EGE UNIVERSITY

COMPUTER ENGINEERING DEPARTMENT

OBJECT ORIENTED ANALYSIS AND DESIGN

HOMEWORK-1

PREPARED BY

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List of Use-Cases

1-Register for Classes

Actor: Student

Goal: Enroll in classes for the current term.

Main Success Scenario: The student selects courses, system checks prerequisites and availability, and confirms enrollment.

2-Assign Grades

Actor: Faculty

Goal: Submit final grades for students in their assigned courses.

Main Success Scenario: Faculty assigns grades to students, and the system records them in the database.

3-Add New Course Offerings

Actor: Administrative Staff

Goal: Add new courses to the system and schedule them for registration.

Main Success Scenario: Admin creates a course offering with details, assigns faculty, and the system updates availability.

4-Drop Classes

Actor: Student

Goal: Remove a registered class within the allowed drop period.

Main Success Scenario: Student selects a class to drop, confirms, and the system updates the schedule and capacity.

5-Assign Faculty to Courses

Actor: Administrative Staff

Goal: Assign instructors to course offerings for the term.

Main Success Scenario: Admin selects courses and assigns available faculty, updating schedules.

6-View Class Schedules

Actor: Student, Faculty

Goal: Access the schedule of classes for the term.

Main Success Scenario: The actor views detailed schedules, including locations and timings, for their selected courses or assignments.

7-Generate Reports for Enrollments

Actor: Administrative Staff

Goal: Generate reports showing course enrollment statistics.

Main Success Scenario: The admin selects a term, and the system provides a report of course capacities, registrations, and trends.

8-Update Student or Faculty Information

Actor: Administrative Staff

Goal: Modify personal information of students or faculty (e.g., contact details, roles).

Main Success Scenario: Admin edits the record, and the system updates the database with the new details.

SYSTEM RULES

Prerequisites Enforcement: Students cannot register for a course unless they meet all prerequisites.

Course Capacity Limit: Students cannot register for a course if it has reached its maximum capacity.

Drop Period Restriction: Students can drop courses only within the designated drop period for the term.

Unique Course Codes: Each course must have a unique code to prevent duplication in the system.

Grade Submission Deadline: Faculty must submit grades within the grading period at the end of the term.

Faculty Assignment Check: A faculty member cannot be assigned to two classes that have overlapping schedules.

Authentication Requirement: All users (students, faculty, and admin) must authenticate using valid credentials to access the system.

FULLY DRESSED USE-CASE

Register For Classes

Fully Dressed Use-Case: Register for Classes

Use-Case Name: Register for Classes

Primary Actor: Student

Goal: Enroll in selected classes for the current term

Preconditions:

-The student is logged into the system.

-The registration period is open.

-The student meets prerequisites (if any) for the selected course.

Main Success Scenario:

(1)

Student: Logs into the system using valid credentials.

System: Verifies credentials and grants access to the student dashboard.

(2)

Student: Navigates to the "Course Registration" section.

System: Displays a list of courses available for registration during the term, along with details (time, location, prerequisites, and availability).

(3)

Student: Selects a course from the list.

System: Checks the prerequisites for the selected course.

(4)

System: Confirms that the student meets the prerequisites and checks if seats are available.

If prerequisites are not met or the course is full, the system notifies the student and prompts for another selection.

(5)

Student: Confirms the intention to register for the selected course.

System: Registers the student for the course, updates the course capacity, and sends a confirmation message to the student.

(6)

Student: Views the updated schedule including the newly registered course.

System: Displays the student’s updated class schedule and registration status.

Alternative Flows:

Alternative Flow 1 – (For article 3 MSS) Course is Full:

The system identifies that there are no available seats in the selected course.

The system notifies the student that the course is full.

The student is prompted to select a different course.

Alternative Flow 2 (For article 3 MSS) Prerequisite Not Met:

The system identifies that the student does not meet the prerequisites for the course.

The system notifies the student of the unmet prerequisites.

The student is prevented from registering for the course.

Exception Flows:

Exception Flow 1 - System Failure During Registration:

The system encounters a technical error (e.g., database connection issue) during the registration process.

The system notifies the student that registration could not be completed.

The system logs the error for administrative review.

The student can retry the registration process once the issue is resolved.

Exception Flow 2 - Session Timeout:

The student's session times out due to inactivity.

The system logs the student out for security reasons.

The student must log back in and restart the registration process.

Postconditions:

-The student is successfully enrolled in the class.

-The course capacity is updated.

Business Canvas

Value Propositions:

Simplifies course registration, scheduling, and grading for students, faculty, and admins.

Increases efficiency in university operations by automating routine administrative tasks.

Customer Segments:

Primary: Universities, colleges, and educational institutions.

Secondary: Private training centers requiring course management systems.

Key Activities:

System development and maintenance.

User support and training.

Data security and compliance management.

Key Resources:

Development team (software engineers, UI/UX designers).

Cloud infrastructure for hosting and data storage.

Customer support team.

Channels:

Online demonstrations and webinars.

Direct sales through partnerships with educational institutions.

Integration with Learning Management Systems (LMS).

Revenue Streams:

One-time licensing fees for the system.

Subscription-based models for cloud-hosted services.

Customization services for specific institutional needs.

Cost Structure:

Development and testing costs.

Cloud infrastructure and hosting fees.

Marketing and sales expenses.

Key Partnerships:

Cloud service providers (e.g., AWS, Azure).

LMS providers for potential integrations.

SUBDOMAINS

Course Management

Purpose: Handles the creation and management of courses and offerings.

Responsibilities: Adding courses, scheduling classes, managing prerequisites, and tracking capacities.

Type: **Core**

Student Management

Purpose: Manages student information and activities.

Responsibilities: Registering for classes, managing transcripts, viewing schedules, and updating personal information.

Type: **Core**

Faculty Management

Purpose: Manages faculty assignments and records.

Responsibilities: Assigning instructors to courses, managing their schedules, and handling grading permissions.

Type: **Core**

Reporting and Analytics

Purpose: Provides insights and data visualization for administrators.

Responsibilities: Generating enrollment reports, identifying trends, and monitoring system usage.

Type: **Supporting**

Authentication and Authorization

Purpose: Ensures secure and role-based access to the system.

Responsibilities: Login functionality, session management, role assignments (e.g., admin, faculty, student).

Type: **Generic**

Explanation: This subdomain provides reusable and general mechanisms for securing access, a necessity for almost all systems.

Notification System

Purpose: Provides communication and alerts to users.

Responsibilities: Sending notifications (e.g., emails, SMS, in-app alerts) for registration deadlines, grade updates, or administrative changes.

Type: **Generic**

Explanation: This subdomain manages system-wide notifications to keep all users informed about important updates.