Here's a structured roadmap to learn Cashfree payment gateway integration with Spring Boot REST API:

### \*\*Chapter 1: Introduction to Payment Gateways\*\*

- \*\*Topic 1\*\*: What is a Payment Gateway?

- Overview of how payment gateways work

- Key players: Merchant, Customer, Bank, Payment Gateway

- Types of payment gateways: Hosted, Integrated, Direct

- \*\*Topic 2\*\*: Overview of Cashfree Payment Gateway

- Features and benefits of Cashfree

- Types of payments Cashfree supports (UPI, Cards, Net Banking, etc.)

- Cashfree's API offerings: Payments, Payouts, and Subscription APIs

### \*\*Chapter 2: Spring Boot Basics (for Payment Integration)\*\*

- \*\*Topic 1\*\*: Setting up a Spring Boot Project

- Maven dependencies for Spring Boot

- Setting up a REST controller

- \*\*Topic 2\*\*: Introduction to REST APIs in Spring Boot

- Basic concepts: GET, POST, PUT, DELETE methods

- Building APIs for real-world use cases

### \*\*Chapter 3: Setting Up Cashfree Account\*\*

- \*\*Topic 1\*\*: Creating a Cashfree Merchant Account

- Walkthrough of Cashfree's registration process

- Getting access to the API keys and secret keys

- \*\*Topic 2\*\*: Understanding Cashfree Dashboard

- Overview of Cashfree dashboard for merchants

- Test vs Live environments

### \*\*Chapter 4: Cashfree API Integration\*\*

- \*\*Topic 1\*\*: Overview of Cashfree API Documentation

- Understanding Cashfree API structure

- Authentication process using API keys

- \*\*Topic 2\*\*: Integrating Cashfree Payment Gateway with Spring Boot

- Step-by-step API integration for payment gateway

- Making the first API call for payment creation

- Handling payment responses

- \*\*Topic 3\*\*: Cashfree Webhook Integration

- Understanding webhooks and why they’re used

- Setting up a webhook endpoint in Spring Boot

- Handling success and failure webhook events

### \*\*Chapter 5: Payment Processing\*\*

- \*\*Topic 1\*\*: Handling Different Payment Methods

- Integrating multiple payment methods (Cards, UPI, Net Banking)

- Customizing the payment experience

- \*\*Topic 2\*\*: Verifying Payments

- Using Cashfree’s verification API

- Updating order status post verification

### \*\*Chapter 6: Advanced Topics\*\*

- \*\*Topic 1\*\*: Refunds API

- How to process refunds using Cashfree API

- Handling partial and full refunds

- \*\*Topic 2\*\*: Cashfree Subscriptions API

- Recurring payments and subscription handling

- Setting up auto-renewing subscriptions

- \*\*Topic 3\*\*: Payouts API (Optional)

- Overview of Cashfree's Payouts system

- Transferring money to vendors and other stakeholders

### \*\*Chapter 7: Testing and Going Live\*\*

- \*\*Topic 1\*\*: Testing in the Sandbox Environment

- Best practices for testing payment gateway integration

- \*\*Topic 2\*\*: Moving from Sandbox to Production

- Switching API keys and URLs for live transactions

- Compliance and security considerations

### \*\*Chapter 8: Security and Compliance\*\*

- \*\*Topic 1\*\*: Implementing Secure APIs for Payment Processing

- Use of SSL certificates

- Protecting API keys and sensitive data

- \*\*Topic 2\*\*: PCI-DSS Compliance

- Understanding the PCI-DSS guidelines for handling payments

- Ensuring your application follows these standards

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This roadmap will guide you through learning and integrating the Cashfree payment gateway into a Spring Boot REST API from scratch, covering both basic and advanced features. Let me know when you're ready to start!