**Testing Documentation**

This document explains how to run tests, what scenarios are covered, and lists the HTTP APIs with sample requests and responses **matching the current tests**

**1. How to Run**

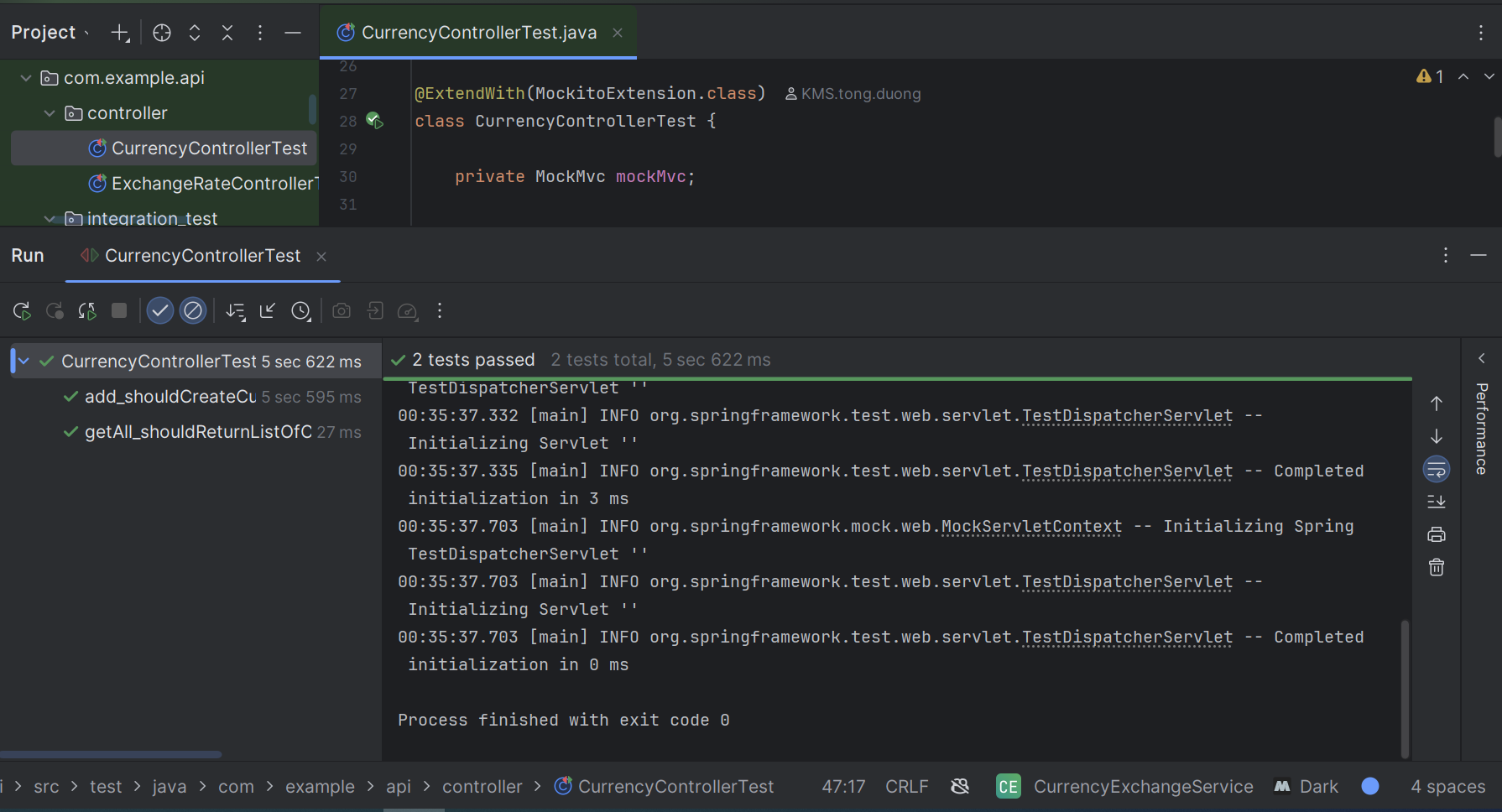
**Run tests**

| # from repo root ./mvnw clean test |
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**Profiles**: tests run with api/src/test/resources/**application-test.yml**. **2. Unit Test**

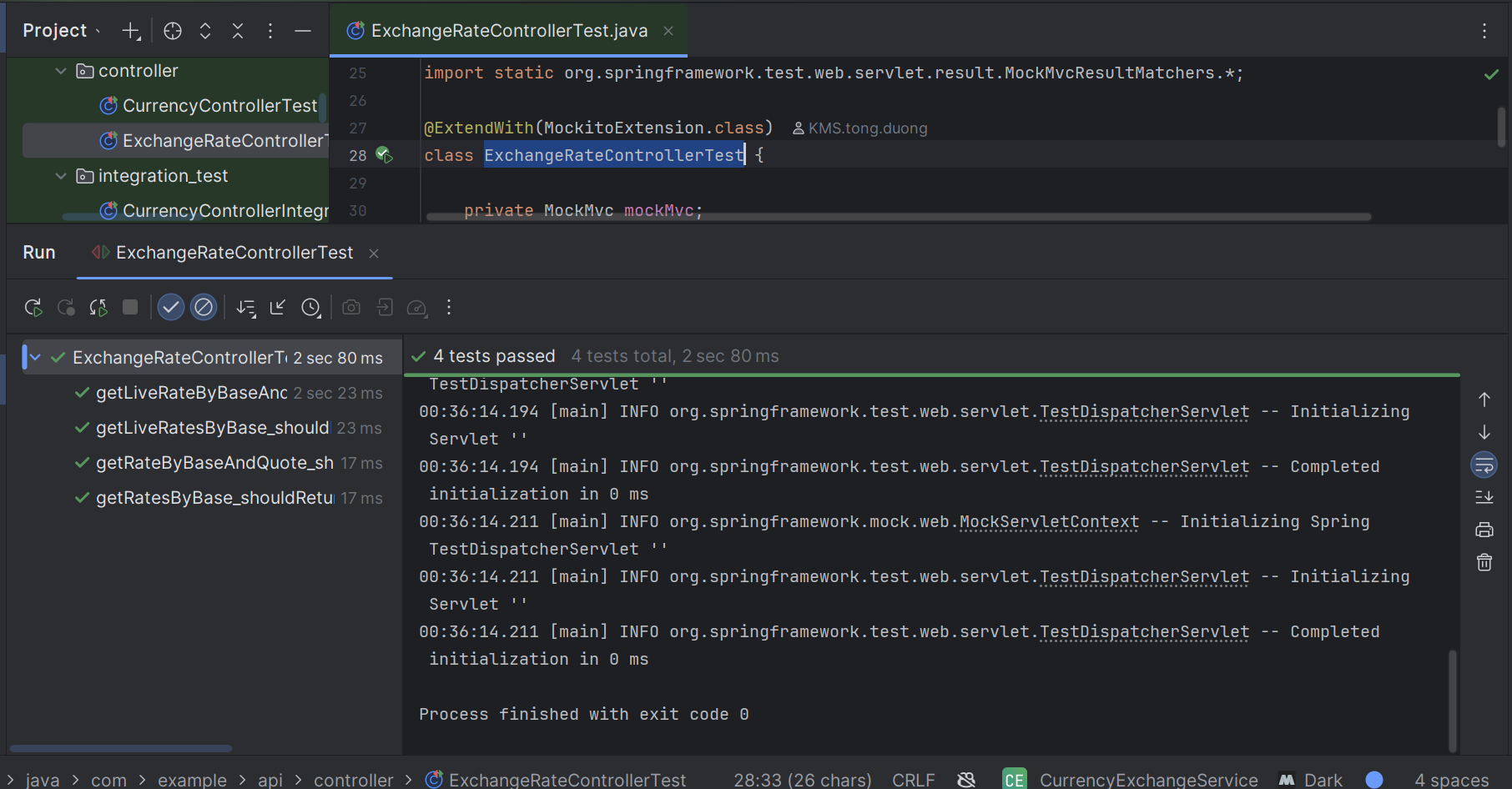
**2.1 CurrencyControllerTest**

Tests CurrencyController APIs with MockMvc for fetching and adding currencies using mocked dependencies



