Requirement Analysis Document

Course Registration System

Group12

1. Ardacan ÖZENER 150120026
2. Furkan ACAR 150121534
3. Ufuk ACAR 150121071
4. Ömer Faruk GEYSOĞLU 150120060
5. Ömer Faruk ATLIOĞLU 150120018
6. Abdelrahman ZAHRAN 150120998
7. Leen I. A. SHAQALAIH 150121921

1) Vision

Welcome to the Course Registration System Project, an innovative and meticulously designed software solution aimed at streamlining the course registration process for both students and university staff. This project adheres to the highest standards of software design and development, ensuring a reliable, user-friendly, and efficient system that will enhance the overall academic experience within the university.

System Overview:

The Course Registration System is a comprehensive software application designed to facilitate the course registration process for students and empower university staff with the tools they need to manage course offerings seamlessly. This system will encompass a user-friendly web-based interface, ensuring that the registration process is straightforward and intuitive for all users.

Key features of the system will include:

1. **User Authentication:** Robust user authentication and authorization mechanisms will be implemented to ensure data security and user privacy.
2. **Course Search and Selection:** Students will have access to an extensive catalog of courses, allowing them to search, filter, and select the courses that align with their academic goals.
3. **Real-Time Availability:** The system will provide real-time information on course availability, ensuring students can make informed decisions.
4. **Clash Detection:** The system will automatically detect and notify students of any scheduling conflicts, preventing registration errors.
5. **Waitlist Management:** A waitlist feature will enable students to join a waitlist for courses that are currently full, improving the chances of securing a spot if one becomes available.
6. **Administrative Tools:** University staff will have access to powerful administrative tools for managing course offerings, class sizes, and accommodating special requests.

And more!

User Benefits:

The Course Registration System is expected to bring numerous benefits to both students and university staff:

For Students:

1. **Simplified Registration:**

The system will streamline the course registration process, making it more straightforward and less time-consuming for students.

2. **Real-Time Information:**

Students will have access to real-time course availability, ensuring they can make informed decisions about their academic journey.

3. **Conflict Avoidance:**

The system will automatically detect scheduling conflicts, reducing the likelihood of registration errors, and improving overall satisfaction.

4. **Waitlist Management:**

Students will have the opportunity to join waitlists for in-demand courses, increasing their chances of securing a spot.

For University Staff:

1. **Efficient Course Management:**

The administrative tools in the system will enable staff to manage course offerings, class sizes, and special requests with greater efficiency.

2. **Data Analytics:**

The system will provide valuable data insights that can help in optimizing course offerings, improving resource allocation, and enhancing the overall educational experience.

3. **Reduced Administrative Workload:**

Automation of various processes will lead to reduced administrative workloads and errors, allowing staff to focus on more critical tasks.

In conclusion, the Course Registration System is a promising project that aligns with the principles of modern software design and development. It is poised to revolutionize the course registration process, benefiting both students and university staff by enhancing efficiency, providing real-time information, and reducing administrative burdens. This system will serve as a valuable asset in the ever-evolving landscape of education, supporting the academic journeys of students and the operational excellence of educational institutions.

Our Vision for the Course Registration System is to create a digital ecosystem that fosters academic excellence by harnessing the power of technology. We aim to provide students with a user-friendly platform that empowers them to take control of their academic journey while offering university staff the tools they need to provide efficient support. Ultimately, we aspire to see a university environment where course registration is a seamless, stress-free process that supports the academic aspirations of every student, enabling them to make the most of their educational experience. This system will not only save time and

reduce administrative burdens but also contribute to the university's reputation as a leader in modern education administration.

2)Description of Problem

The purpose of this project is to create a system that helps students and advisors about the course registration process. Users will enter the system by their assigned user name and password.

3)Glossary

A

Academic Advisor: A faculty member responsible for guiding students in their academic pursuits, including course selection and degree requirements.

