ORM, Hibernate vs JPA and Spring Data

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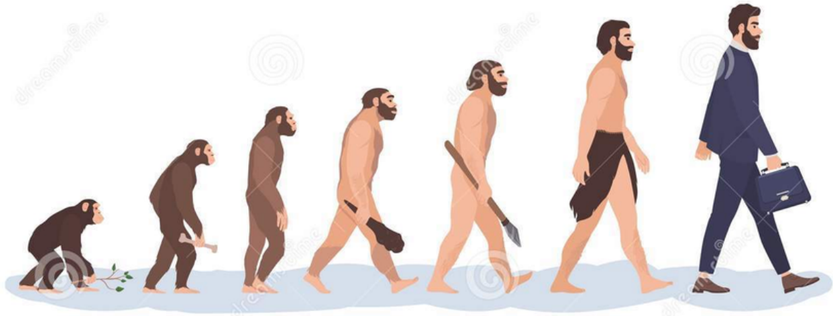
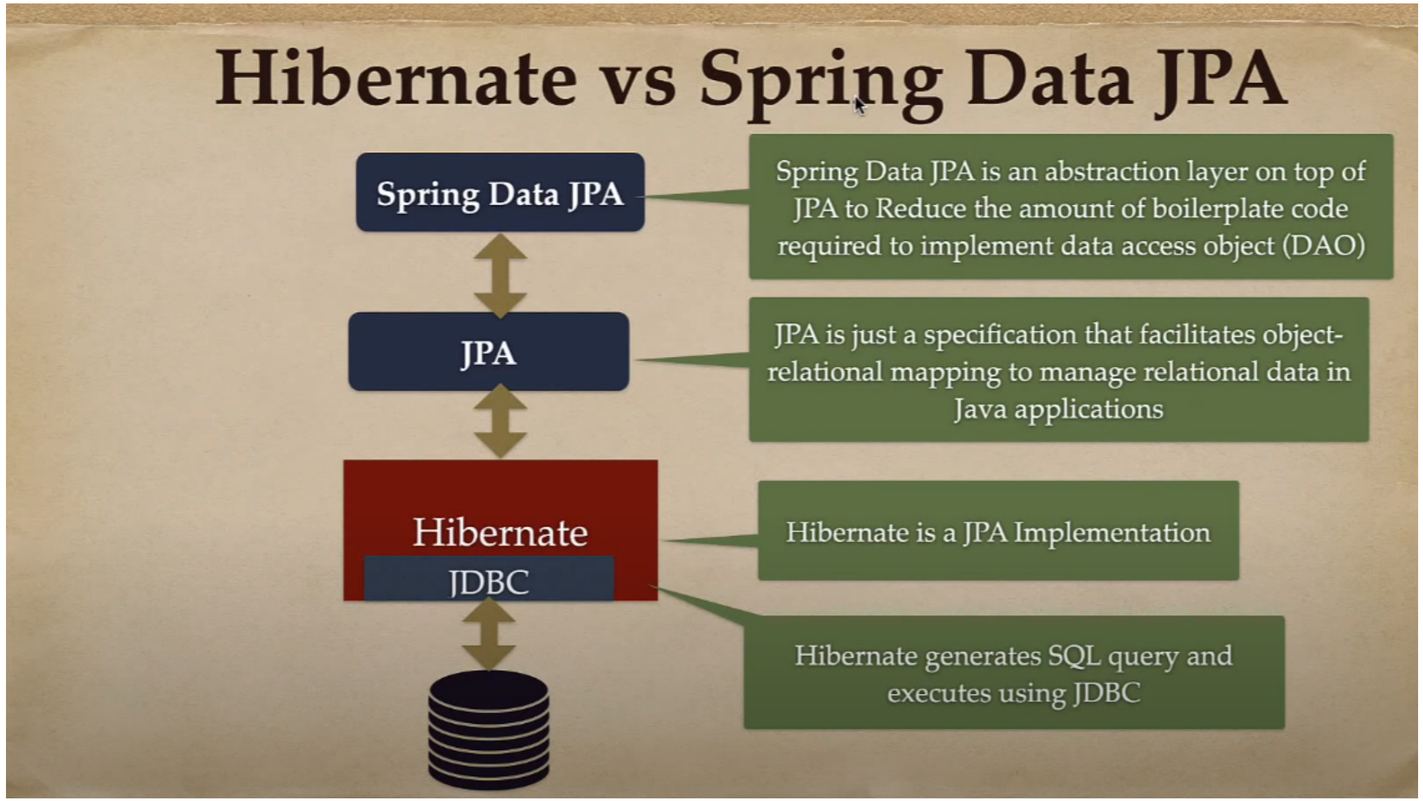
Data Layer Evolution Process

