

Individual Report - Week 2

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CRUD Milestone #1: Course Enrollment System

Implementation Tasks

1. Configuration & Data Initialization

File: config/DatalInitializer.java

- Initialized student and teacher roles for role-based access control. .student demo: (username: student/password: student123)

```
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1 // Create admin user
2     if (!users.existsByUsername("admin")) {
3         var admin = new User();
4         admin.setUsername("admin");
5         admin.setPassword(encoder.encode("admin123"));
6         admin.getRoles().add(adminRole);
7         users.save(admin);
8     }
9
10    // Create sample student user
11    if (!users.existsByUsername("student")) {
12        var student = new User();
13        student.setUsername("student");
14        student.setPassword(encoder.encode("student123"));
15        student.getRoles().add(studentRole);
16        users.save(student);
17    }
18
19    // Create sample teacher user
20    if (!users.existsByUsername("teacher")) {
21        var teacher = new User();
22        teacher.setUsername("teacher");
23        teacher.setPassword(encoder.encode("teacher123"));
24        teacher.getRoles().add(teacherRole);
25        users.save(teacher);
26    }
```

- Created sample courses (6 courses) for testing and demonstration (just testing)

Course Code	Course Name	Description	Credits	Capacity	Available Seats
CS101	Introduction to Computer Science	Learn the fundamentals of computer science including algorithms, data structures, and programming.	3	30	30
CS201	Data Structures and Algorithms	Advanced study of data structures, algorithm design, and complexity analysis.	4	25	24
CS301	Database Systems	Comprehensive coverage of database design, SQL, and database management systems.	3	20	20
CS302	Web Development	Full-stack web development using modern frameworks and technologies.	3	28	28
CS303	Mobile App Development	Build native and cross-platform mobile applications.	3	22	22
CS401	Software Engineering	Software development lifecycle, project management, and modern development practices.	4	15	15

2. Entity Models

File: [model/Course.java](#)

- Populated Course entity with fields (id, code, name, description, credits, capacity, teacher, enrollments)
- Implemented constructors, getters, and setters

File: [model/Enrollment.java](#)

- Populated Enrollment entity with fields (id, student, course, enrollmentDate, status, grade)
- Implemented constructors, getters, and setters
- Added unique constraint for student-course combination

3. Repository Layer

File: [repository/CourseRepository.java](#)

- Created CourseRepository interface extending JpaRepository
- Added custom query method `findByOrderByCodeAsc()`

File: [repository/EnrollmentRepository.java](#)

- Created EnrollmentRepository interface extending JpaRepository
- Added custom query methods for finding enrollments by student, course, and checking enrollment status

4. Service Layer

File: [service/EnrollmentService.java](#)

- Implemented `getAllCourses()` - retrieve all available courses
- Implemented `getStudentEnrollments()` - view student's enrollments
- Implemented `enrollStudent()` - enroll student in course with validation (duplicate check, capacity check)
- Implemented `dropCourse()` - drop enrollment by setting status to DROPPED

5. Controller Layer

File: [controller/StudentController.java](#)

- Implemented `/student/dashboard` endpoint
- Implemented `/student/courses` endpoint to display available courses and enrollments
- Implemented `/student/enroll/{courseId}` POST endpoint for enrolling
- Implemented `/student/drop/{courseId}` POST endpoint for dropping courses

6. User Interface

File: [templates/course-enrollment.html](#)

- Created course enrollment page displaying available courses
- Added enroll/drop buttons for each course
- Implemented responsive design with course cards

The screenshot displays two main sections of the application:

- Course Enrollment (Top Bar):** Shows a navigation bar with "Welcome, student", "Dashboard", and "Logout" buttons.
- My Enrolled Courses (Main Content):** A table showing the student's enrolled courses. One course, CS201, is marked as "DROPPED".
- Available Courses (Bottom Section):** A grid of course cards. Each card includes course details, credits, capacity, available seats, and an "Enroll Now" button.

