Faysal Aziz

Laravel Mastery

Deployment to Intelligent Systems in 3 days

FA-0285 · 3 days

Data & Analytics

Introduction

This course is explicitly tailored for experienced Laravel developers looking to advance their skills. Starting directly from Linux server deployment strategies, the program swiftly transitions to key differences between Laravel 10 and Laravel 11, leveraging the latest enhancements and structural shifts. We will thoroughly explore advanced concepts, including event-driven architecture, secure RESTful API design, JWT authentication, and the integration of machine learning to build sophisticated recommendation engines. The instructor’s extensive 30-year industry background ensures practical insights and industry-proven methods, bypassing theoretical redundancy and emphasizing actionable knowledge.

Learning outcomes

Upon completion of this course, participants will:

- Deploy Laravel applications securely and efficiently on Linux servers.
- Effectively navigate applications to and from Laravel 10 to Laravel 11 and vice versa, understanding all significant differences.
- Develop sophisticated, secure, and performant RESTful APIs with JWT authentication.
- Implement Laravel’s event and queue systems for scalable, decoupled applications.
- Integrate basic machine learning solutions into Laravel to create recommendation engines.
- Enhance application performance, maintainability, and scalability using advanced patterns and best practices.

Prerequisites

- Solid experience with Laravel 10 or higher.

- Proficient Linux command-line skills (Ubuntu/CentOS) and familiarity with web servers (Nginx/Apache).
- Comprehensive knowledge of PHP (version 8+ features).
- Familiarity with RESTful API concepts and token-based authentication mechanisms.
- Basic awareness of queue systems (Redis or similar).

Training outline

1. Professional Deployment Strategies for Laravel Applications

- Server prerequisites: PHP version and required extensions, Linux server configurations.
- Nginx/Apache configuration best practices, including HTTPS setup and security.
- Permissions management and security (SSH keys, directory permissions).
- Optimizing PHP-FPM settings and supervisor configurations.
- Continuous Integration/Continuous Deployment (CI/CD) pipelines with GitHub Actions or Jenkins.
- Practical examples using Laravel Forge or custom deployment scripts.

2. Migrating from Laravel 10 to Laravel 11

- Architectural changes and structural updates.
- Route registration modifications (web, console, API).
- Middleware adjustments and service provider enhancements.
- Introduction and effective use of Laravel Reverb for real-time communication.
- Enhanced rate-limiting features and route grouping changes.
- Changes in testing practices (Pest default adoption, improved SQLite testing).
- Practical migration roadmap, backward compatibility considerations, and upgrade planning.

3. Advanced Event-Driven Architecture in Laravel

- Designing and managing events and listeners for asynchronous workflows.
- Queue drivers comparison (Redis, Beanstalkd), efficient job handling, retries, and backoff strategies.
- Event and listener testing methodologies and strategies.
- Real-world applications: Notifications, analytics processing, logging, and event streaming.

4. Building Secure RESTful APIs and JWT Authentication

- Advanced API design practices using API resource controllers and resources.
- JWT integration using packages such as Tymon/JWT-Auth.
- Token lifecycle management (issuing, refreshing, revocation).
- Scopes, middleware protection, advanced authorization strategies.
- Implementing robust error handling, request validation, and rate limiting in APIs.

5. Machine Learning Integration: Building a Recommendation Engine

- Overview of ML techniques relevant for recommendation engines (collaborative filtering, content-based).
- Integrating PHP-based machine learning solutions or external Python APIs.
- Data modeling, feature extraction, and preprocessing steps.
- Implementing recommendation algorithms using collaborative filtering and user-item similarity.
- Creating scalable API endpoints to deliver personalized recommendations.
- Deployment and continuous retraining workflows for ML models.

6. Advanced Application Patterns and Best Practices

- Implementing the Repository and Service Layer patterns.
- Utilizing action classes, domain-driven design concepts, and event-driven patterns.
- Advanced debugging and profiling techniques (Conditional and Dumpable traits).
- Crafting custom Artisan commands and scheduled tasks for routine operations.

7. Performance, Monitoring, and Scalability

- Caching strategies (config, route, query caching).
- Optimizing database performance through indexing and query profiling.
- Comprehensive logging, monitoring, and alerting systems (e.g., integration with ELK stack).
- Scaling horizontally using load balancers and effective queue management.
- Health checks, application metrics, and best practices for maintaining high availability.

8. Final Review and Q & A: Practical Migration Roadmap

- In-depth discussion of migration from Laravel 10 to Laravel 11.
- Handling production challenges, rollback scenarios, and ensuring smooth transitions.

- Best practices for maintaining application stability post-upgrade.

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9. Instructor Highlight

This course is taught by a seasoned professional with over 30 years of real-world software engineering experience, emphasizing practical strategies, direct industry applicability, and immediate usability.

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