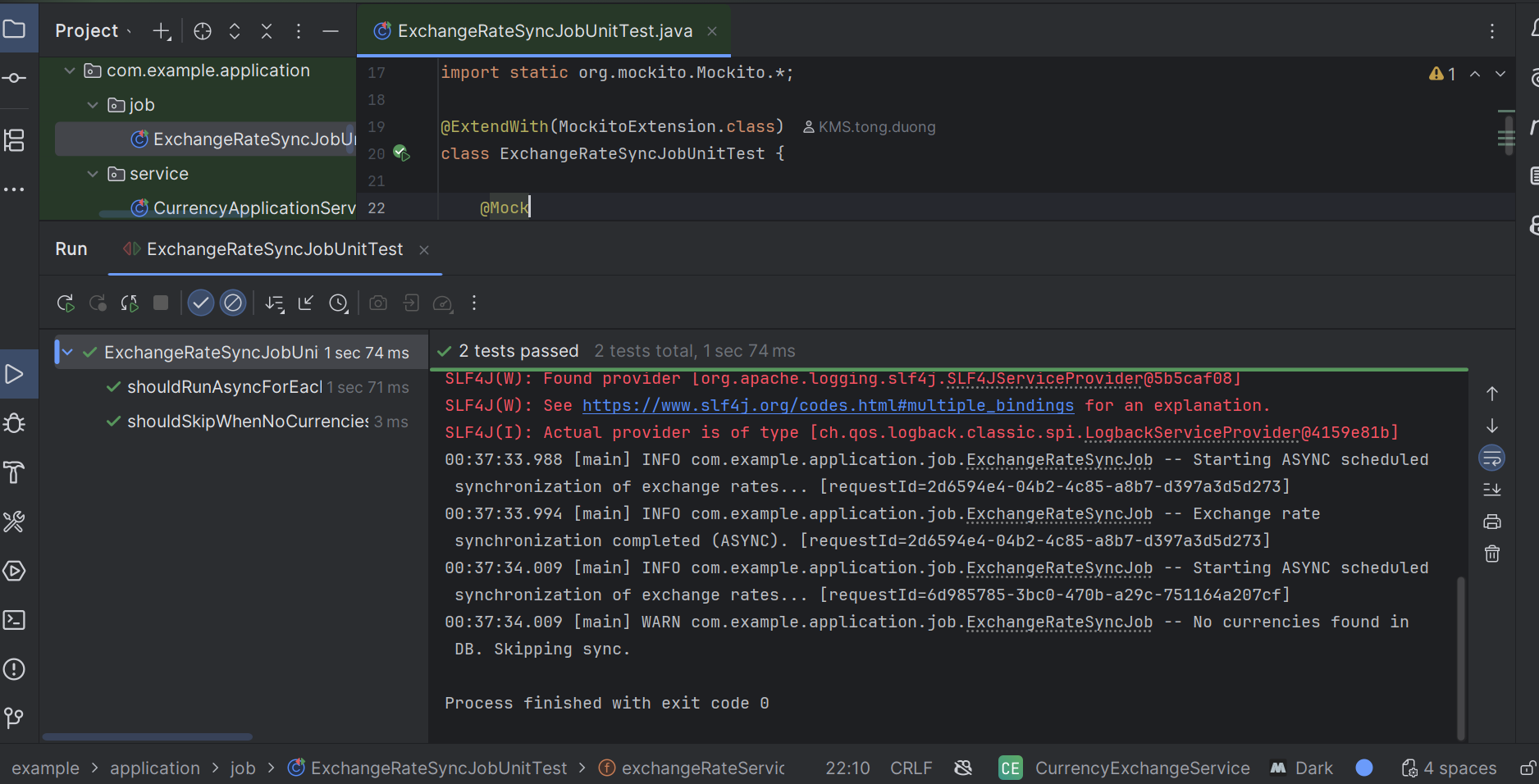
**2.2 ExchangeRateControllerTest**

Tests ExchangeRateController APIs with MockMvc for fetching exchange rates (by base, by base & quote, and live rates) using mocked service and mapper.

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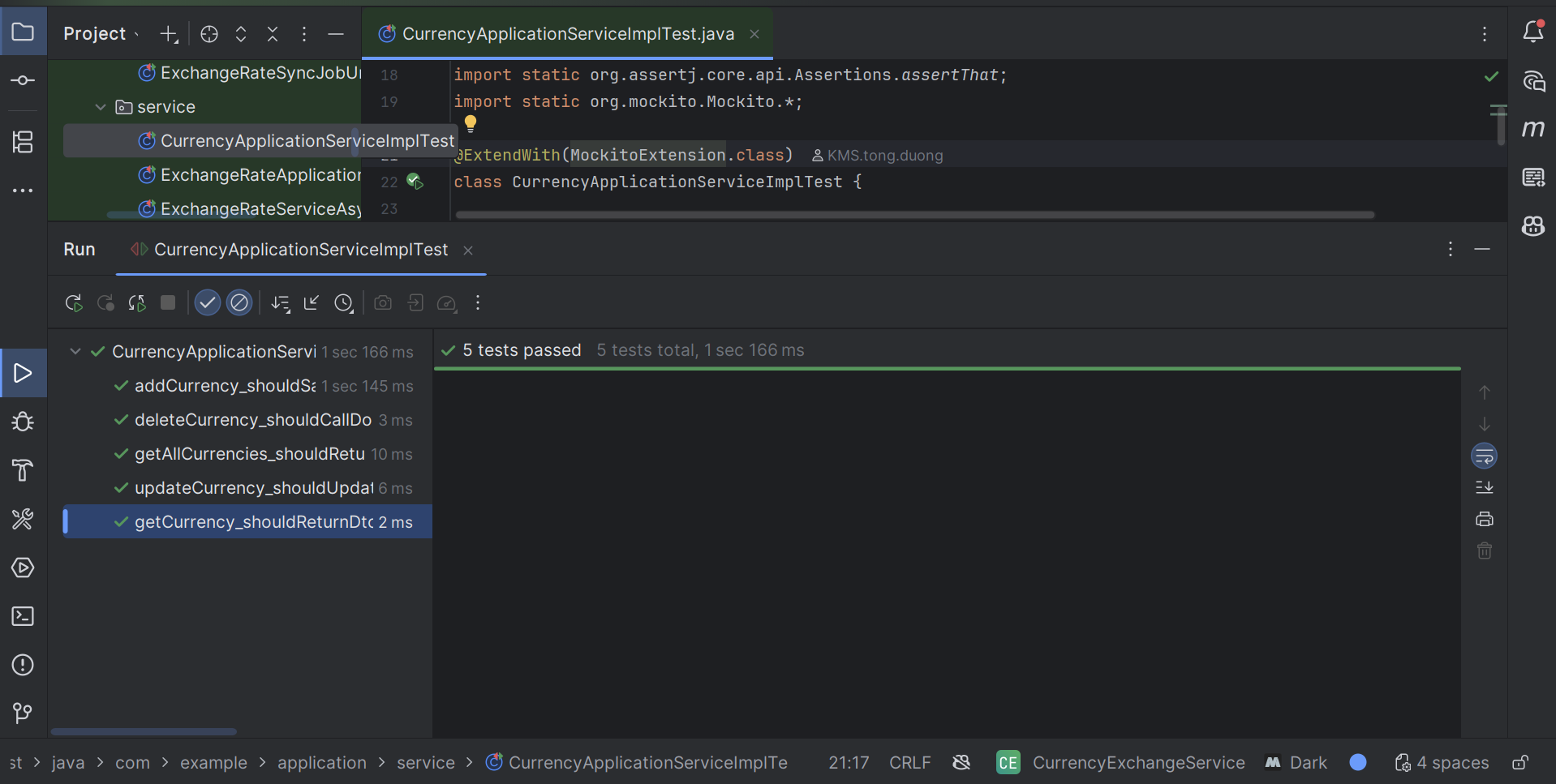
**2.3 ExchangeRateSyncJobUnitTest**

