

INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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BACK-END WEB DEVELOPMENT

Introduction to Backend Development

- Overview of backend development role and responsibilities
- Comparison with frontend and full-stack development
- Key concepts: server-side programming, databases, APIs

Programming Languages and Frameworks

- Introduction to backend programming languages (e.g., Python, Node.js, Ruby)
- Overview of backend frameworks (e.g., Django, Express.js, Ruby on Rails)
- Choosing the right language and framework for project requirements

Database Fundamentals

- Introduction to relational and non-relational databases
- Database management systems (e.g., MySQL, PostgreSQL, MongoDB)
- CRUD operations and database design principles

Web Servers and APIs

- Basics of web servers (e.g., Apache, Nginx)
- Creating RESTful APIs with CRUD operations
- Authentication and authorization in APIs

Server-side Rendering vs. Client-side Rendering

- Differences between server-side rendering and client-side rendering
- Implementing server-side rendering with frameworks
- Benefits and challenges of each approach
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Authentication and Authorization

- Authentication methods
- Implementing authentication and authorization in backend applications
- Secure practices for user authentication

Testing and Debugging Backend Applications

- Unit testing vs. integration testing
- Debugging techniques for backend code
- Test-driven development (TDD) principles

Performance Optimization and Scalability

- Identifying performance bottlenecks in backend applications
- Techniques for optimizing database queries and API responses
- Scaling backend applications horizontally and vertically

Security Best Practices

- Common security vulnerabilities in backend applications
- Implementing secure coding practices
- Using HTTPS and TLS for secure communication

Deployment and DevOps

- Continuous Integration and Continuous Deployment (CI/CD) pipelines
- Deployment strategies for backend applications (e.g., Docker, Kubernetes)
- Monitoring and logging for backend applications