **Understand database integration and backend** development to create dynamic web applications.
7. **Deploy web applications using various hosting** options and automate deployment with CI/CD pipelines.
8. **Apply all learned concepts** in a final project that demonstrates comprehensive web development skills.

**Module 1: Web Foundations (Weeks 1-2)**

**Week 1: Introduction and Basics**

**Session 1: How the Web Works**

- Overview of the internet and the web
- Understanding web servers and clients
- How browsers work
- Hands-on: Setting up a local web server

**Session 2: Introduction to HTML**

- Basics of HTML

- HTML structure: tags, elements, attributes
- Creating a simple webpage
- Hands-on: Building a personal profile page

**Session 3: Advanced HTML**

- Semantic HTML
- Forms and input types
- Multimedia elements: images, audio, video
- Hands-on: Enhancing the personal profile page with forms and multimedia

**Assignment:**

- Create a personal homepage that includes a brief bio, a form to collect user information (name, email, and message), and at least one image and one video embedded.

**Week 2: Styling with CSS**

**Session 1: Introduction to CSS**

- What is CSS and how it works with HTML
- CSS syntax and selectors
- Applying styles to HTML elements
- Hands-on: Styling the personal profile page

**Session 2: Advanced CSS**

- Box model, margins, padding, and borders
- Positioning elements: static, relative, absolute, fixed
- CSS Flexbox basics
- Hands-on: Creating a responsive layout

**Session 3: CSS Grid and Responsive Design**

- Introduction to CSS Grid
- Media queries and responsive design principles
- Hands-on: Creating a responsive photo gallery

**Assignment:**

- Style your personal homepage created in Week 1. Use Flexbox or CSS Grid to create a responsive layout, and ensure the site looks good on both desktop and mobile devices.

**Module 2: JavaScript and Version Control (Weeks 3-4)**

**Week 3: JavaScript Fundamentals**

**Session 1: Introduction to JavaScript**

- What is JavaScript and its role in web development
- JavaScript syntax and basic programming concepts
- Variables, data types, and operators
- Hands-on: Adding interactive elements to the profile page

**Session 2: JavaScript Functions and Events**

- Functions and scope
- Event handling
- DOM manipulation
- Hands-on: Creating a dynamic to-do list

**Session 3: Advanced JavaScript**

- Arrays and objects
- Loops and conditionals
- Introduction to APIs
- Hands-on: Fetching and displaying data from a public API

**Assignment:**

- Enhance your personal homepage with JavaScript. Add an interactive element such as a to-do list or a form validation feature. Fetch and display data from a public API (e.g., weather information for the user's location).

**Week 4: Version Control and Frameworks**

**Session 1: Introduction to Git and GitHub**

- What is version control and why it’s important
- Basic Git commands: init, add, commit, push, pull
- Introduction to GitHub and creating a repository
- Hands-on: Setting up a project on GitHub

**Session 2: Using GitHub for Collaboration**

- Branching and merging
- Pull requests and code reviews

- Hands-on: Collaborating on a group project

**Session 3: Introduction to Bootstrap**

- What is Bootstrap and why use it
- Setting up Bootstrap in a project
- Using Bootstrap components and grid system
- Hands-on: Building a responsive landing page

**Assignment:**

- Create a new project repository on GitHub and push your personal homepage project to it. Use Bootstrap to redesign your homepage, incorporating Bootstrap components and the grid system to improve the layout and responsiveness.

**Module 3: Backend Integration and Deployment (Weeks 5-6)**

**Week 5: Database and Backend Integration**

**Session 1: Introduction to Databases**

- What is a database and why it's important
- Overview of SQL vs NoSQL databases
- Hands-on: Setting up a simple MongoDB database

**Session 2: Integrating Databases with Web Applications**

- CRUD operations (Create, Read, Update, Delete)
- Connecting a web application to a database
- Hands-on: Building a simple guestbook application

**Session 3: Introduction to Backend Development**

- Overview of backend technologies and languages
- Setting up a simple Node.js server
- Hands-on: Building a basic API with Node.js

**Assignment:**

- Set up a simple guestbook application that allows users to submit their names and messages, stores these in a SQLite database, and displays the entries on the webpage. Push your changes to the GitHub repository.

**Week 6: Deployment and Final Project**

**Session 1: Deployment Basics**

- What is deployment and why it's important
- Overview of hosting options (e.g., GitHub Pages, Netlify, Heroku)
- Hands-on: Deploying a static website to GitHub Pages

**Session 2: Advanced Deployment Techniques**

- Continuous Integration/Continuous Deployment (CI/CD)
- Setting up a CI/CD pipeline with GitHub Actions
- Hands-on: Automating deployment with GitHub Actions

**Session 3: Final Project**

- Planning and structuring the final project
- Applying everything learned: HTML, CSS, JavaScript, Git, Bootstrap, backend, and deployment
- Hands-on: Building and deploying a complete web application

**Assignment:**

- Finalise and deploy your web application. Ensure it includes all the features and technologies learned throughout the course (HTML, CSS, JavaScript, Bootstrap, a database, and backend integration). Present your final project, including a live demo and a link to the GitHub repository.

**Conclusion**

This crash course is an immersive introduction to web development, structured to build a solid foundation in both front-end and back-end technologies. Students will learn how the web works, how to create and style web pages using HTML and CSS, how to add interactivity with JavaScript, and how to manage projects using Git and GitHub. They will also gain experience in integrating databases and developing back-end services, culminating in the deployment of a fully functional web application. Through hands-on projects and weekly assignments, students will apply their learning in practical scenarios, ensuring they are well-prepared for real-world web development challenges.