- **Aliases**: Counselor, Academic Counselor, Guidance Counselor
- **Description**: Academic advisors play a crucial role in helping students navigate their academic path, ensuring they fulfill their degree requirements and make the most of their educational experience.
- **Format (Type, Length, Unit)**: N/A
- **Relationships to Other Elements**: Academic advisors are closely related to students, as they offer personalized guidance to individual students. They may also have a connection with the university's degree program and course catalog.
- **Range of Values**: N/A
- **Validation Rules**: N/A

Advisor ID: A unique identification number or code assigned to academic advisors. This identifier is used for administrative and record-keeping purposes, allowing the university to associate students with their respective academic advisors**.**

- **Aliases**: Academic Advisor Identifier, Advisor Code
- **Description**: Advisor IDs streamline administrative processes, helping the university track student-advisor relationships and maintain accurate advising records.
- **Format (Type, Length, Unit)**: Alphanumeric (e.g., ADV123, A4567)
- **Relationships to Other Elements**: Advisor IDs are closely associated with academic advisors, students, and academic advising records.
- **Range of Values**: Each advisor is assigned a unique ID.

- **Validation Rules**: Advisor IDs should be unique and follow specific formatting conventions established by the university. Additionally, they may be linked to specific academic departments or advising units.

C

Course Catalog: A comprehensive list of all available courses, including their descriptions, prerequisites, and credit hours.

- **Aliases**: Course Schedule, Course Listing, Course Offerings
- **Description**: The course catalog serves as a valuable resource for students, faculty, and administrators, enabling them to understand the curriculum, plan course selections, and ensure academic progress.
- **Format (Type, Length, Unit)**: Document (Digital or Print)
- **Relationships to Other Elements**: The course catalog is linked to specific courses, their descriptions, and academic departments.
- **Range of Values**: N/A
- **Validation Rules**: N/A

Course Registration: The process by which students enroll in courses for an upcoming academic term.

- **Aliases**: Enrollment, Class Registration
- **Description**: Course registration is a critical activity for students, as it determines their course load and progress toward degree completion. It is also essential for the university to manage class sizes and allocate resources.
- **Format (Type, Length, Unit)**: Process
- **Relationships to Other Elements**: Course registration is directly related to students, course sections, and the registrar's office.
- **Range of Values**: N/A
- **Validation Rules**: N/A

Course Section: A specific instance of a course offered in a particular term, indicating the time, location, and instructor.

- **Aliases**: Class Section, Course Offering

- **Description**: Course sections provide the details needed for students to select specific times and instructors for courses that match their schedules and preferences.
- **Format (Type, Length, Unit)**: Structured Data
- **Relationships to Other Elements**: Course sections are linked to the corresponding course, instructor, and classroom.
- **Range of Values**: Information about available seats and scheduling details.
- **Validation Rules**: Seat availability must be within the specified capacity of the assigned classroom.

D

Degree Program: An academic program that leads to a specific degree, such as a Bachelor's, Master's, or Doctoral degree.

- **Aliases**: Academic Program, Major
- **Description**: Degree programs define the academic pathway students follow, including the courses they need to complete and any additional requirements, such as internships or capstone projects.
- **Format (Type, Length, Unit)**: Text, Variable (e.g., Bachelor's, Master's, Doctoral)
- **Relationships to Other Elements**: Degree programs are linked to courses, majors, minors, and graduation requirements.
- **Range of Values**: Various degree program types based on the university's offerings.
- **Validation Rules**: N/A

Drop/Add Period: A designated timeframe during which students can make changes to their course schedule, such as dropping or adding courses.

- **Aliases**: Add/Drop Period, Course Adjustment Period
- **Description**: The drop/add period allows students to fine-tune their course selections, accommodating changes in their preferences, availability, or academic goals.
- **Format (Type, Length, Unit)**: Timeframe
- **Relationships to Other Elements**: Directly linked to course registration and student schedules.
- **Range of Values**: Start and end dates for the drop/add period.

- **Validation Rules**: N/A

F

Full-Time Student: A student who is enrolled in a sufficient number of credit hours to be considered full-time, typically 12 or more credit hours per term.

- **Aliases**: FT Student, Full-Time Enrollment
- **Description**: Determining full-time or part-time status affects tuition costs, eligibility for scholarships, and access to university resources.
- **Format (Type, Length, Unit)**: Numeric
- **Relationships to Other Elements**: Full-time student status affects financial aid eligibility, student services, and the calculation of tuition fees.
- **Range of Values**: Typically, 12 or more credit hours.
- **Validation Rules**: A student's course load should meet or exceed the institution's definition of full-time enrollment.

Faculty: The academic staff responsible for teaching courses and conducting research.

