

MERN Stack Training

Company: Sensation Software Solutions

Student Name: Gurvinder Singh

Training Duration: 6 Months

Days: 91

Objective of the Day

The primary objective of **Day 91** was to perform an in-depth **backend code review and refactoring** of the GadgetShop project. Since the project was approaching completion, the focus shifted from feature development to **stability, scalability, and maintainability** of backend code.

The trainer emphasized that in real industry projects, the final phase involves improving code quality, removing redundancy, and ensuring that backend APIs are production-ready.

Backend Code Review Process

The day started with a complete walkthrough of the **Node.js + Express backend repository**. Each major module was reviewed carefully, including:

- Product APIs
- Authentication and Authorization logic
- Cart and Wishlist APIs

- Order and Checkout APIs

Special attention was given to how data flows between controllers, routes, and database models.

Refactoring API Controllers

Several backend controllers were refactored to improve readability and performance:

- Removed duplicate logic across APIs
- Centralized error handling using middleware
- Improved naming conventions for variables and functions
- Ensured async/await usage with proper try–catch blocks

This made the backend code easier to debug and more professional.

Database Consistency & Validation

MongoDB schemas were reviewed to ensure:

- Required fields are properly validated
- Default values are applied correctly
- Enum values (order status, product categories) are enforced

This step ensured **data consistency**, which is critical for large-scale applications.

Security Improvements

Security-related checks were reviewed:

- JWT token verification in protected routes
- Role-based access for admin APIs
- Prevention of unauthorized product updates or deletions

The trainer explained how weak backend validation can cause serious production issues.

Hands-on Practice

- Tested APIs after refactoring
 - Verified no breaking changes
 - Checked database entries manually
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Conclusion

Day 91 focused heavily on **backend code quality and security**, ensuring that GadgetShop's server logic follows professional industry standards and is stable for deployment.