Tests ExchangeRateSyncJob to ensure it skips when no currencies exist and runs async rate fetch for each available currency.



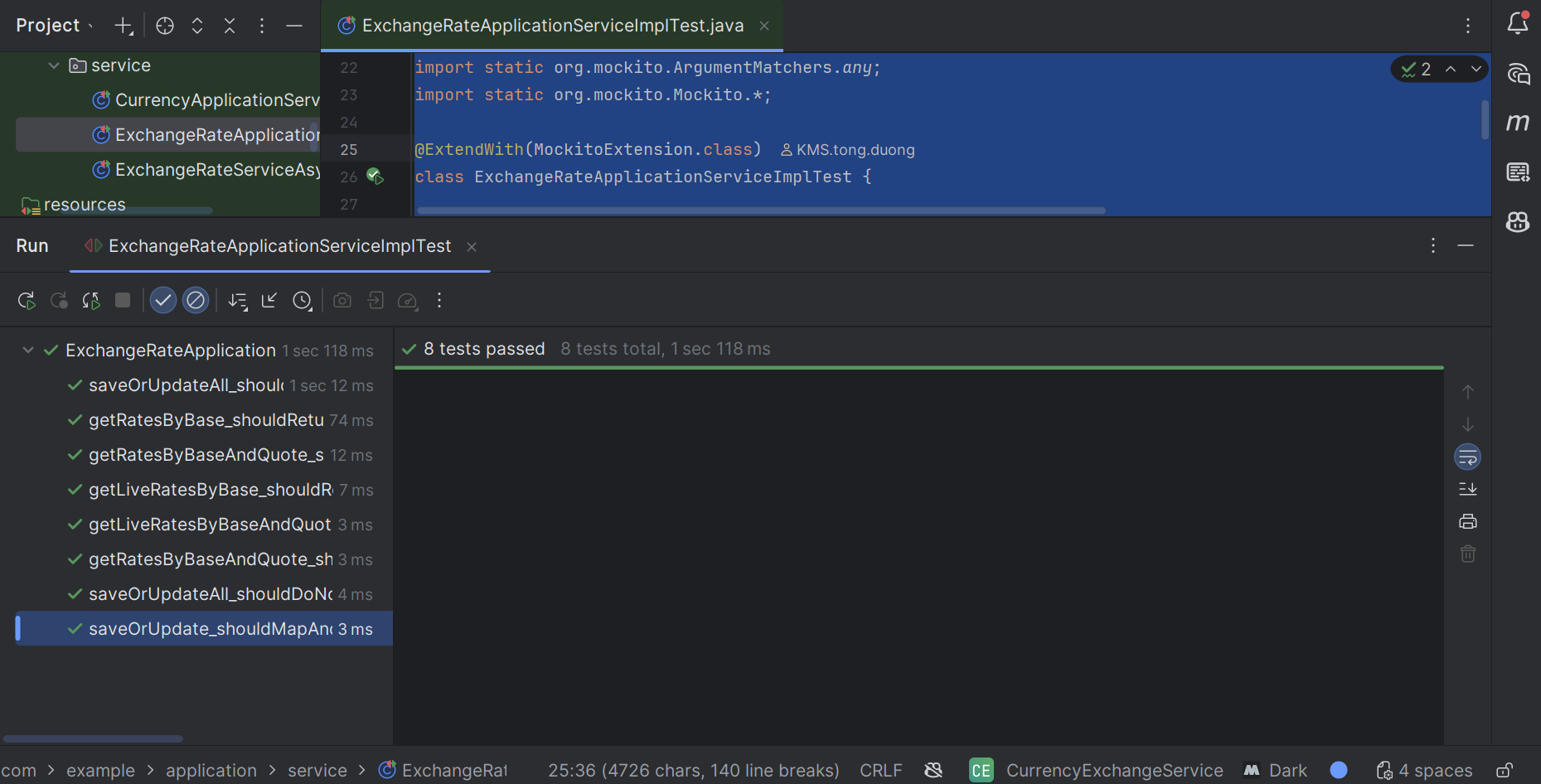
**2.4 CurrencyApplicationServiceImplTest**

Tests CurrencyApplicationServiceImpl to verify CRUD operations delegate correctly to the domain service and mapper, returning expected CurrencyDto results.