Database layer evolution process is very similer to human evolution process





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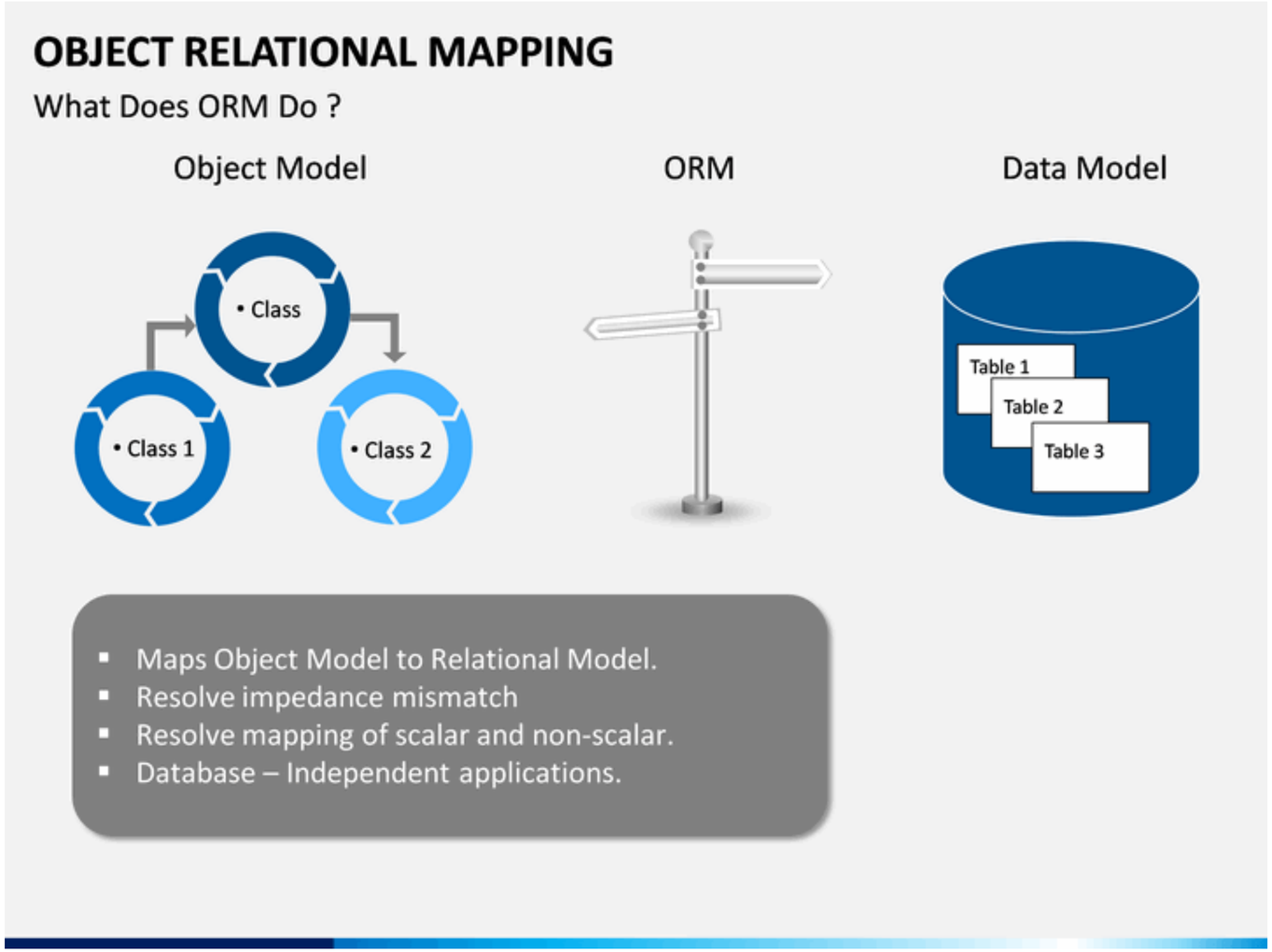
What is Object Relational Mapping ORM?

