SOFE 3650U – Software Design and Architecture Group 26

Project Title: University Database Management System

Project Progress Report

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1.1 Use Case Model

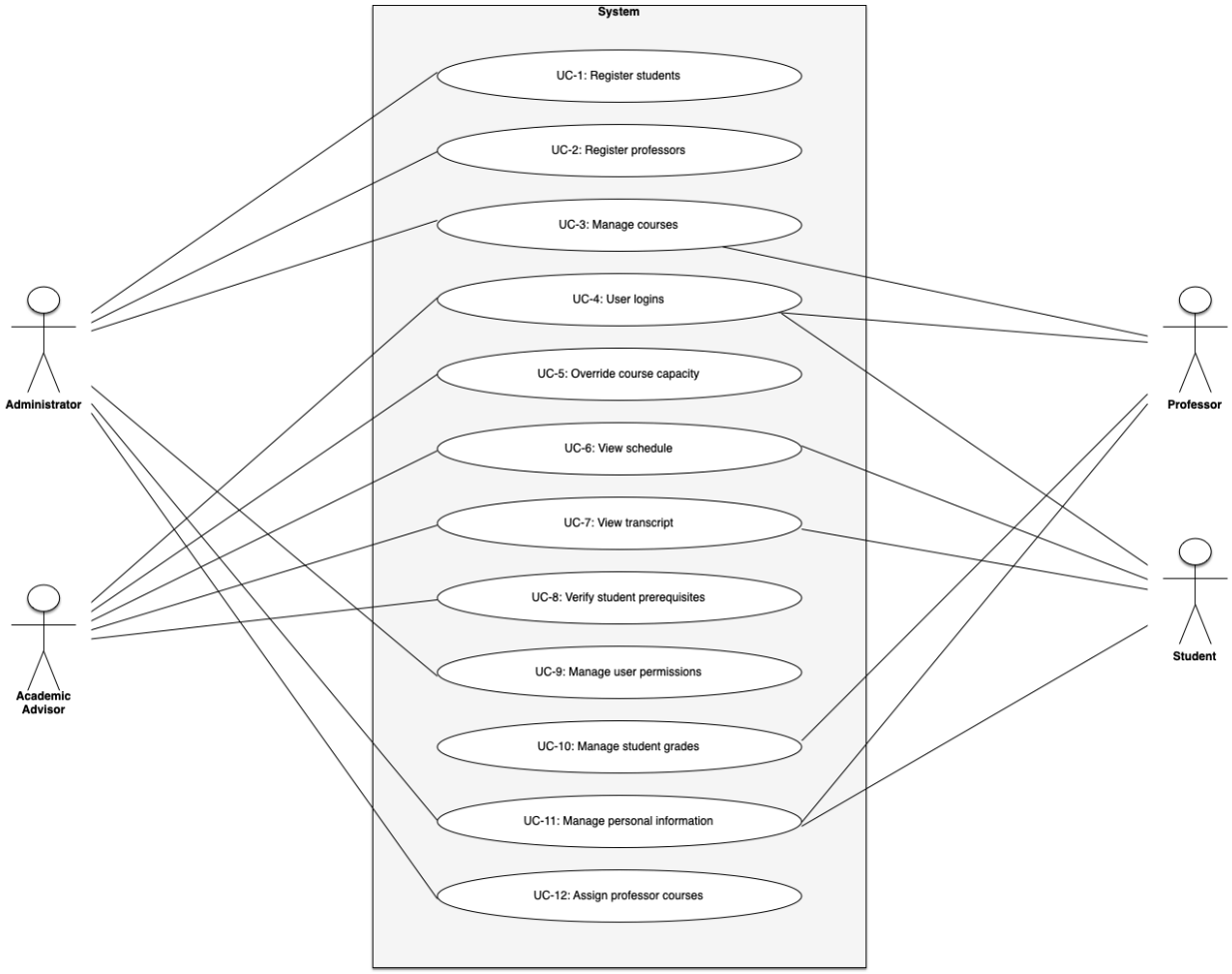

Figure 1. Use Case Model

Each of these use cases is described in the following table:

Use Case	Description
UC-1: Register students	The university database will register and enroll students into their respective programs, faculties, and year-levels, and store attributes such as their name, address, DOB, credit-hours, CGPA and other related personal information.
UC-2: Register professors	The database will register professors into the right departments and faculties, and store attributes such as phone number, email,

	office location/hours, courses currently teaching, and other related information.
UC-3: Manage courses	The system will allow administrators to add/edit/delete courses and manage professors and TAs, while allowing students to register for and drop courses from their schedule.
UC-4: User logins	All students, professors, and administrators will each have their own unique set of login credentials in order to access the system according to their role.
UC-5: Override course capacity	Administrators will have the power to override course capacities and add students to courses that are full if necessary.
UC-6: View schedule	Students will have the ability to display their schedule for both current and previous semesters for that school year. Academic advisors will also have access to schedules of students under their guidance.
UC-7: View transcript	Students will have the ability to display their transcript including active credit hours and overall GPA. Academic advisors will also have access to transcripts of students under their guidance.
UC-8: Verify student prerequisites	Academic advisors (who as stated in UC-7 have access to student transcripts), will be able to notify students who have not completed certain prerequisites for courses they wish to register for.
UC-9: Manage user permissions	Administrators will be able to edit user permissions for specific professors or students on a case by case basis.
UC-10: Manage student grades	Professors will be able to add and modify grades of each student they teach, as well as assign different weightages to different grades according to the course grading breakdown.
UC-11: Manage personal information	Students and professors can modify or update specific areas of their personal information stored in the database such as a change in address or phone number.

UC-12: Assign professor courses	The system will assign course(s) for specific professors to teach, as well as assign specific professor(s) to deliver different course CRNs.

1.2 Quality Attribute Scenarios

In addition to these use cases, a number of quality attribute scenarios were elicited and documented. The six most relevant ones are presented in the following table. For each scenario, we also identify the use case that it is associated with.

ID	**Quality Attribute**	**Scenario**	**Associated Use Case**
QA-1	Availability	The system should be able to always be accessible regardless of the load on the server	All
QA-2	Performance	A course's information requires an update during peak registration times. Once the necessary changes are made, the system should be able to update quickly and efficiently, within 5 seconds for all users.	UC-3
QA-3	Security	An unknown user attempts to login to another account without the proper credentials. The system logs these unsuccessful attempts to be viewed by a system administrator.	UC-4
QA-4	Scalability	As the university grows, the student body, number of professors, programs	All

		and course offerings will all increase. The system is able to handle the increasing demand.	
QA-5	Modifiability	A new elective is added to the database's selection of courses over the summer. This course is added successfully without affecting any of the system's core components.	UC-1, UC-2

1.3 Constraints

Finally, a set of constraints on the system and its implementation were collected. These are presented in the following table.

ID	Constraint
CON-1	The system must be accessed through a web browser running on a Windows 10 or higher platform..
CON-2	A relational database server must be used.
CON-3	Only administrative accounts can have authorization to change grades.
CON-4	Unsuccessful login logs will be cleared after 30 days.
CON-5	A minimum of 100 users must be able to access the database simultaneously.
CON-6	All system events must be logged and archived.