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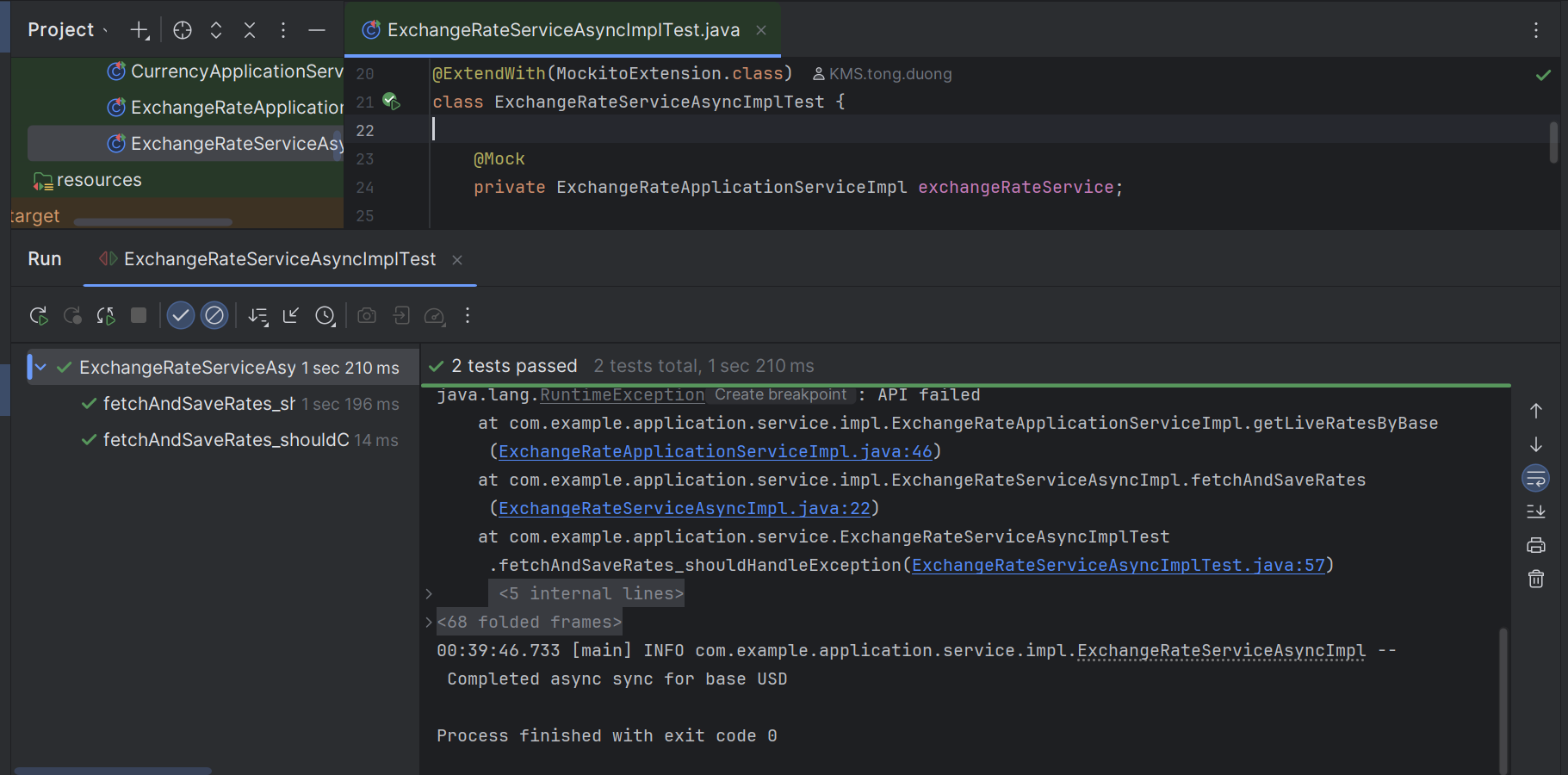
**2.5 ExchangeRateApplicationServiceImplTest**

Tests ExchangeRateApplicationServiceImpl to ensure exchange rate retrieval, live API fetch, error handling, and save/update operations work correctly with mocked repository, API client, and mapper.

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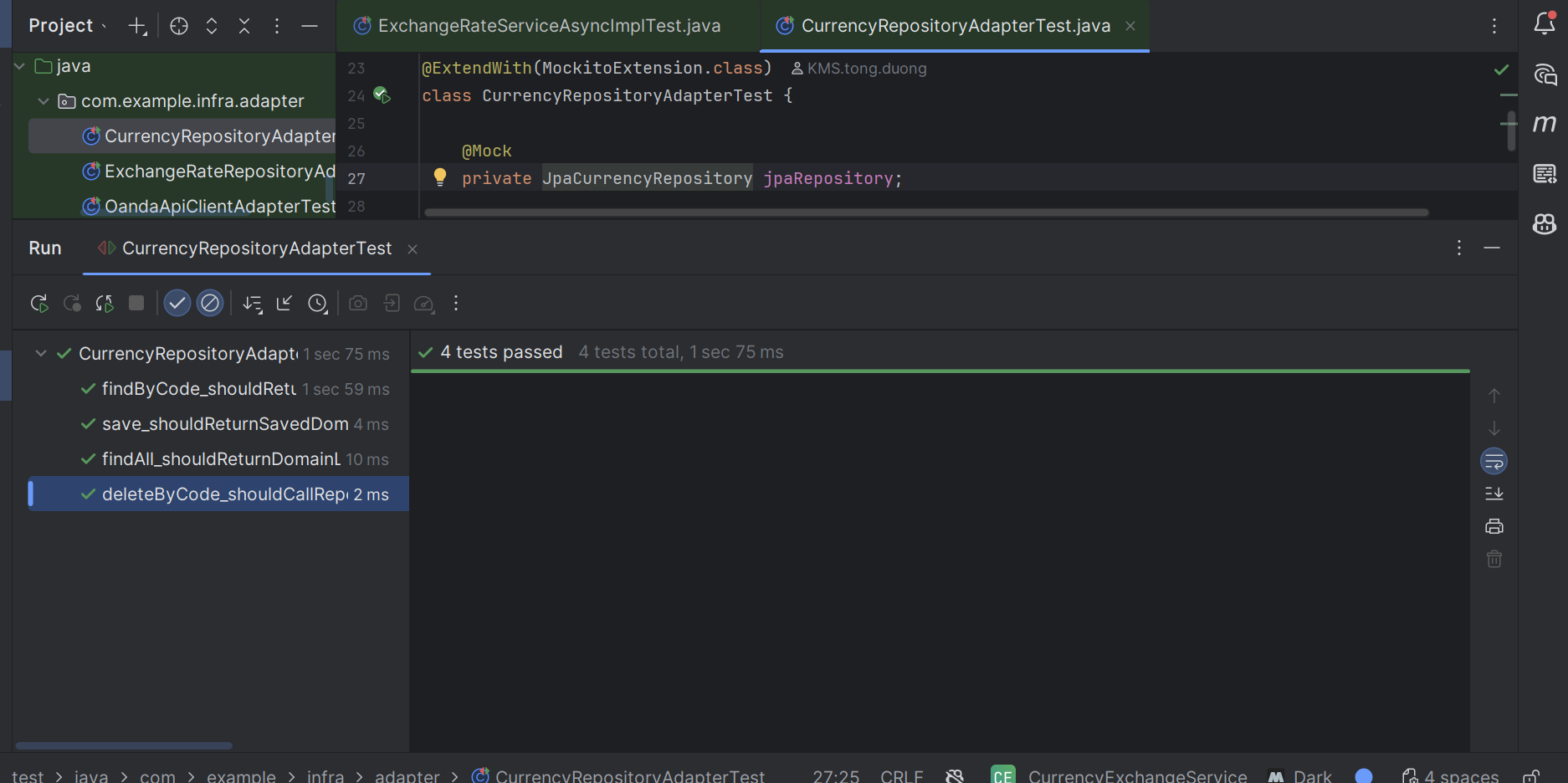
**2.6 ExchangeRateServiceAsyncImplTest**

Tests ExchangeRateServiceAsyncImpl to ensure async rate fetching saves results via ExchangeRateApplicationService, and gracefully handles exceptions without saving.