Object Relational Mapping (ORM) is a technique used in creating a "bridge" between object-oriented programs and relational databases.



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What is Hibernate Framework?

Hibernate ORM is an object–relational mapping tool for the Java programming language.

It provides a framework for mapping an object-oriented domain model to a relational database

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What is JPA?

Jakarta Persistence API is a Jakarta EE (Earlier called J2EE) application programming interface specification that describes the management of relational data in enterprise Java applications

JPA
Java Persistence API

JSR

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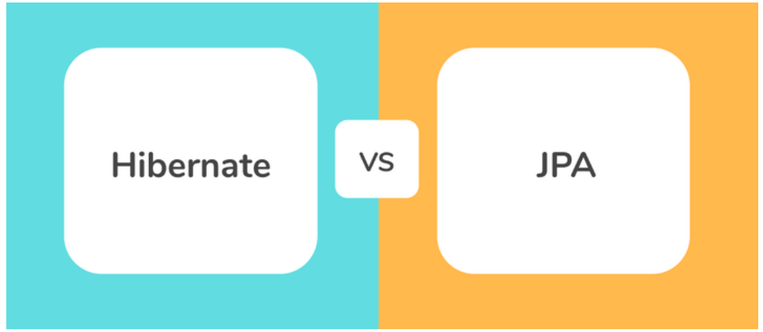
JPA vs Hibernate

The major difference between Hibernate and JPA is that Hibernate is a framework while JPA is API specifications

- Hibernate is an implementation of JPA guidelines.
- It helps in mapping Java data types to SQL data types.
- It is the contributor of JPA.



