

Individual Report - Week 2

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CRUD Milestone #1: Course Enrollment System

Implementation Tasks

1. Configuration & Data Initialization


File: [config/DataInitializer.java](#)

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



```
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)


Available Courses

CS101

Introduction to Computer Science

Learn the fundamentals of computer science including algorithms, data structures, and programming.

Credits

3

Capacity

30

Available Seats

30

Enroll Now

CS201

Data Structures and Algorithms

Advanced study of data structures, algorithm design, and complexity analysis.

Credits

4

Capacity

25

Available Seats

24

Enroll Now

CS301

Database Systems

Comprehensive coverage of database design, SQL, and database management systems.

Credits

3

Capacity

20

Available Seats

20

Enroll Now

CS302

Web Development

Full-stack web development using modern frameworks and technologies.

Credits

3

Capacity

28

Available Seats

28

Enroll Now

CS303

Mobile App Development

Build native and cross-platform mobile applications.

Credits

3

Capacity

22

Available Seats

22

Enroll Now

CS401

Software Engineering

Software development lifecycle, project management, and modern development practices.

Credits

4

Capacity

15

Available Seats

15

Enroll Now

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

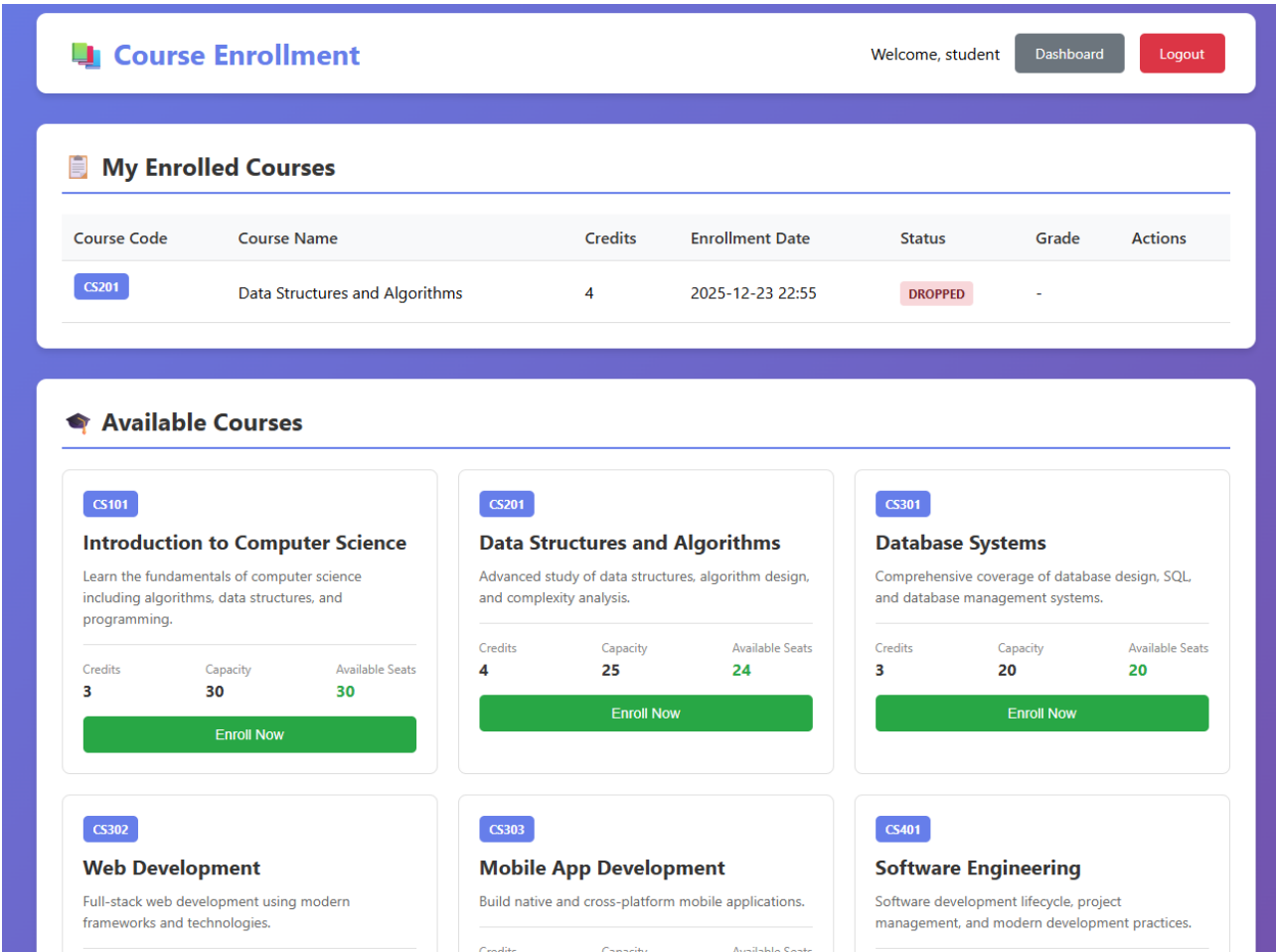
File: `controller/StudentController.java`

- 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`

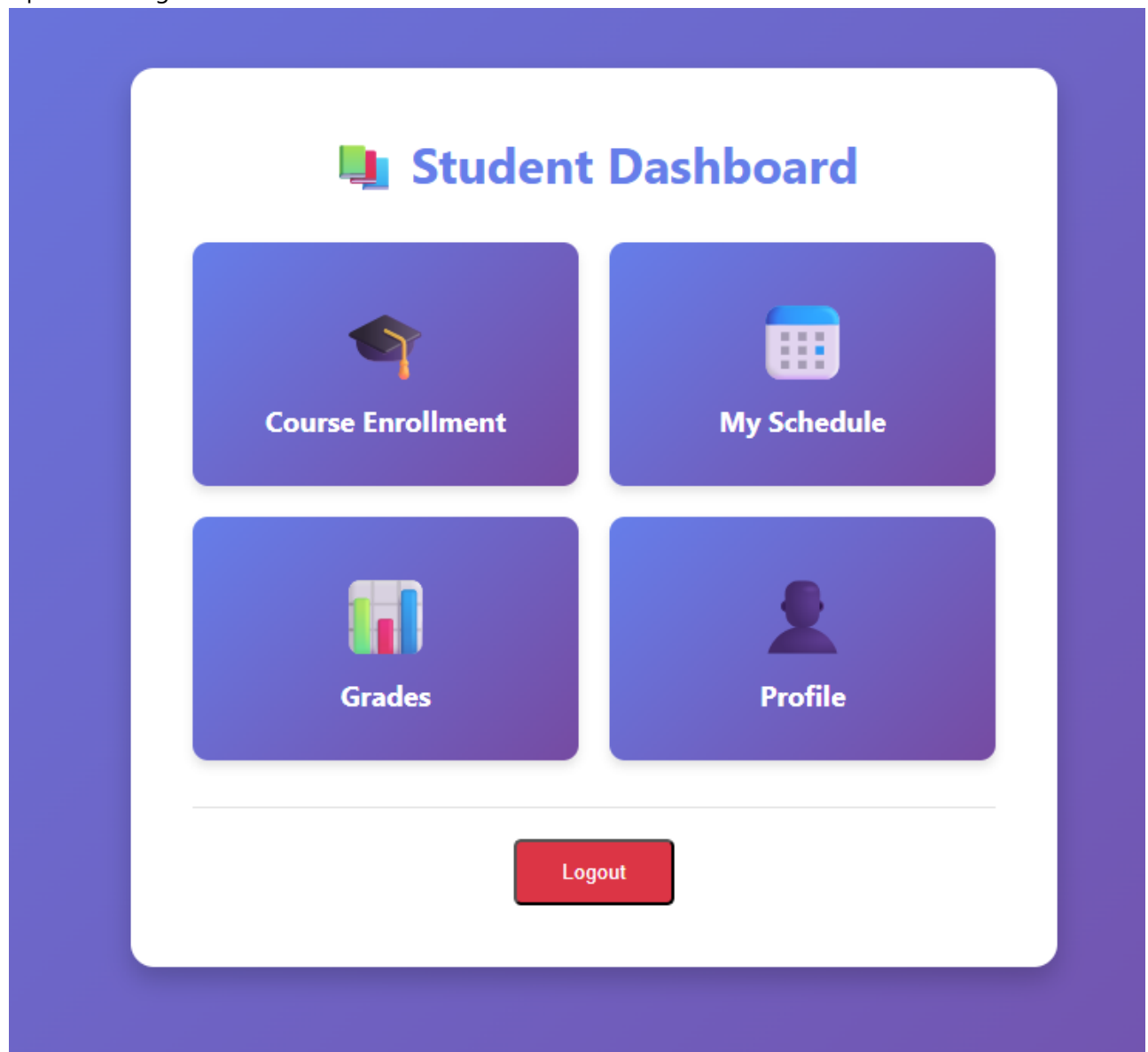
- Created course enrollment page displaying available courses
- Added enroll/drop buttons for each course
- Implemented responsive design with course cards



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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