Assignment # 4–Developing Spring Boot app with Micro-services and JPA.

Due Date: Week 14.

Purpose: By finishing this assignment you will practice to:

- Develop, code and test micro-services for given requirements.
- Implement MVC in Spring Boot App.
- Implement Thymeleaf template instead of JSP files.
- Implement the JPA and validations in spring boot.

References: Read the lecture slides week 10 – 12 and lab exercises. This material provides the necessary information you need to complete the exercises.

Instructions and rules:

-This lab should be completed by every student **individually or as a group, maximum 3 students in a group with equal contribution.**

-You will have to demonstrate your solution in a scheduled lab session and submitting the project **through the assignment drop box on e-centennial**. You must name your Eclipse project according to the following rule:

Student Names_COMP303_AssignementNumber

Example: **John_Smith_COMP303_Assignment4**

Each file submitted in the solution should have student name, student and submission date in the top of the code file.

Comments may be necessary inside the functions or predicates but that the names of the functions and predicates and the comments you include to explain each are especially important.

Student must hand in the assignment to e-centennial drop box **before in-class demonstration. In group, all students must submit and demonstrate their assignment solution with their contribution. Points will be given to students based on their contribution and commitment to complete this assignment.**

Description

Students are asked to develop micro-services in spring boot app to handle partial "Blood Bank Information System" with seeker, blood bank and blood stock information. You may create few project like Discovery server, micro-service server and micro-service client or web to implement the micro-services or you can create only one project with several packages and configuration files to fulfill these requirements.

You should follow the below given instructions while you are working on this lab assignment.

a. The architecture of the micro-service is built with the following components:
   i. Entity class must be persistence and should include appropriate validations
   ii. Controllers for URL mapping. (@Controller)
   iii. Repositories and Services. (@Repository or @Service)
   iv. HTML files with thymeleaf templates
   v. application.properties file configuration
   vi. POM.xml configuration.
   vii. You are free to add any other files or configuration needed

b. Your app should produce and consume micro-services of partial "Blood Bank Information System" details as shown in the below given table. You should define entity classes for Seeker, BloodBank and BloodStock with persistence using JPA implementation. Use MySql to create database name "BloodDB" and with three tables like Seeeker, BloodBank and BloodStock and use appropriate data types

Seeker or Patient	BloodBank	BloodStock
FirstName	BloodbankName	BloodGroup
LastName	Address	Quantity
Age or DOB	City	BestBefore (date)
Gender	Phone	Status
BloodGroup	Website	
City	Email	
Phone		

c. Design UI pages using HTML files and use thymeleaf template instead of JSP files to implement web interface only for seeker information. To implement this task you use the same project or different project.

d. To fulfill an innovation requirements, students may identify a missing feature or functionality and can implement with this app or adding a new feature based on new dependency to this app (jar file for APIs) or new design with CSS or bootstraps and implement one or more.

Assessment Rubrics:

Functionalities: Developing Spring micro-services with entities, services, repositories, controllers and html files with thymeleaf template, application.properties and set of appropriate dependency in POM.xml files	60 points
JPA implementation with MySQL and entity validations like required field, numeric values, ranges and date @ entity class (not html or javascript validation)	30 points
UI friendliness, use of CSS, and code standards.	5 points
Innovation – Implement any new feature or additional micro-service etc.	5 points
Total	**100 points**

Late submission:

There is a **20% off per day** late penalty which means if a student submits an assignment one day late and does perfect work, the most they can obtain is 80/100.

For example, if a student submits one day late and obtains 8/10 as an assignment then the professor will need to deduct 20% from this grade (8 x .20 = 1.6, 8-1.6 = 6.4/10 - record 6.4). If a student submits two days late then 40% will be deducted, for example, assume the student obtains 9/10 (9 x .40 = 3.6, 9-3.6 = 5.4/10). By day five the student receives zero.

Academic honesty (Plagiarism and cheating)

All students must follow the academic honesty policies regarding Plagiarism and cheating on assignments, Quizzes or Tests. Centennial college's Academic Policy will be strictly enforced. To support academic honesty at Centennial College, all academic work submitted by students may be reviewed for authenticity and originality, with utilizing software tools.

For more details, please visit the Academic Honesty site on
https://www.centennialcollege.ca/mycentennial/your-support/academic-support/student-academic-advising/academic-honesty/