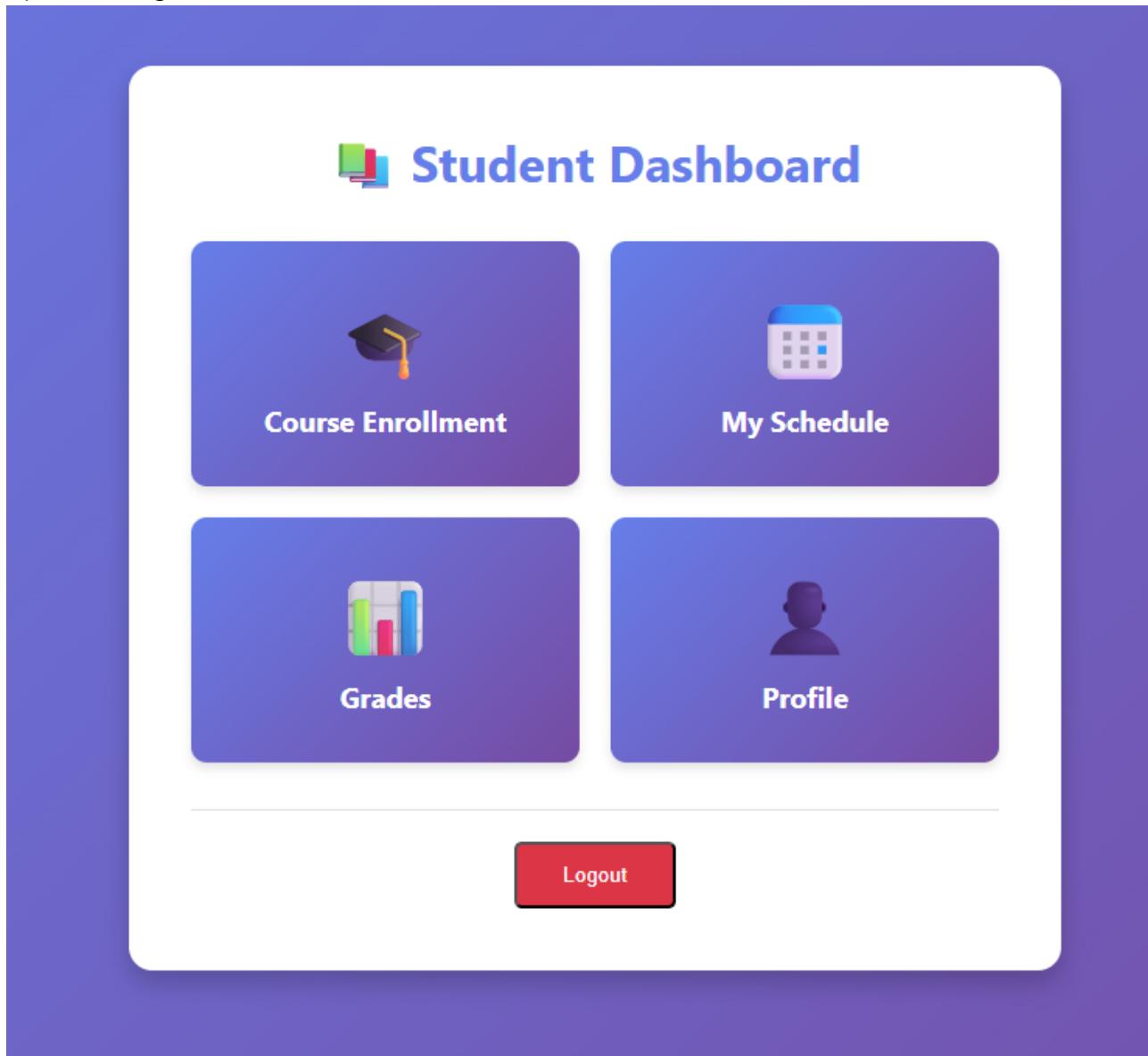
Course Code	Course Name	Credits	Enrollment Date	Status	Grade	Actions
CS201	Data Structures and Algorithms	4	2025-12-23 22:55	DROPPED	-	

Course ID	Course Name	Credits	Capacity	Available Seats	Action
CS101	Introduction to Computer Science	3	30	30	Enroll Now
CS201	Data Structures and Algorithms	4	25	24	Enroll Now
CS301	Database Systems	3	20	20	Enroll Now
CS302	Web Development	4	30	28	Enroll Now
CS303	Mobile App Development	3	20	18	Enroll Now
CS401	Software Engineering	3	20	17	Enroll Now

File: [templates/student-dashboard.html](#)

- Modified student dashboard to include link to course enrollment page

- Updated navigation menu



Features Delivered

- Students can view all available courses
 - Students can enroll in courses (with duplicate and capacity validation)
 - Students can view their current enrollments
 - Students can drop courses
 - System includes sample data for testing (3 roles, 3 users, 6 courses)
 - Public registration is enabled
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