JPA

EntityManager

JPATransactionPlatform

JPA

Spring-Data

EntityManagerFactory

JDBC - Spring JDBC - Hibernate

```java
@Override
public int save(Player player) {
    int sqlCode = 0;
    Connection connection = null;
    Statement statement = null;
    try {
        connection = dataSource.getConnection();
        statement = connection.createStatement();
        String insertSQL = "INSERT INTO S_PLAYER(ID, FIRST_NAME, LAST_NAME, USERNAME, PASSWORD, EMAIL) VALUES (" +
        sqlCode = statement.executeUpdate(insertSQL);
    } catch (SQLException e) {
        e.printStackTrace();
    } finally {
        try {
            if (connection != null) {
                connection.close();
            }
            if (statement != null) {
                statement.close();
            }
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }
    return sqlCode;
}
```
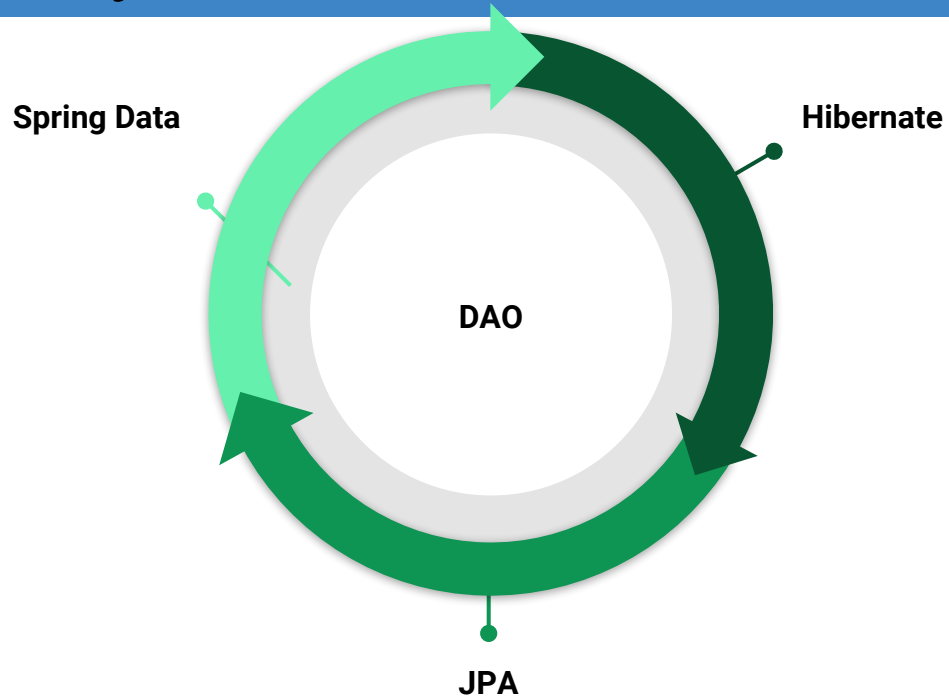
JDBC - Spring JDBC - Hibernate

```java
@Override
public int save(Player player) {
    int sqlCode = 0;
    String insertSQL = "INSERT INTO S_PLAYER(ID, FIRST_NAME, LAST_NAME, USERNAME, PASSWORD, EMAIL) VALUES (" + playe
    sqlCode = jdbcTemplate.update(insertSQL);
    return sqlCode;
}
```
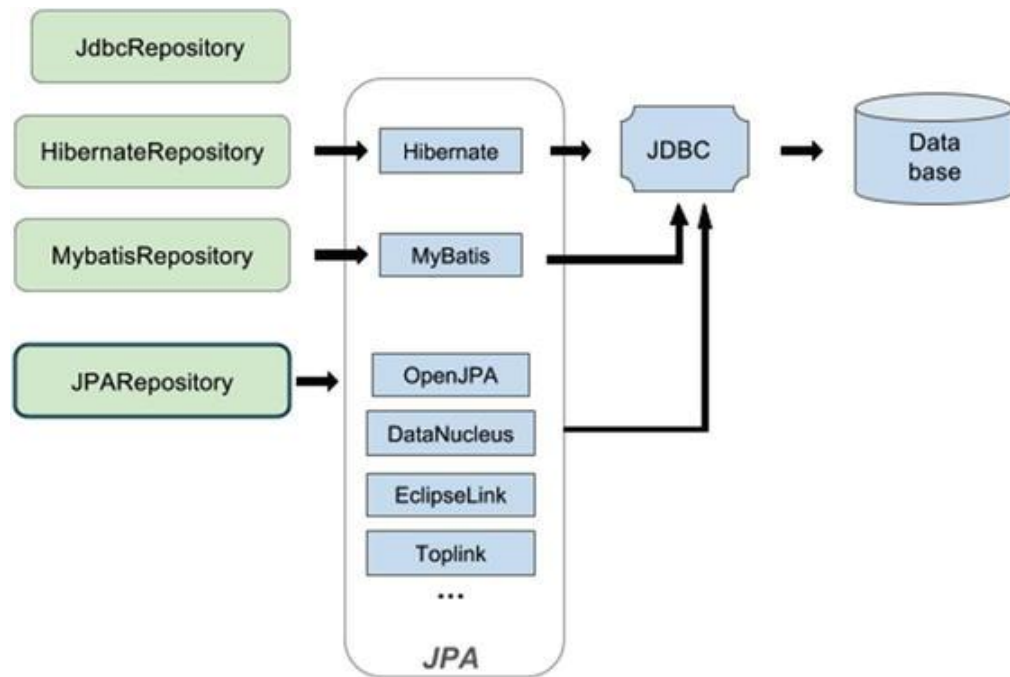
JDBC - Spring JDBC - Hibernate

```java
@Override
public int save(Player player) {
    return (Integer) getSession().save(player);
}
```

