GitHub Copilot Beginner to Professional Web Application Development

Prerequisites: Knowledge of Web Application development

Day 1: Introduction to GitHub Copilot & Basics of Web Development

Morning Session:

- **Overview of GitHub Copilot**
    - What is GitHub Copilot?
    - Installing and configuring Copilot in VS Code.
    - Best practices for Copilot usage.
- **HTML Basics**
    - Structure of an HTML document.
    - Semantic HTML tags and their usage.
    - Introduction to forms and input elements.
- **Lab**:
    - Create a simple HTML webpage (e.g., personal portfolio).
    - Use GitHub Copilot to auto-generate boilerplate code and tag structures.

Afternoon Session:

- **CSS Basics**
    - Selectors, properties, and values.
    - Layout techniques: Flexbox and Grid.
    - Styling with external CSS and inline styles.
- **Lab**:
    - Style the HTML webpage created earlier using CSS.
    - Use Copilot to suggest style rules and layout enhancements.

Day 2: Intermediate Web Development

Morning Session:

- **JavaScript Basics**
    - Variables, data types, and operators.
    - Functions, loops, and conditionals.

    - Introduction to DOM manipulation.
- **Lab**:
    - Add interactivity to the webpage (e.g., form validation or dynamic content).
    - Use Copilot to suggest JavaScript functions and event handlers.

Afternoon Session:

- **Advanced CSS**
    - Transitions, animations, and responsive design.
    - Media queries and mobile-first design principles.
- **Lab**:
    - Enhance webpage responsiveness and animations.
    - Use Copilot for responsive layout suggestions.

Day 3: Advanced JavaScript & GitHub Integration

Morning Session:

- **Advanced JavaScript Concepts**
    - ES6+ features: Arrow functions, destructuring, template literals.
    - Promises and asynchronous programming.
    - Working with APIs (fetch and async/await).
- **Lab**:
    - Fetch data from a public API and display it dynamically on the webpage.
    - Use Copilot to write asynchronous functions.

Afternoon Session:

- **Version Control with Git and GitHub**
    - Git basics: Clone, commit, push, pull.
    - Collaborating with GitHub repositories.
    - Integrating Copilot in collaborative development.
- **Lab**:
    - Push the project to GitHub and collaborate using branches and pull requests.

Day 4: Introduction to React.js

Morning Session:

- **React Basics**
    - Setting up a React environment (using create-react-app).
    - Components, props, and state.
    - JSX syntax.
- **Lab**:
    - Create a basic React application.
    - Use Copilot to scaffold React components and state logic.

Afternoon Session:

- **React Advanced Concepts**
    - Lifecycle methods and hooks.
    - Managing forms and events in React.
    - Conditional rendering.
- **Lab**:
    - Build a multi-component React app (e.g., a to-do list).
    - Use Copilot to assist in structuring and optimizing the app.

Day 5: Project Development and Deployment

Morning Session:

- **React with External APIs**
    - Fetching and displaying API data in React.
    - Handling loading and error states.
- **Lab**:
    - Integrate an external API into the React application.
    - Use Copilot to simplify API integration and state management.

Afternoon Session:

- **Deployment and Wrap-Up**
    - Deploying React applications using GitHub Pages
    - Best practices for AI-assisted coding.
- **Lab**:
    - Finalize and deploy the React project.
    - Present the project and discuss Copilot’s contributions.