

Online Course Registration System

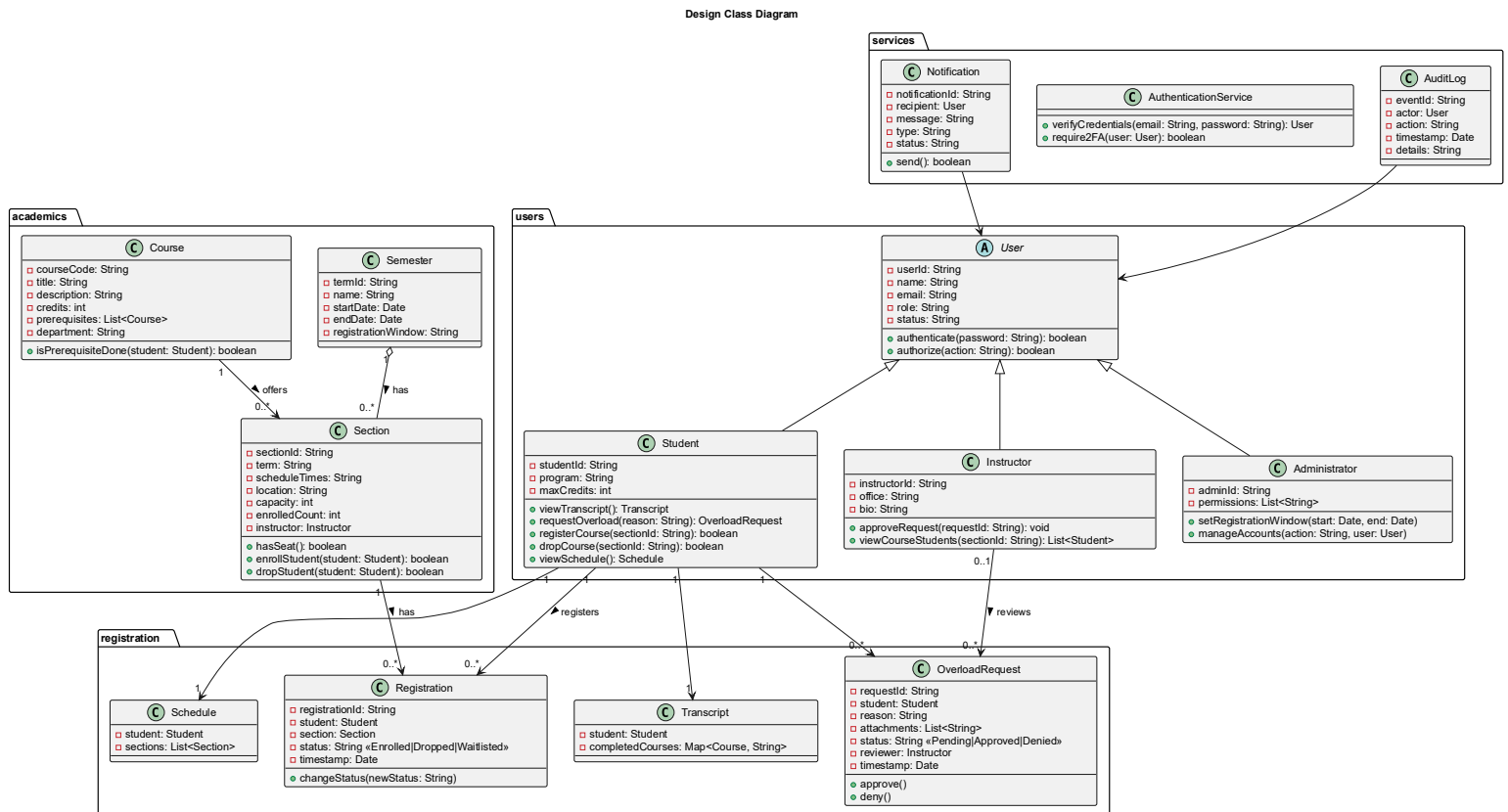
SW301 - Course Project – Phase 3 - System Design