Persistence Layer

Spring Data

Hibernate

DAO

JPA

JPA

JPA

- JPA is a specification, Hibernate is the implementation

- JPA is a subset of Hibernate

JPA Core Components

- **Entity Manager** - creates, updates, queries and deletes the entities

- **Entity Manager Factory -** creates application-managed Entity Manager instances. These factory classes must implement javax.persistence.EntityManagerFactory. They are thread-safe, shareable, and they represent a single datasource.
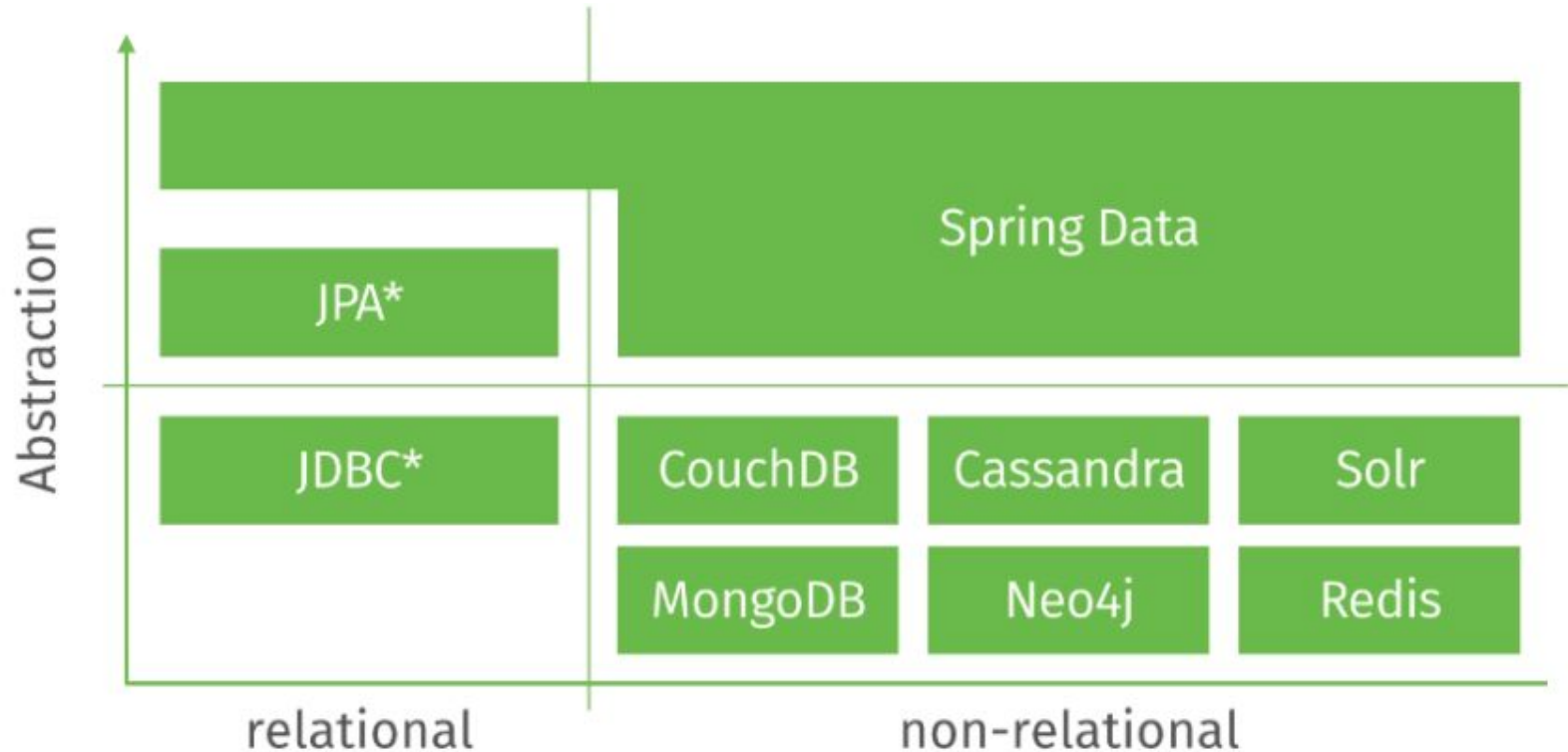
Hibernate Annotations vs JPA Annotations

- JPA Annotations
  - JPA 2.0 Specification (JSR 317)
  - Packaged in javax.persistence

- Hibernate Annotations
  - more feature than defined by JPA
  - less portable applications
  - packaged in org.hibernate.Annotations

JPA vs Hibernate

EntityManager	Session
persist()	save()
merge()	merge()
remove()	delete()
detach(), close(), clear()	evict(), close(), clear()
find(), getReference()	get(), load()
flush()	flush()

Spring Data JPA

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