GDAŃSK UNIVERSITY
OF TECHNOLOGY

Internet Services
Architectures

Laboratory 2

Spring Framework & Spring Boot & Spring Data

During second laboratory students should get familiar with basic components of Spring Framework (component, repository, service), mechanism of dependency injection and inversion of control as well as basic components of Spring Data (SQL database access with repositories). Project should be realized as Maven Spring Boot project. Basic project can be generated using Spring initializer https://start.spring.io/. Entity classes should be based on the code developed during previous laboratories.

The following tasks should be completed:

1. All business classes should be enhanced with appropriate JPA annotations. Name of the tables should be in plural form. Tables and columns names should be formatted using `snake_case`. All relationships should be bidirectional. Fetching category should not fetch elements by default. Entities should use UUID generated by client (not by the JPA or database) as primary keys. Remember about data source configuration. The in-memory H2 database should be used. (2 points).
2. Implementation of JPA repositories for each business class as Spring `@Repository`. Repository for elements should allow for querying them by category. (2 point)
3. Implementation of service for each business class as Spring `@Service`. Each service should utilize repository instance provided by the container. At this moment each service should delegate repository methods. At this point this can look as services does not introduce any added value but this decomposition can be crucial in developing much more complex applications. (2 points)
4. Implementation of example data initializer launched automatically after start as Spring `@Component`. The initializer should utilize services instances provided by the container. (1 point)
5. Implementation of command line runner as Spring `@Component`. The runner should communicate with the user using standard input and output streams and allow for listing available commands, listing all categories, listing all elements, adding new element (with category selection), delete existing element, stopping the application. The runner should utilize services instances provided by the container. (1 point)