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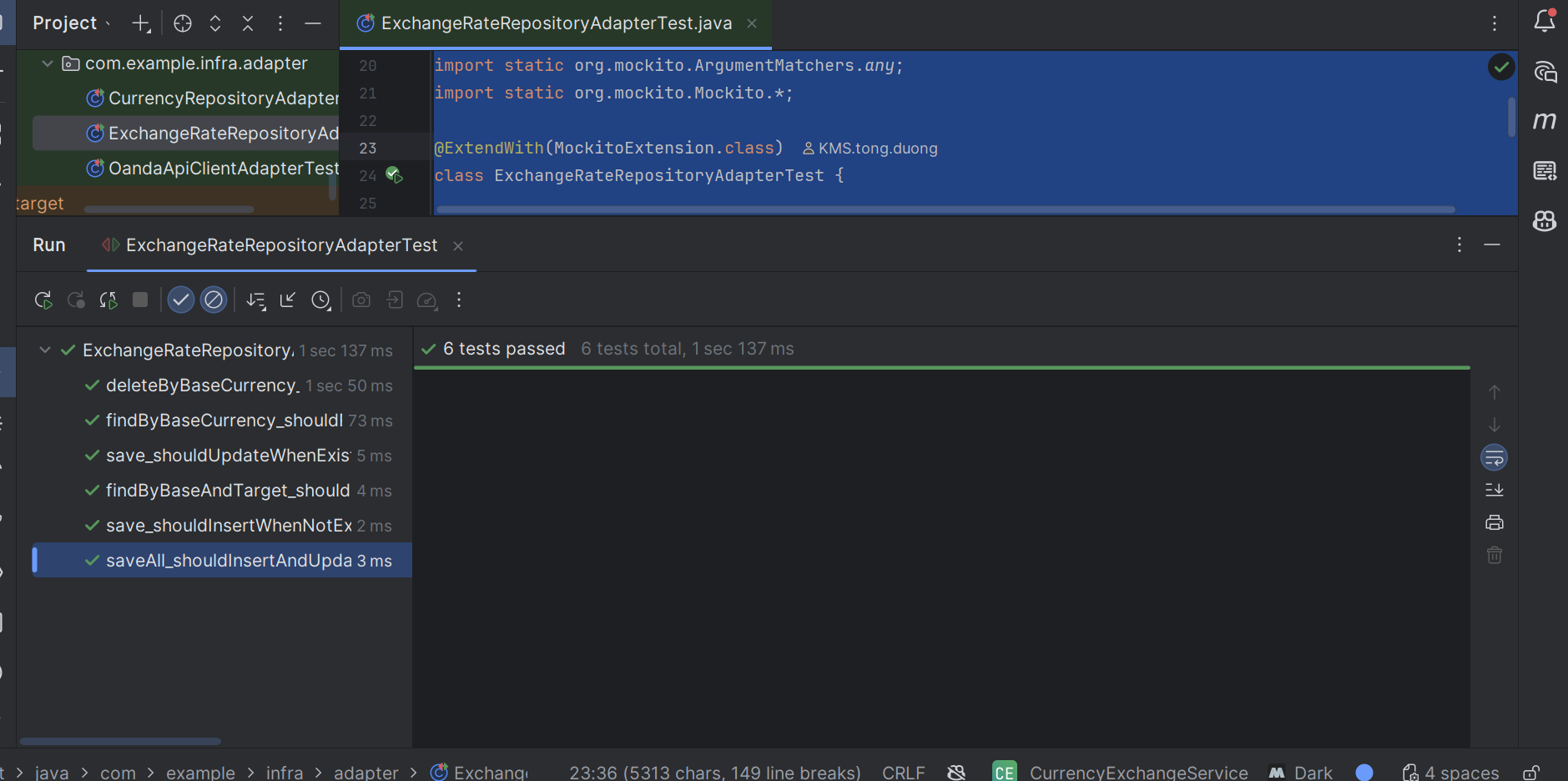
**2.7 CurrencyRepositoryAdapterTest**

Tests CurrencyRepositoryAdapter to verify JPA repository and mapper integration for find, save, and delete operations on Currency.

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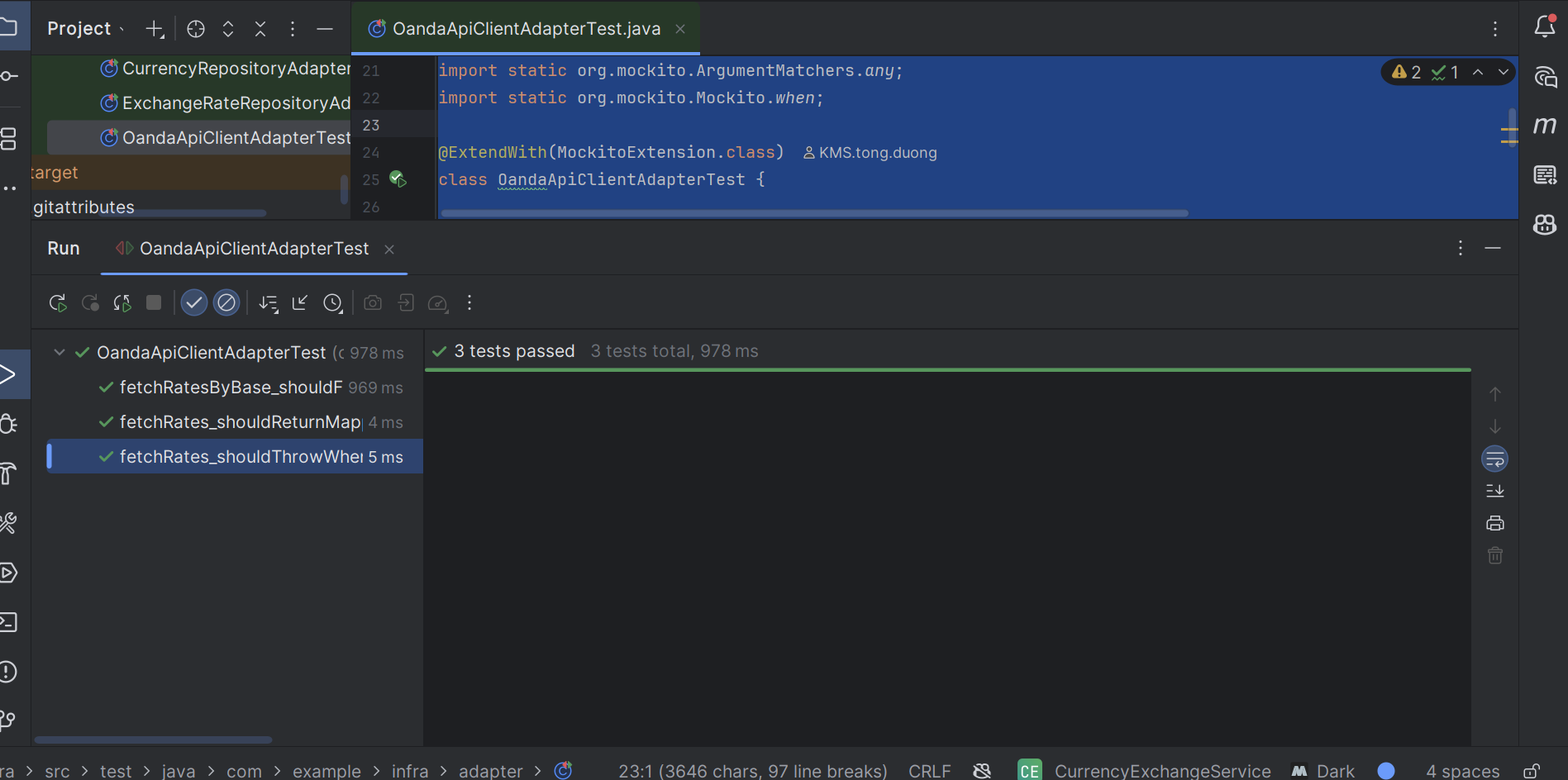
**2.8 ExchangeRateRepositoryAdapterTestTests**

ExchangeRateRepositoryAdapter to ensure save, update, batch save, find, and delete operations correctly interact with JPA repository and mapper.

