1. Explain how you would apply the Repository pattern in this project.

The repository pattern was applied using JpaRepository interface for separating the business logic from the entities. Spring creates implementations in runtime to execute the database queries.

2. What advantages does Spring Boot with JPA/Hibernate have over plain JDBC?

JPA/Hibernate provides a simple way to declare database queries using ORM for mapping SQL tables and entities and provides underlying configuration for connecting into the database.

JDBC is very low level and simple syntax and let to the user all the configuration for mapping the SQL result sets into a database entity and the user also has to configure the database connection.

3. How would you design this system to support high concurrency?

I would use an intermediate gateway with a low balancer. I use too ThreadPool with ForkJoin to manage processing into more than one thread process. If It’s possible, use too non-blocking processing with Mono and Flux and WebClient and use Kafka for sending high data volumes for processing.

4. Explain how you would handle data consistency in a distributed system.

Using SAGA pattern and adding history tracing into the database for “rollback” the data if any of other transactions fails.