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Course : Full Stack Web Development

Course Description :

This course provides a comprehensive introduction to Full Stack Web Development, covering both front-end and back-end technologies. Students will learn how to build interactive and dynamic web applications using popular frameworks and tools.

Course Objectives :

- Understand the fundamentals of web development and the client-server architecture.
- Gain proficiency in HTML, CSS, and JavaScript for front-end development.
- Learn back-end development using popular programming languages and frameworks.
- Build a full-fledged web application incorporating front-end and back-end components.
- Explore database management systems and understand data persistence in web applications.
- Understand web security concepts and best practices.
- Develop problem-solving and critical thinking skills required in web development.

Course Outline :

Week 1: Introduction to Web Development

- Overview of web development technologies and tools
- Client-server architecture and HTTP fundamentals
- Introduction to HTML and CSS

Week 2: Front-End Development & Frame works

- Introduction to JavaScript and its role in web development
- Document Object Model (DOM) manipulation
- Responsive web design and CSS frameworks (e.g., Bootstrap)
- Introduction to front-end frameworks (e.g., React, Angular, Vue.js)
- Building dynamic and interactive web applications
- Single-Page Applications (SPAs) and routing

Week 3: Back-End Development

- Introduction to back-end programming languages (e.g., Node.js, Python, Ruby)
- Server-side frameworks (e.g., Express.js, Django, Ruby on Rails)
- RESTful API design and development

Week 4: Databases and Data Persistence

- Introduction to relational and non-relational databases
- Database management systems (e.g., MySQL, MongoDB)
- Integrating databases with web applications

Week 5: Web Application Security

- Common web security threats and vulnerabilities
- Authentication and authorization techniques
- Best practices for secure web development

Week 6: Deployment and DevOps

- Introduction to deployment strategies (e.g., Heroku, AWS, Firebase)
- Version control systems (e.g., Git) and collaborative development
- Basics of Continuous Integration and Continuous Deployment (CI/CD)

Week 7: Project Development

- Collaborative project development in teams
- Applying learned concepts and technologies to build a full-stack web application
- Project management and agile development methodologies

Grading Criteria:

- Quizzes and Assignments: 40%
- Project Development: 40%
- Class Participation: 20%