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**2.9 OandaApiClientAdapterTest**

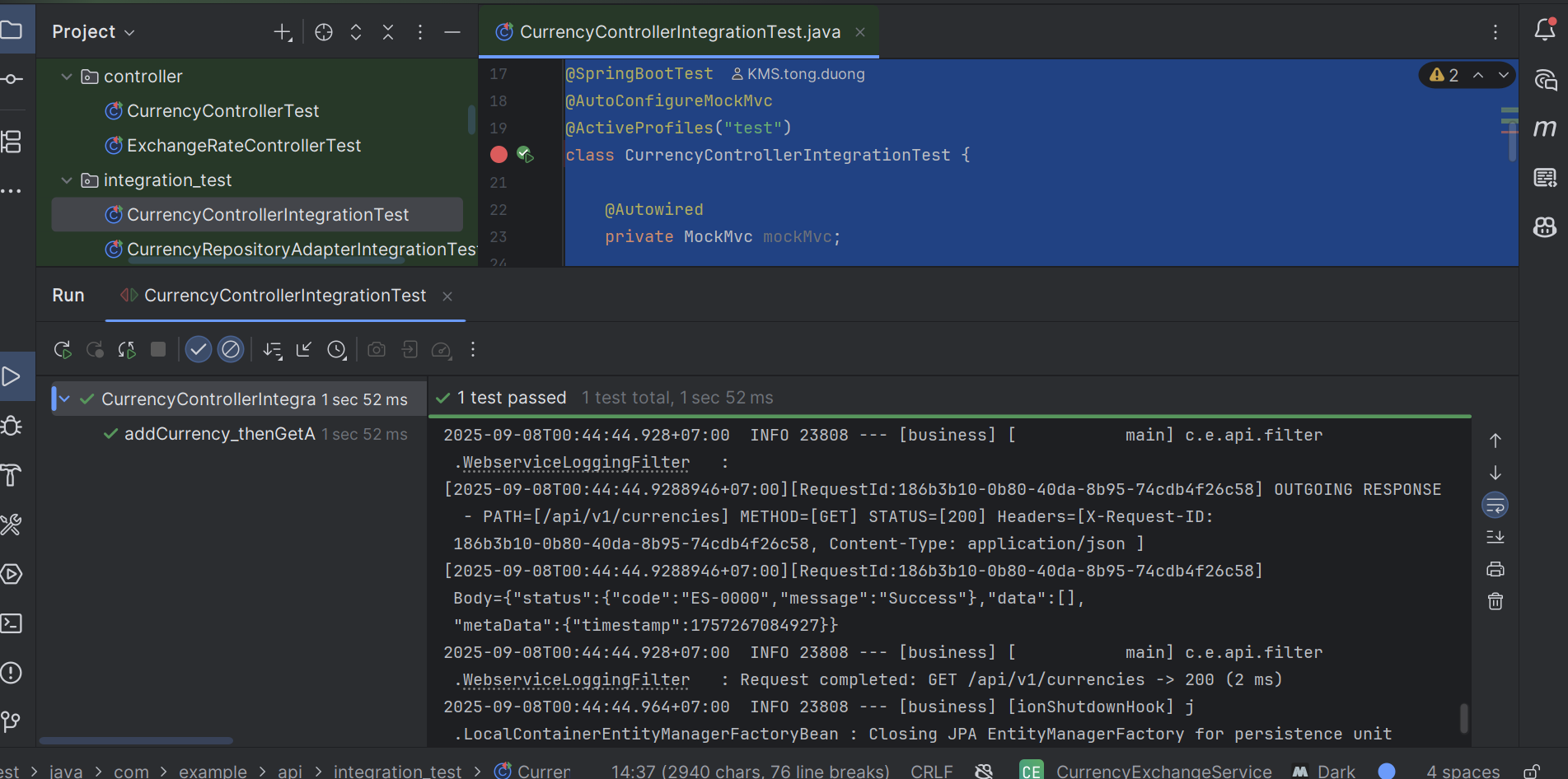
Tests OandaApiClientAdapter to ensure it correctly maps API responses to ExchangeRate, throws on empty results, and fetches rates for all target currencies of a given base.

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**3. Integration Test**

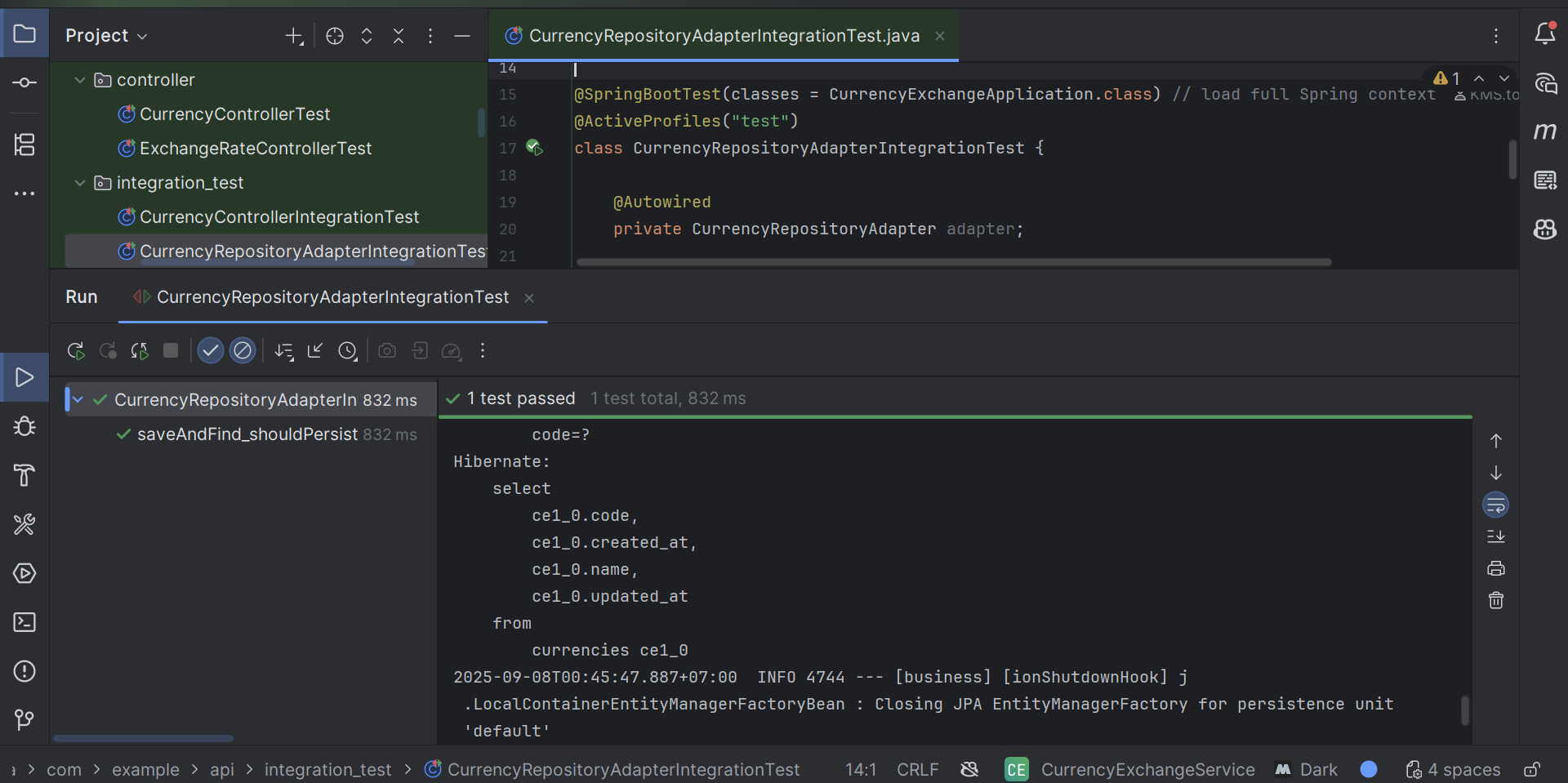
**3.1.CurrencyControllerIntegrationTest**

