Ödev - 4

Q1 - What is JPA?

A: Java Persistence API (JPA) is a specification on how to maintain relations between Java entities and relational database tables. JPA provides functionality and implementation to Object Relational Mapping and supports simple, cleaner ORM.

Q2 - What is the naming convention for finder methods in the Spring data repository interface?

A: Naming custom query finder methods should be simple and understandable. It needs to be named such that it is clear to understand how and what data it filters and clears.

Q3 - What is PagingAndSortingRepository?

A: PagingAndSortingRepository is an extension of CrudRepository that offers methods to retrieve entities using paging and sorting abstraction.

Q4 - Differentiate between findById() and getOne()?

A: findById() is a method in CrudRepository that retrieves an Optional<T> entity using its id. getOne() is a deprecated method in JpaRepository that returns a reference to the entity with a given ID. Its current substitute is getById(). A difference between getById() and findById() is that getById() throws an EntityNotFoundException if the entity does not exist. On the other hand findById() returns null if the entity does not exist.

Q5 - What is @Query used for?

A: @Query is a Spring Data JPA annotation that is used to build custom repository methods. Both JPQL and native SQL can be used to build a query. If the @Query method uses JPQL, a Sort type can be passed to the method to sort the response with the given rule.

Q6 - What is lazy loading in hibernate?

A: Lazy loading is a strategy implemented by hibernate on large entities to improve performance. Hibernate takes initiative to not load the children classes until they are needed.

Q7 - What is a SQL injection attack? Is Hibernate open to SQL injection attacks?

A: SQL injection is a cyber-attack where malicious queries are injected into a database. Those queries expose critical and sensitive data to attackers. Attackers can delete, change or even capture the data. Hibernate, in fact, any ORM tool does not provide any protection SQL injection. Hibernate queries are as much susceptible to SQLi since it supports native SQL. SQLi problem can be overcome using PreparedStatement and parametrized queries.

Q8 - What is a criteria API in hibernate?

A: Criteria API is a feature that enables developers to build object-oriented queries rather than using raw SQL queries to use filtration and logical rules. Criteria API is deprecated after hibernate 5.2. It is currently supported in JPA Criteria API.

Q9 - What Is Erlang? Why Is It Required For Rabbitmq?

A: Erlang is an open-source functional programming language that is preferred when building multicore networks and parallel processing. Erlang's simultaneous processes communicate with message passing based on the actor model.

Q10 - What is the JPQL?

A: JPQL is an object-oriented query language that is defined in JPA standards.

Q11 - What are the steps to persist an entity object?

A:

1. Create an entity manager factory from the EntityManagerFactory interface in the persistence bootstrap class with the createEntityManagerFactory() static method.
2. From the factory created, obtain an entity manager with the createEntityManager() method.
3. Begin the entity manager transaction with the getTransaction().begin() method.
4. Persis the data into a relational database with the persist(Entity) method.
5. Close the transaction
6. Close EntityManager and its factory.

Q12 - What are the different types of entity mapping?

A: There are three types of entity mapping

1. One-To-One: Type of relation where an entity bean is related to another single one. For example, a person has only one passport and a passport belongs to a single person.
2. One-To-Many: It effectively can be expressed as Many-To-One. Type of relation where an entity has many of another one. For example, a class has multiple students.
3. Many-To-Many: Type of relationship where both entities can have multiple of another one. For example, employees and projects. An employee can have multiple projects and a project has multiple people working on it.

Q13 - What are the properties of an entity?

A:

1. **Persistablity —** Entities stored in a database called persistent. The entity's state is kept throughout the sessions.
2. **Persistent Identity —** Each entity has a unique primary key, an identity.
3. **Transactionality —** An entity is able to perform CRUD operations.
4. **Granuality —** Entities should not be primitives, primitive wrappers, or built-in objects with a single-dimensional state.

Q14 - Difference between CrudRepository and JpaRepository in Spring Data JPA?

A: JpaRepository extends from the PagingAndSortingRepository interface which extends CrudRepository. CrudRepository provides creating, reading, updating, deleting operations on a repository. JpaRepository, on top of CrudRepository, provides additional crud methods.

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