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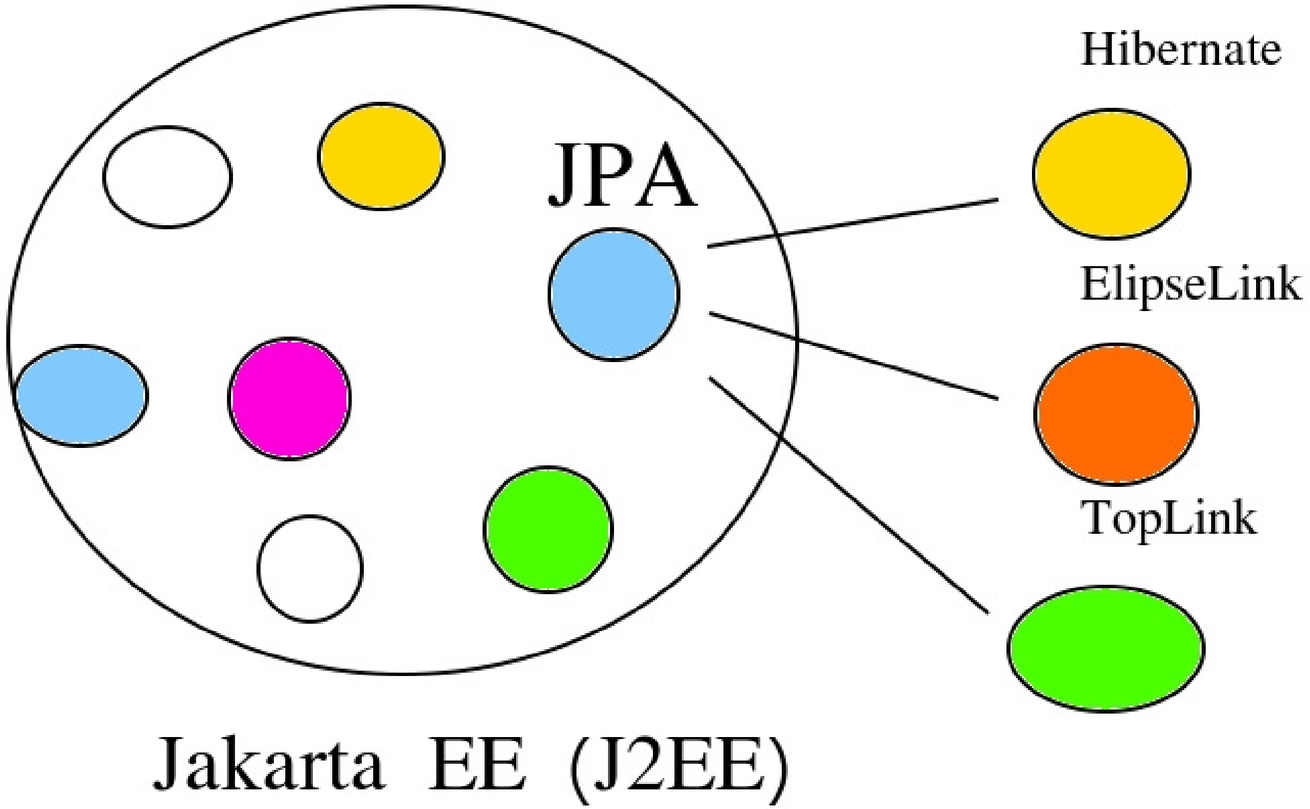
JPA vs Hibernate

Advantage of JPA is that You can swap ORM in your project without changing the code



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JPA vs Hibernate

JPA	Hibernate
JPA is described in **javax.persistence** package.	Hibernate is described in **org.hibernate** package.
It describes the handling of relational data in Java applications.	Hibernate is an Object-Relational Mapping (ORM) tool that is used to save the Java objects in the relational database system.
It is not an implementation. It is only a Java specification.	Hibernate is an implementation of JPA. Hence, the common standard which **is** given by JPA is followed by Hibernate.
It is a standard API that permits to perform database operations.	It is used in mapping Java data types with SQL data types and database tables.
As an object-oriented query language, it uses **Java Persistence Query Language (JPQL)** to execute database operations.	As an object-oriented query language, it uses **Hibernate Query Language (HQL)** to execute database operations.
To interconnect with the entity manager factory for the persistence unit, it uses **EntityManagerFactory** interface. Thus, it gives an entity manager.	To create Session instances, it uses **SessionFactory** interface.
To make, read, and remove actions for instances of mapped entity classes, it uses **EntityManager** interface. This interface interconnects with the persistence condition.	To make, read, and remove actions for instances of mapped entity classes, it uses **Session** interface. It acts as a runtime interface between a Java application and Hibernate.

