

1. Structure

Annotations

- annotations and aspects packages are used to log execution time.
- The main controller handles incoming requests, with expected inputs defined.

Call **Factory Function**

- The main controller creates an object of `asyncRestFactory` for each request.
- Each request is then invoked using `executeAsync`.

Generate Request

- Requests are constructed using the Builder Design Pattern.
- `generateRequest()` returns a fully built request.
- Requests are sent asynchronously using `sendAsyncRequestWithRetry()`.

Retry Request

- The Request DTO specifies whether retry is enabled.
- A retry loop is executed based on this flag.

Custom Exceptions

- Requests with status codes above 399 are treated as errors.
- Exceptions are thrown based on status codes:
 - Client-side exceptions
 - Server-side exceptions

Filters

- `RequestIdAdditionFilter`:
 - Generates a unique Request ID.
 - Stores it in thread context, accessible throughout the request-response cycle.
 - `RequestLoggingFilter`:
 - Logs the request body.
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2. Video Demonstration

- A video is attached in the same folder.
- Demonstrates asynchronous execution with custom sleep times:
 - First request: Longer sleep time.
 - Second request: Shorter sleep time, called afterward.
- Outcome: Second request completes before the first, illustrating non-blocking behavior.