Integration test for CurrencyController covering full CRUD flow: add, retrieve all, get by code, update, delete, and verify database state.

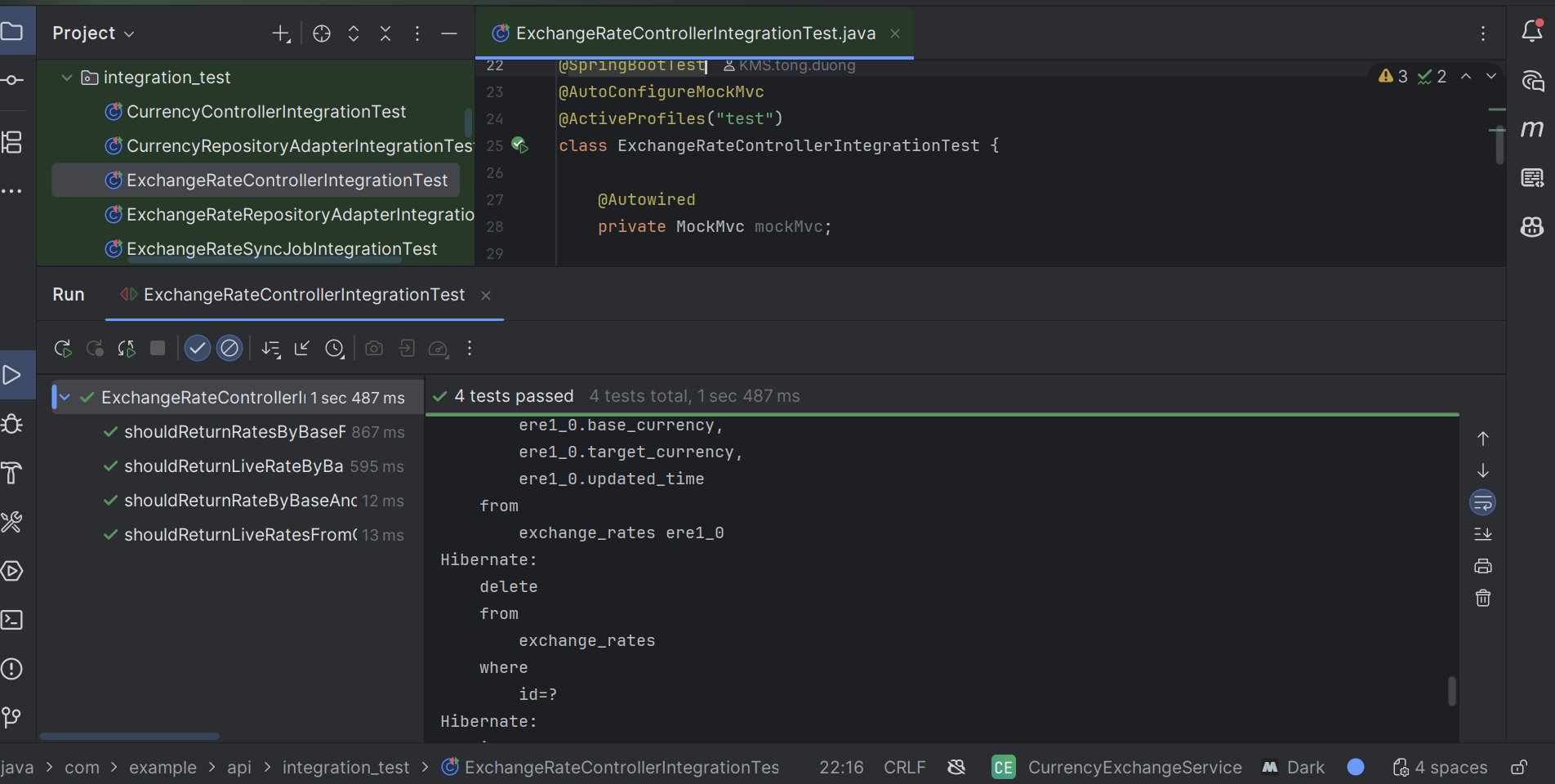
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**3.2.CurrencyRepositoryAdapterIntegrationTest**

Integration test for CurrencyRepositoryAdapter verifying persistence operations: save, find by code, find all, and delete**.**