Ahmed Wael 202201415

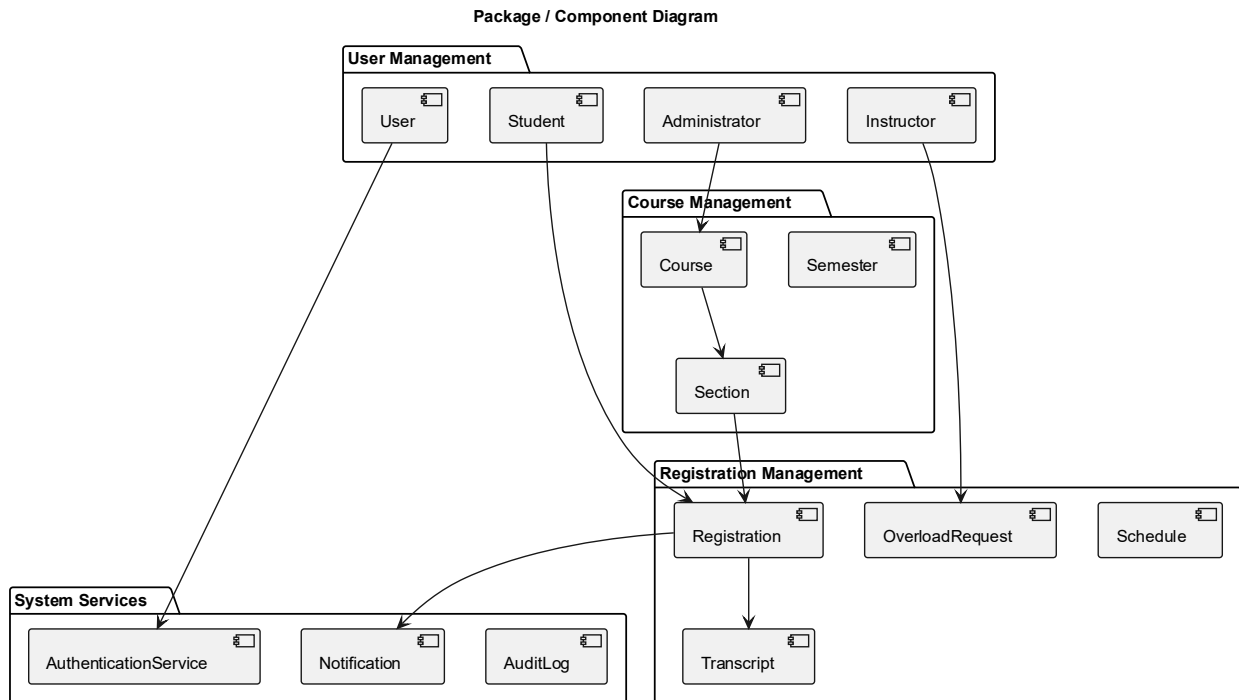
Ahmed Sameh 202202151

Seif Eldin 202201510

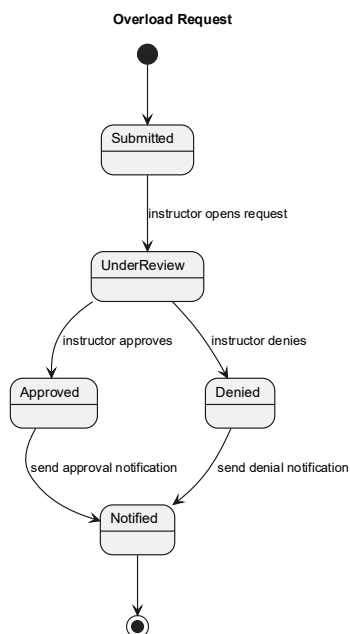
Design Class Diagram



Package / Component Diagram



State Machine Diagram





UI Mockups


Dashboard


Course Catalog

Request Overload

 Register for Courses
Browse and enroll

 Drop Courses
Manage enrollment

 Request Overload
Exceed credit limit

 Spring 2025 Schedule

Total Credits: 14

CS 301 • Data Structures

3 credits

Section 001 • Dr. Sarah Williams

MWF 10:00 AM - 11:00 AM Engineering Hall 201

MATH 250 • Calculus II

4 credits

Section 003 • Prof. Michael Chen

TTh 2:00 PM - 3:30 PM Mathematics Building 105

ENG 201 • Technical Writing

3 credits

Section 002 • Dr. Jennifer Brown


MWF 1:00 PM - 2:00 PM Liberal Arts 302


PHYS 201 • Physics I


4 credits


Section 001 • Dr. Robert Taylor

TTh 9:00 AM - 10:30 AM Science Center 410

 Notifications

 Registration for Fall 2025 opens on April 15th
2 hours ago

 CS 301 lecture moved to Engineering Hall 203 on March 15th
5 hours ago

 Your overload request for PHIL 101 is pending approval
1 day ago

Academic Summary

Current GPA

3.72

Credits Completed

78


Credits Enrolled


14

Dashboard

Course Catalog

Request Overload

 Find Courses

 CS 401

Department

All Departments

Credits

All Credits

Term

All Terms

Showing 1 course

CS 401 Advanced Algorithms

3 credits

Computer Science • Fall 2025

Advanced study of algorithm design and analysis techniques including divide-and-conquer, dynamic programming, greedy algorithms, and graph algorithms.

