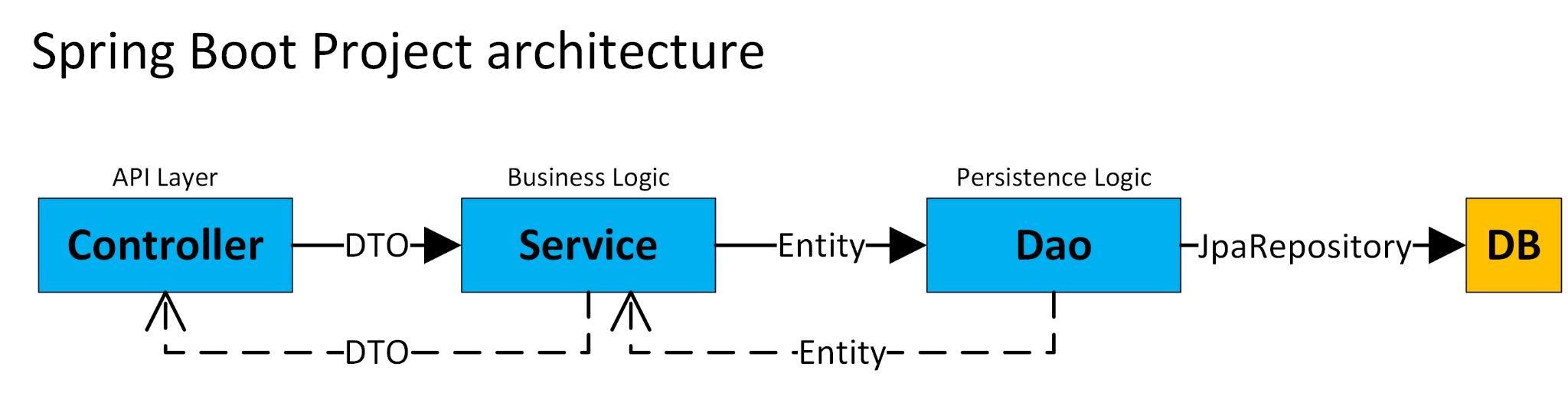
**Task 03 || Spring Boot, ORM(JPA, Hibernate)**

1. **Duration:** 3 working days
2. **Description:**

* Its time to replace your List/Map in service with database.
* We will use an in memory database (H2) in this task.
* create feature branch for task 03 from release branch:

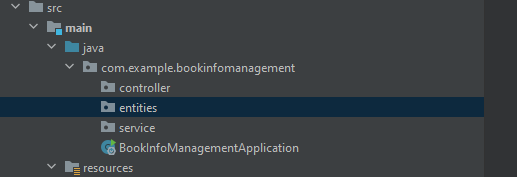
*git checkout -b "feature/bim/atique-202015/task-03"*

* Migrate the CRUD from task 02 in Controller→Service→Dao→Repository layeyrs.



* Access H2 db using JPA, Hibernate in Dao layer.
* Create and Use DTO’s in Controller→Service layer
* Create and use Domain Models/Jpa Entities in Service→Dao layer
* Create a directory named: entities

under *src/main/java/com.example.bookinfomanagement* for Entities



* Add these properties in application.properties

*spring.datasource.url=jdbc:h2:mem:testdb*

*spring.datasource.driverClassName=org.h2.Driver*

*spring.datasource.username=sa*

*spring.datasource.password=*

*spring.jpa.database-platform=org.hibernate.dialect.H2Dialect*

*spring.h2.console.enabled=true*

* Add Below dependency in *build.gradle → dependencies*

*runtimeOnly 'com.h2database:h2'*

1. **Learning Metariaks**
2. <https://www.baeldung.com/spring-boot-h2-database>
3. <https://www.youtube.com/watch?v=9SGDpanrc8U&ab_channel=Amigoscode>
4. <https://www.baeldung.com/learn-jpa-hibernate>
5. <https://www.baeldung.com/transaction-configuration-with-jpa-and-spring>
6. **Helper Project**

* This is an already done project to help you.
* A simple CRUD operations to manage student info is done in this project using H2 db and jpa.

1. You have already cloned this project in task 02

2. fetch branches: *git fetch*

3. checkout branch: *git checkout "hp/student-info-manage-h2-jpa"*

* You can see the project structure and browse the code.

1. **What to submit**

Prepare a doc with the answer of these two questions:

* What ORM?
* Describe Persistence Life Cycle?
* Why JPA?
* Write about the newly added dependencies in build.gradle
* Write about the newly added properties in application.properties file
* Write about new annotations we used:

@Repository, @Transactional, @Entity, @Id

* Submit your code for task 03 in gitlab. See how to submit section.

1. **How to submit**

* Name your doc as: <nick name>\_<emp\_id>\_<task id>.

Ex: atique\_202015\_task\_03.docx

* Upload your doc/pptx in documents forlder
* commit your changes in your task 02 feature branch:

*git commit -m "[bim] task 03"*

* Push the changes to your feature branch: *git push*
* Create a merge req in GitLab [feature → release]

Ex: *feature/bim/atique-202015/task-03 → bim/atique-202015/release-1.0*

* Follow up instructors feedback on GitLab on the merge request.