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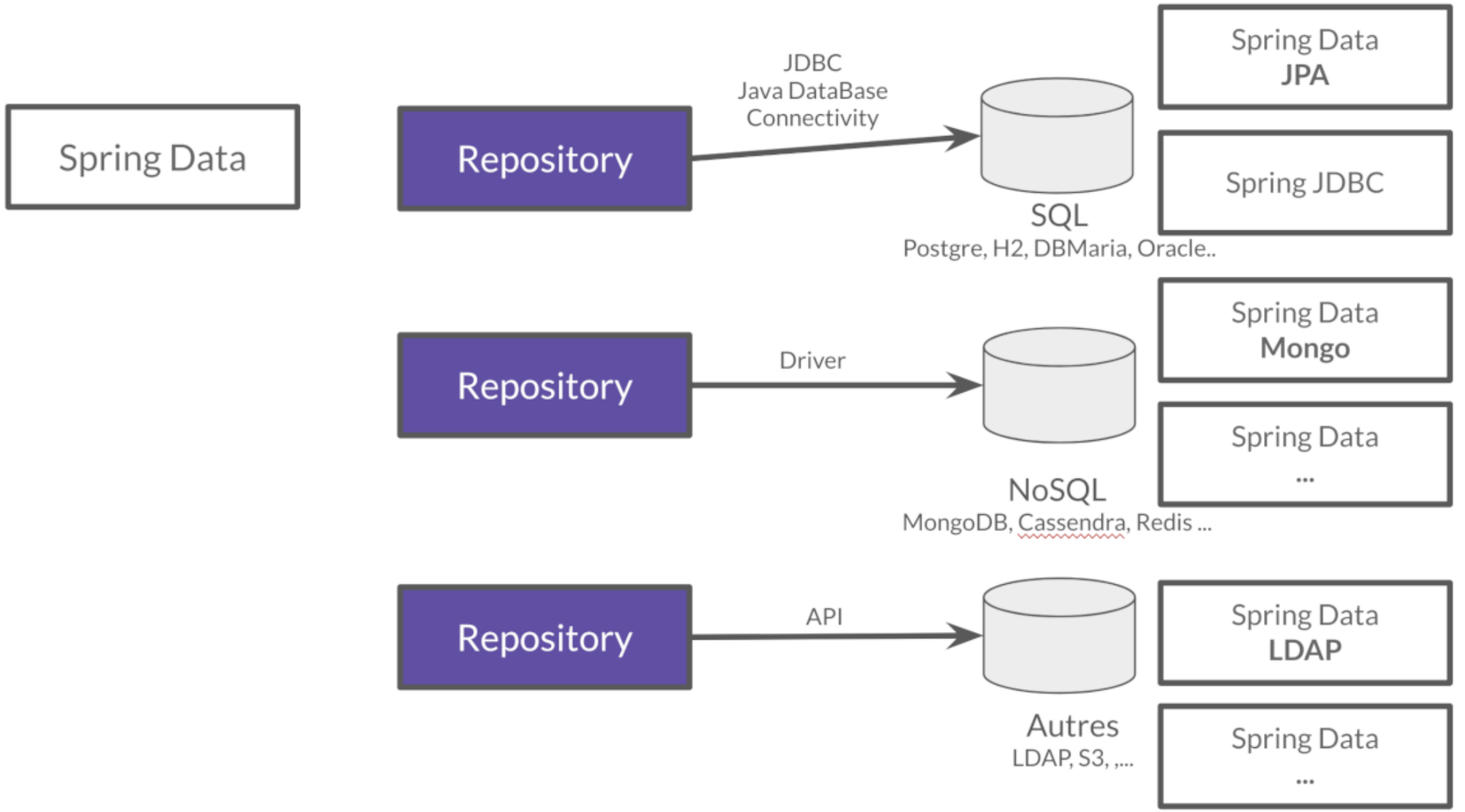
What is Spring Data?



The Spring-Data is an umbrella project having many sub-projects or modules to provide uniform abstractions and uniform utility methods for the Data Access Layer in an application and support a wide range of databases and datastores.