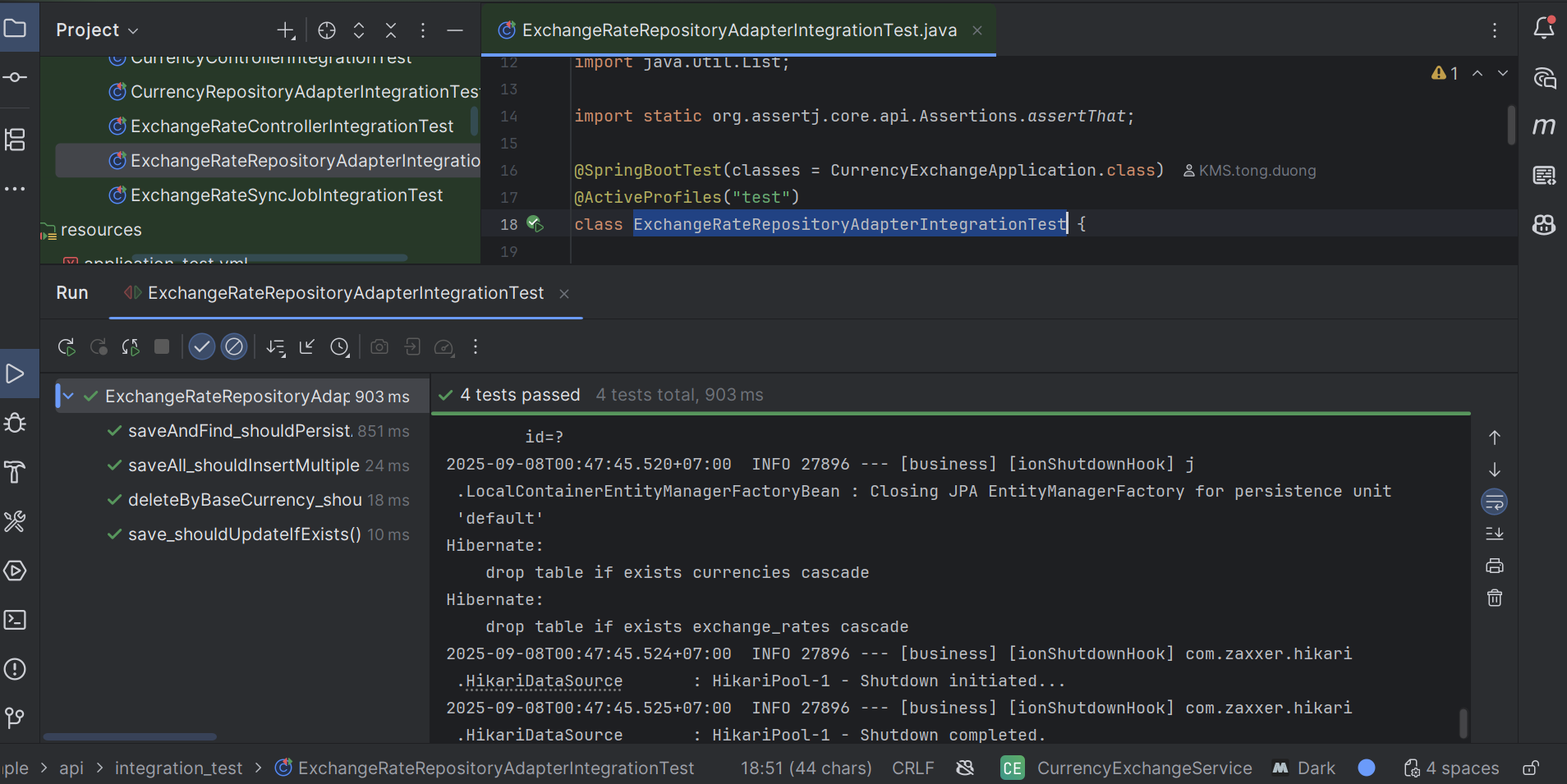
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**3.3.ExchangeRateControllerIntegrationTestIntegration test for** ExchangeRateController verifying DB-backed queries and live Oanda API endpoints for fetching exchange rates.



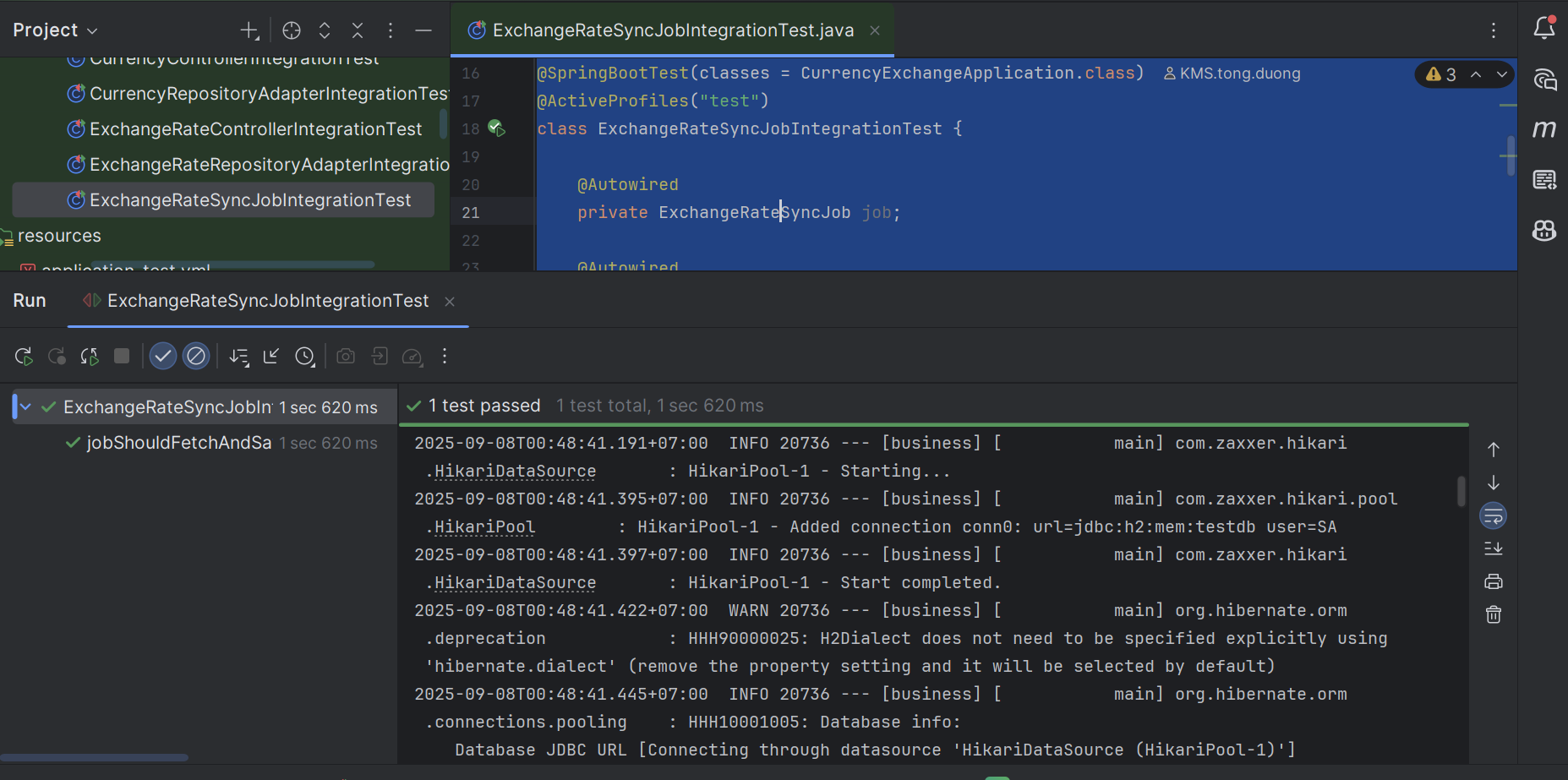
**3.4.ExchangeRateRepositoryAdapterIntegrationTest**

Integration test for ExchangeRateRepositoryAdapter verifying persistence operations: save, update if exists, batch insert, query, and delete by base currency.

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**3.5. ExchangeRateSyncJobIntegrationTest**

Integration test for ExchangeRateSyncJob verifying it fetches live rates and persists them in the database for available currencies.



**4. Manual Test**

Please refer to the attached XLS file and Postman collection