Exercise 2: Difference Between JPA, Hibernate, and Spring Data JPA

JPA

Java Persistence API (JPA) is a specification (JSR 338) for object-relational mapping. It provides annotations and APIs for ORM but does not contain any implementation.

Hibernate

Hibernate is a popular ORM tool and a concrete implementation of JPA. It manages sessions and transactions manually using SessionFactory and provides extended features beyond JPA.

Spring Data JPA

Spring Data JPA is an abstraction over JPA. It integrates Spring with JPA to reduce boilerplate code. Repositories like JpaRepository offer ready-made methods such as findAll(), save(), deleteById(), etc.

Code Comparison

Hibernate:

```
Session session = factory.openSession();
Transaction tx = session.beginTransaction();
session.save(employee);
tx.commit();
```

Spring Data JPA:

```
@Autowired
private EmployeeRepository repo;

@Transactional
public void addEmployee(Employee emp) {
    repo.save(emp);
}
```