**Objectives**

Demonstrate writing Hibernate Query Language and Native Query

HQL stands for Hibernate Query Language, JPQL stands for Java Persistence Query Language, Compare HQL and JPQL, @Query annotation, HQL fetch keyword, aggregate functions in HQL, Native Query, nativeQuery attribute

* + - Reference - https://docs.jboss.org/hibernate/orm/4.3/devguide/en-US/html/ch11.html
    - Features of JPA Query - https://www.baeldung.com/spring-data-jpa-query

**Hibernate Query Language (HQL)**

* HQL is an object-oriented query language similar to SQL but it operates on entity objects, not database tables.
* It is database-independent because it works with entity names and their properties.

Example:

@Query("FROM Employee e WHERE e.salary > :salary")

List<Employee> findEmployeesWithSalaryGreaterThan(@Param("salary") double salary);

**Java Persistence Query Language (JPQL)**

* JPQL is the standard query language defined by JPA.
* It is similar to HQL and both work on entities, not tables.
* Syntax and purpose are very close to HQL, but JPQL is vendor-independent while HQL is specific to Hibernate.

Example:

@Query(value = "SELECT \* FROM employee WHERE name = ?1", nativeQuery = true)

Employee findByNameNative(String name);

* Explain the need and benefit of Criteria Query
  + Scenarios where Criteria Query helps, CriteriaBuilder, Criteria Query, Root, TypedQuery
    - Reference - https://docs.oracle.com/javaee/6/tutorial/doc/gjrij.html
* The Criteria API is a programmatic, type-safe way to build dynamic queries in JPA/Hibernate.
* Unlike JPQL or HQL (which are string-based), Criteria Queries are built using Java objects, making them compiler-validated.

 **Dynamic Query Building:**

When the query conditions (like where clauses, joins, orderings) are not fixed and need to be constructed based on user input or runtime conditions.

 **Type Safety:**  
Prevents common runtime errors since the query structure is validated at compile time.

 **No String Parsing Errors:**  
Unlike HQL/JPQL where misspelled entity names or fields cause runtime issues, Criteria queries catch these mistakes during compilation.

 **Complex Queries:**  
Helps in creating complex queries with multiple joins, subqueries, and conditional clauses in a structured and readable way.