3rd Assignment

Develop an application as:

• In case of a group with 1-2 people: a Spring-MVC front-end **OR** a Java JPA-based backend
• In case of a group with 3-4 people: a Spring application (MVC **and** data persistency)

The application must implement **CRUD** (create, read, update, delete) operations for all the entities (unless the operation is not meaningful for the considered entity) and at least a **search** operation that involves a **minimum of two entities** and extracts entities making a selection according to a constraint defined on **non-key attributes** (note that in-memory filtering is more expensive than filtering directly within the database).

There must be **at least 4 entities** in the system (with **inheritance** between at least two of the entities) and **at least 3 relationships** (including **at least a many-to-many** and **a self-loop** relationship) between those entities. Arbitrarily define entities and attributes.

The **"front-end only"** implementation works with volatile objects. The "**back-end only**" implementation implements a Java interface that can be executed with a main or a set of Junit test cases. The "**front-end + back-end implementation**" implements **both** a Web-based front-end and a back-end that handles the persistent objects.

These functionalities should be implemented as being part of a large system, thus, extensively exploit separation of concerns when organizing the code. Make sure to write production-quality code. More practically, think to the case of a company that has asked you to submit this exercise to decide about making a job offer.

Use of Git:

- Create a GitLab project named "2023_assignment3_<your_project_name>"
- Add the user "sw_dev_process_course" to the GitLab project and assign "developer" privileges
- Make individual commits
- Use Git properly (meaningful commit messages, multiple branches if needed...)

Write a **short step-by-step manual** on **how to install** and **execute** the program as a README.md in the git repository.

Submit a **short PDF** on the eLearning indicating:

- **what is the project about:** short description of what the classes represent and what the application does, including an **entity-relationship diagram** or an **UML class diagram**
- **what responsibility** has been assigned to what **source code element**: indicate the role of each class in the program and include a short description of the CRUD and search operations implemented.

The PDF must include a link to the GitLab repository and the names of all the students in the group.