

PROG 27545
WEB APPLISTUDENTION DESIGN AND IMPLEMENTATION
ASSIGNMENT #4
Posted: April 2, 2021
Due: April 15, 2021
Weight: 7.5%

## Learning Outcomes

1. Learn to apply Spring Security to limit access in web applications.
2. Practice in using JPA with several related tables.
3. Practice in designing pages using Bootstrap.

## Requirements

Using Git (version control system) and making regular backups of the work are required. It is expected from the students to commit several intermediate steps of their work into the version control system (Git) before reaching the final solution. Programs developed without using Git are harshly penalized (minus 40%).

The assignment project must be created with the latest version of IntelliJ IDEA Ultimate, using "Spring Initializr" option, Java 11 or above and, "Maven Project". Projects created with other software or different options of this software will not be graded.

## Problem description

Develop an application that has two kinds of users (two roles) and several pages. Use Spring Boot2, Spring Security, Thymeleaf template engine, Bootstrap4, JPA with in-memory H2 database.

The access to these pages is restricted based on assigned roles: "student" and "teacher".

Pre-create at least 3 users having role "student", and 3 users having role "teacher" in the "data.sql" script inside of your project. Your database will include "user", "role", and "user\_role" tables.

User object includes the following data fields:

- First name
- Last name
- DOB (Date of Birth)
- Email address

Note: For the ddl script, feel free to have a schema.sql file in your application or to ask JPA to create the DB according to the entity model.

In this assignment, it is not required to implement adding and removing users at run time. Use salted passwords to encode the passwords of users. For the sake of simplicity in grading, encode the same password, exactly "5k\_&7Pm" for all users of the system.

Implement at least the following pages:

1. "Index" page should not require to login; it is open to anybody.
2. "Login" page.
3. "Home" page requires to login; it is available to any user who logged in.
4. "Teacher Private Space" is available to "teacher" users only.
5. "Student Private Space" is available to "student" users only.

Hide and show links appropriately:

- Logout link is not shown before a user log in successfully.
- Login link is not shown after a user log in successfully.
- Link to "Home" is shown only after a user logs in.
- Link to "Teacher Private Space" is shown only to "teacher" users.
- Link to "Student Private Space" is shown only to "student" users.

Use Bootstrap, images, some text, and your own CSS in all the pages. Exercise your creativity, make it look pretty, and entertaining; have fun.

## Important Notes:

### Submission

Your assignment should be submitted as a single zipped project on SLATE. You may submit the assignment on slate as many times as you wish, but only the last submission will be marked.

### Late Assignments

Your assignment is due on April 15, 2021 at 11:59pm. Any assignments submitted after that date will receive a late submission grade penalty. No assignments will be accepted after April 18, 2021 at 11:59pm

### Individual Assignment

Remember that this is an individual assignment meaning you are required to work on this alone. If you work, collaborate, discuss, or share your work with other students you risk a breach of academic integrity.

Good luck 😊