Section 001 Dr. Sarah Williams

MWF 10:00 AM - 11:00 AM Engineering Hall 201 35/40 (2 waitlisted)

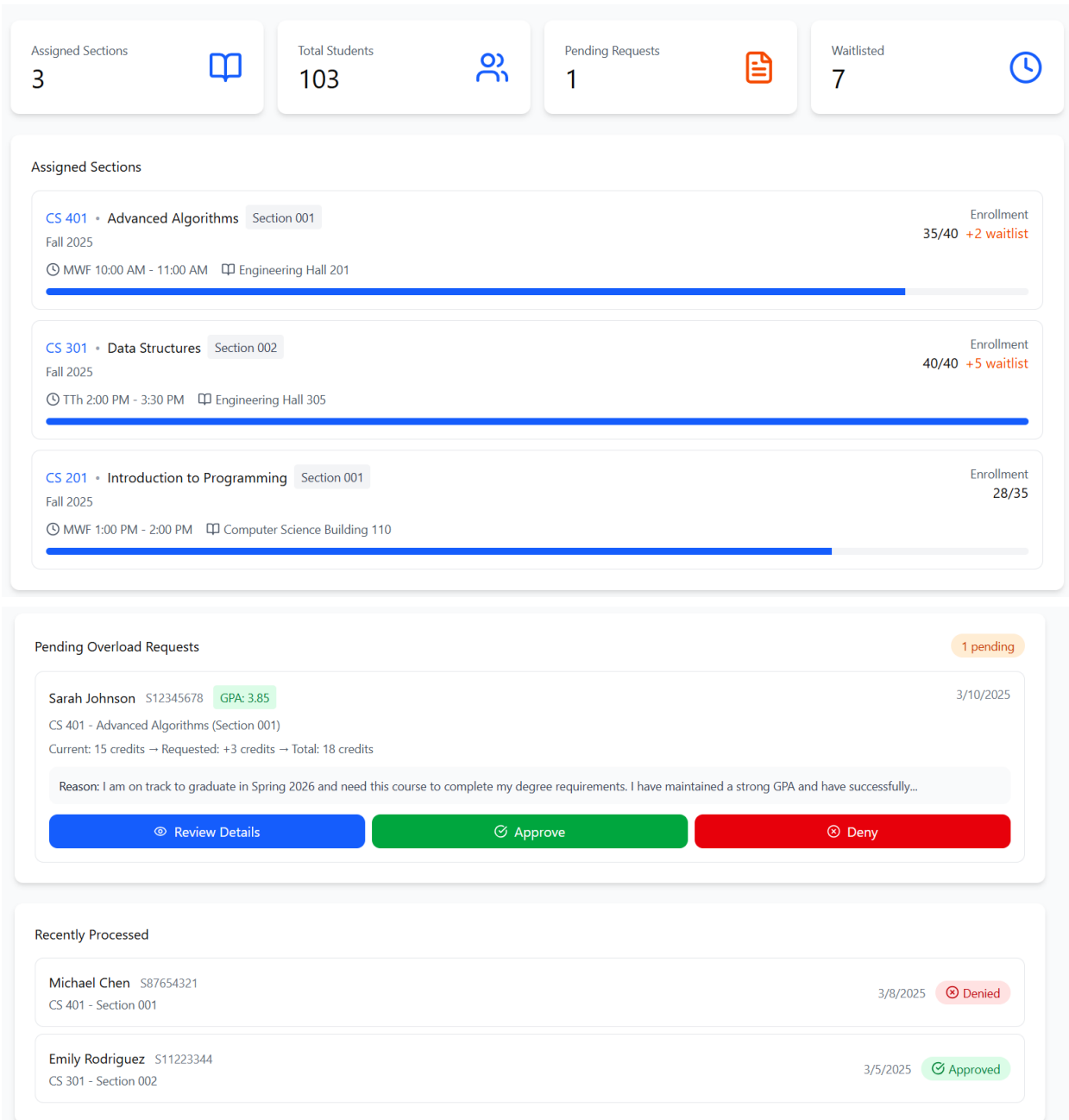
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Section 002 Dr. Michael Park

TTh 2:00 PM - 3:30 PM Engineering Hall 305 40/40 (5 waitlisted)

Full

View Details & Register



Summary

Design Approach

The system design follows object-oriented principles by refining the conceptual classes into a full design model. Each class includes specific attributes, data types, methods, and defined relationships, making the structure ready for implementation.

Key Design

1. Layered Package Structure

The system was divided into packages to separate responsibilities:

- User Management handles authentication and user roles
- Course Management maintains the academic catalog
- Registration Management processes student enrollment
- System Services manages notifications, logs, and authentication

2. Refined Class Details

Attributes now include explicit data types.

Methods are defined for the behaviors needed to support workflows.

3. Navigability and Multiplicity

Relationships now specify direction and cardinality (1..*, 0..1).

This ensures correct data traversal and prevents invalid associations.

4. State-Driven Behavior

Registration is modeled with a State Machine because it moves through states like Pending, Enrolled, Dropped, and Denied.

5. Service Abstraction

Components such as Notification, AuditLog, and AuthenticationService were isolated to support reuse across different modules.

6. UI Design Principle

UI screens are grouped by user roles (Student, Instructor, Administrator) to simplify navigation and reduce complexity for each type of user.