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**1** – What is JPA ?

Spring framework uses JpaRepository and our place defines CRUD operations.JpaRepository is a interface and its generic structure (<T,ID>). JpaRepository gets reference Entity and Id of Entity type.Interface of JpaRepository gets reference PaggingAndSortingRepository with QueryByExampleExecutor<T>.

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

Spring data JPA has its own naming conventions for methods. Following these conventions we can build sophisticated queries. These conventions are called also called as method name strategies. These strategies have defined set of keyword to use in method names. Based on the formed method name, method performs predefined operations

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**3** - What is PagingAndSortingRepository ?

[PagingAndSortingRepository](https://docs.spring.io/spring-data/commons/docs/current/api/org/springframework/data/repository/PagingAndSortingRepository.html) is an extension of [CrudRepository](https://docs.spring.io/spring-data/commons/docs/current/api/org/springframework/data/repository/CrudRepository.html) to provide additional methods to retrieve entities using the pagination and sorting abstraction. It provides two methods :

* **Page findAll(Pageable pageable)** – returns a Page of entities meeting the paging restriction provided in the Pageable object.
* **Iterable findAll(Sort sort)** – returns all entities sorted by the given options. No paging is applied here.

**4** - Differentiate between findById() and getOne() ?

| **getOne()** | **findById()** |
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| Lazily loaded reference to target entity | Actually loads the entity for the given id |
| Useful only when access to properties of object is not required | Object is eagerly loaded so all attributes can be accessed |
| Throws EntityNotFoundException if actual object does not exist at the time of access invocation | Returns null if actual object corresponding to given Id does not exist |
| Better performance | An additional round-trip to database is required |

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**5** - What is @Query used for ?

In order to define SQL to execute for a Spring Data repository method, we can **annotate the method with the @Query annotation — its value attribute contains the JPQL or SQL to execute.**

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**6** - What is lazy loading in hibernate ?

Lazy loading is a fetching technique used for all the entities in Hibernate. It decides whether to load a child class object while loading the parent class object. When we use association mapping in Hibernate, it is required to define the fetching technique. The main purpose of lazy loading is to fetch the needed objects from the database.

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**7** – What is SQL injection attack ? Is Hibernate open to SQL injection attack ?

**Injection attacks work because, for many applications, the only way to execute a given computation is to dynamically generate code that is in turn run by another system or component**. If in the process of generating this code we use untrusted data without proper sanitization, we leave an open door for hackers to exploit.

Hibernate open sql İnjection attack two different to way:

1. Parameter Binding:

A bind variable is a named placeholder (preceded by a colon) that is embedded in the query string in place of a literal. The actual value is substituted at runtime using the setParameter() method.

2. Positional parameters

It’s use question mark (?) to define a named parameter, and you have to set your parameter according to the position sequence.

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**8** - What is criteria API in hibernate ?

Hibernate provides alternate ways of manipulating objects and in turn data available in RDBMS tables. One of the methods is Criteria API, which allows you to build up a criteria query object programmatically where you can apply filtration rules and logical conditions.

The Hibernate **Session** interface provides **createCriteria()** method, which can be used to create a **Criteria** object that returns instances of the persistence object's class when your application executes a criteria query.

Restrictions with Criteria

You can use **add()** method available for **Criteria** object to add restriction for a criteria query.

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| **public Criteria setFirstResult(int firstResult)**  This method takes an integer that represents the first row in your result set, starting with row 0. |
| **public Criteria setMaxResults(int maxResults)**  This method tells Hibernate to retrieve a fixed number **maxResults** of objects. |

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**9** - What Is Erlang? Why Is It Required For Rabbitmq ?

RabbitMQ works in virtual runtime of Erlang.For this,Erlang programming language needs to download.

Well! what is Erlang. Erlang is programming language and RabbitMQ was written.

**--------------------------------------------------------------------------------------------10** – What is the JPQL ?

JPQl is meaning Java Peristance query language. In Spring Data helps to write SQL Queries. When we writes JPQL,It truns query of SQL.

We use @Query annotation

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**11** – What are the steps to persist an entity object ?

Following are some of the important roles of an entity manager: -

* The entity manager implements the API and encapsulates all of them within a single interface.
* Entity manager is used to read, delete and write an entity.
* An object referenced by an entity is managed by entity manager.

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**12** – What are the different types of entity mapping ?

There are different types three entity mapping.

-OneToMany

-OneToOne

-ManyToMany

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**13** - What are the properties of an entity ?

In general, entity is a group of states associated together in a single unit. On adding behaviour, an entity behaves as an object and becomes a major constituent of object-oriented paradigm. So, an entity is an application-defined object in Java Persistence Library.

Entity Properties

These are the properties of an entity that an object must have: -

* **Persistability -** An object is called persistent if it is stored in the database and can be accessed anytime.
* **Persistent Identity -** In Java, each entity is unique and represents as an object identity. Similarly, when the object identity is stored in a database then it is represented as persistence identity. This object identity is equivalent to primary key in database.
* **Transactionality -** Entity can perform various operations such as create, delete, update. Each operation makes some changes in the database. It ensures that whatever changes made in the database either be succeed or failed atomically.
* **Granuality -** Entities should not be primitives, primitive wrappers or built-in objects with single dimensional state.

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**14** - Difference between CrudRepository and JpaRepository in Spring Data JPA?

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| **Key** | **JPARepository** | **CrudRepository** |
| Hierarchy | JPA extend crudRepository and PagingAndSorting repository | Crud Repository is the base interface and it acts as a marker interface. |
| Batch support | JPA also provides some extra methods related to JPA such as delete records in batch and flushing data directly to a database. | It provides only CRUD functions like findOne, saves, etc. |
| Pagination support | JPA repository also extends the PagingAndSorting repository. It provides all the method for which are useful for implementing pagination. | Crud Repository doesn't provide methods for implementing pagination and sorting. |
| Use Case | JpaRepository ties your repositories to the JPA persistence technology so it should be avoided. | We should use CrudRepository or PagingAndSortingRepository depending on whether you need sorting and paging or not. |