

Online Course Registration System

SW301 - Course Project – Phase 4 - Implementation

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Focuses on translating the system design into a working Java prototype.

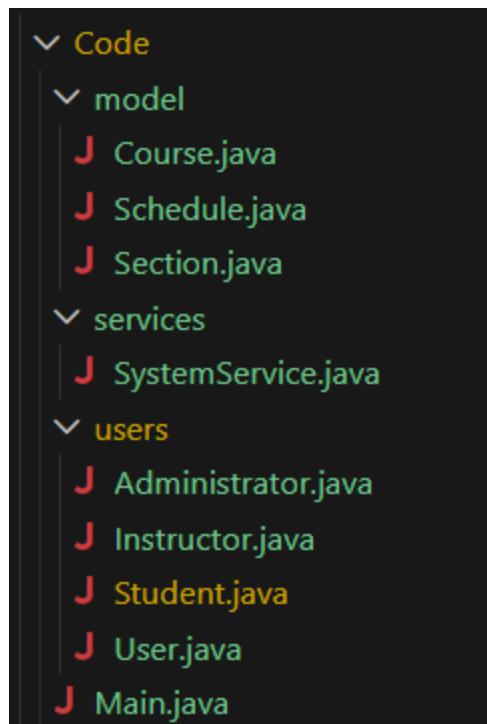
The goal is to demonstrate the core functionality of the Online Course Registration System using a console-based interface while following object-oriented design.

Development Environment

- Programming Language: Java
- IDE: IntelliJ – visual studio code
- Paradigm: Object-Oriented Analysis and design
- Version Control: GitHub Repository
- Execution Mode: Console-based

System Architecture

The system implements the core design classes. The classes are grouped into logical packages:



Implemented Core Classes

Users

- User (Abstract)
- Student
- Instructor
- Administrator

Purpose:

- Maintain inheritance
- Avoid duplication
- Support role-based logic

Academic Classes

- Course
- Section
- Semester (concept represented indirectly)
- Schedule

Registration Logic

Registration is implemented functionally through:

- Section → enrollStudent()
- Schedule → addSection()

Implemented Features

Student Features

Students can:

- Login
- View available courses and sections
- Register for courses
- Ensure:
 - Capacity validation
 - No duplication
- View their schedule

Instructor Features

Instructors can:

- View their assigned course sections
- View enrolled students per section
- Monitor enrollment status

Administrator Features

Administrators can:

- Add new courses
- Add new sections
- Add Users (Student, instructor, administrator)
- Assign instructor
- Manage academic structure

This supports:

- Academic planning
- Institutional control

Console-Based Interaction

Main Menu

```
===== MAIN MENU =====
1. Student
2. Instructor
3. Administrator
4. Exit
Choose: |
```

Student Menu

```
--- STUDENT MENU (Ahmad) ---
1. View Available Courses
2. Register Course
3. View My Schedule
4. Back
Choose: |
```

Instructor Menu

```
--- INSTRUCTOR MENU (Dr. Ahmed) ---
1. View My Sections
2. View Students in Section
3. Back
Choose: 1
```

Administrator Menu

```
--- ADMIN MENU (System Admin) ---
1. Add Course
2. Add Section
3. Add Student
4. Add Instructor
5. Add Administrator
6. View All Users
7. Remove User
8. Back
Choose: 1
```

Sample Console Output

```
--- STUDENT MENU (Ahmad) ---
1. View Available Courses
2. Register Course
3. View My Schedule
4. Back
Choose: 2

--- Available Sections ---
S1 | CS101 - Introduction to Computer Science (3 credits) | Instructor: Dr. Ahmed | Seats: 0/30
S2 | CS102 - Object-Oriented Programming (3 credits) | Instructor: Dr. Sara | Seats: 0/20
S3 | SW301 - Object-Oriented Analysis and Design (3 credits) | Instructor: Dr. Sameh | Seats: 0/20
Enter Section ID: S3
Registered Successfully!

--- STUDENT MENU (Ahmad) ---
1. View Available Courses
2. Register Course
3. View My Schedule
4. Back
Choose: 1

--- STUDENT MENU (Ahmad) ---
1. View Available Courses
2. Register Course
3. View My Schedule
4. Back
Choose: 3
Schedule for Ahmad
S3 | SW301 - Object-Oriented Analysis and Design (3 credits) | Instructor: Dr. Sameh | Seats: 1/20
```

GitHub Repository

<https://github.com/shadow9-1-1/Online-Course-Registration.git>

Development Team		
Full-Stack Developer	Full-Stack Developer	Full-Stack Developer
		
Seif Amr	Ahmed Sameh	Ahmed Wael
Full-Stack Development	Full-Stack Development	Full-Stack Development