CS 454: Software Engineering for Distributed Systems

Assignment 2: A Functioning E-Com

Objective:

The objective of this assignment is to familiarize ourselves with the concepts provided by EJB. We will implement a clone of FCAI-CU's E-Com to achieve that

Requirements:

Functional Requirements:

Since students don't register to E-Com the account creation will be an administrative activity. Admins in the system should have the following abilities

1. Creation of Student Accounts
   a. Given a range of IDs
   b. Password for each account is auto generated
2. Creation of Staff Accounts
   a. ID is up to your choice of implementation
   b. Assigning staff to courses in the system
3. Listing of Student Accounts
   a. Should show the id, name & number of passed courses
   b. Can select a particular student from that list to show exactly which courses he passed and is currently registered to
4. Creation of courses
   a. Courses should have a pre-requisite academic year (Can't register to a 2nd year course as a first year student)
5. Listing of courses

As a student you should be able to

1. Login into the system using the generated credentials as sent by the admin
2. View current and past courses
3. Register into courses available for your current year
   a. Course registrations should be handled in a special way to avoid situations of server failure to confirm the request

As a staff you should be able to
1. Assign grades to the students in the courses you're assigned to
2. View list of students in your courses

Key & non-duplication constraints apply where it makes sense

Technical Requirements

You are required to use these 4 different bean types to fulfill the above functional requirements.

1. Stateless
2. Stateful
3. Singleton
4. Message Driven

Your interface should be a web based interface using JSP to simulate a functioning e-com system with different users as per the above mentioned functional requirements (i.e., we should be able to perform all the above mentioned functionalities using such web based interface).

Your services should be exposed as REST APIs, and you should expose your beans using REST to fulfill the web services REST API as appropriate

Deliverables

The source code for your developed application. The source code means all files with the extension .java not the IDE project files.

Rules of Submission

1. Deadline is Sunday 15th of May (15/5/2022)
2. No email submissions will be accepted.
3. There are no late submissions.
4. The assignment is in groups of 2 ~3 from the same lab
5. Cheating is not tolerated and will be given negative grades
6. All of the deliverables should be bundled in a single ZIP file named "CS454_A1_<ID1>_<ID2>_<ID3>..zip"

Helpful Resources

https://www.tutorialspoint.com/ejb/index.htm

https://www.javatpoint.com/ejb-tutorial