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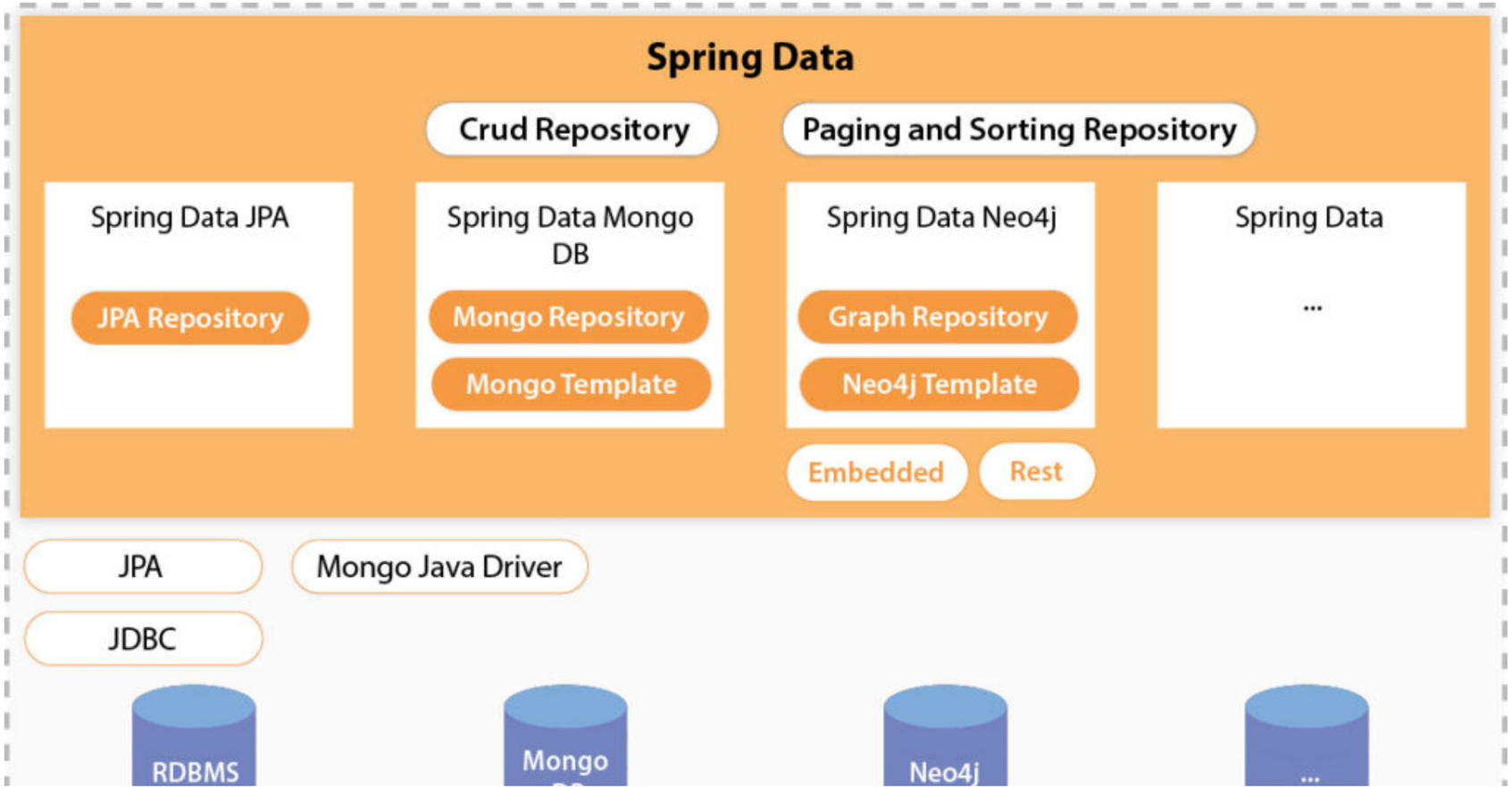
What is Spring Data?



By using Spring data We dont have to write Dao layer, we just need to declare Dao layer and it provide uniform interface to interact with polyglot of databases

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