- **Aliases**: Instructors, Educators
- **Description**: Faculty members are at the heart of the educational process, delivering lectures, grading assignments, and contributing to the university's research endeavors.
- **Format (Type, Length, Unit)**: N/A
- **Relationships to Other Elements**: Faculty members are linked to specific courses they teach, academic departments, and students in the context of advising.
- **Range of Values**: N/A
- **Validation Rules**: N/A

G

Grade Point Average (GPA): A numerical representation of a student's academic performance, calculated by averaging the grades received in all completed courses.

- **Aliases**: GPA Score, Academic Average

- **Description**: The GPA serves as a key indicator of a student's overall academic achievement and is used for various purposes, including eligibility for honors, scholarships, and graduate programs.
- **Format (Type, Length, Unit)**: Numeric (e.g., 4.0 scale)
- **Relationships to Other Elements**: GPA is related to individual courses, the student's transcript, and academic standing.
- **Range of Values**: Typically, GPA scores range from 0.0 to 4.0 or equivalent scales.
- **Validation Rules**: GPA calculation rules may include weighted GPA for honors courses or pass/fail grading policies.

Graduation Requirements: The set of criteria that students must fulfill to obtain their degree, including completing specific courses and achieving a minimum GPA.

- **Aliases**: Degree Requirements, Graduation Criteria
- **Description**: Graduation requirements are a roadmap that students follow to ensure they meet the academic standards necessary for degree conferral.
- **Format (Type, Length, Unit)**: N/A
- **Relationships to Other Elements**: Graduation requirements are directly tied to degree programs and the student's academic record.
- **Range of Values**: Varies depending on degree program and university policies.
- **Validation Rules**: Meeting all specific requirements, such as minimum GPA and course credits, is mandatory for degree conferral.

I

Instructor: The person responsible for teaching a specific course section.

- **Aliases**: Teacher, Professor, Educator
- **Description**: Instructors are vital to the learning process, guiding students through the course content, providing feedback, and fostering an engaging learning environment.
- **Format (Type, Length, Unit)**: N/A
- **Relationships to Other Elements**: Instructors are directly associated with specific course sections and academic departments.
- **Range of Values**: N/A

- **Validation Rules**: N/A

Internship: A practical work experience related to a student's field of study, often undertaken for academic credit.

- **Aliases**: Work Placement, Cooperative Education
- **Description**: Internships provide students with valuable insights into their chosen profession, helping them build practical skills and establish connections in the industry.
- **Format (Type, Length, Unit)**: N/A
- **Relationships to Other Elements**: Internships are linked to degree programs, courses, and academic departments offering experiential learning opportunities.
- **Range of Values**: Varies by program and university policy.
- **Validation Rules**: N/A

L

Lecture: A type of course instruction that typically involves a one-way delivery of content from the instructor to the students.

- **Aliases**: Lecture Session, Classroom Presentation
- **Description**: Lectures are a fundamental component of many courses, providing students with foundational information and concepts.
- **Format (Type, Length, Unit)**: Teaching Method
- **Relationships to Other Elements**: Lectures are associated with course sections and academic content.
- **Range of Values**: N/A
- **Validation Rules**: N/A

Lab: A type of course instruction that involves hands-on learning and practical exercises in a controlled environment.

- **Aliases**: Laboratory Session, Practical Class
- **Description**: Labs are critical for courses that require experimentation, data collection, and the development of practical skills.
- **Format (Type, Length, Unit)**: Teaching Method

- **Relationships to Other Elements**: Labs are linked to course sections, equipment, and academic departments.
- **Range of Values**: N/A
- **Validation Rules**: Labs often have limited capacity due to available equipment or safety considerations.

M

Major: The primary area of study a student chooses to pursue within their degree program.

- **Aliases**: Major Field, Major Concentration
- **Description**: The major is a significant part of a student's academic journey, shaping their expertise and career prospects.
- **Format (Type, Length, Unit)**: Text, Variable (e.g., Computer Science, Psychology)
- **Relationships to Other Elements**: Majors are linked to degree programs, courses, and graduation requirements.
- **Range of Values**: Varied based on the university's offerings.
- **Validation Rules**: Meeting specific course and credit requirements associated with the chosen major.

Minor: A secondary area of study that complements the student's major.

- **Aliases**: Minor Field, Minor Concentration
- **Description**: Minors add versatility to a student's education and can enhance their qualifications for specific career paths.
- **Format (Type, Length, Unit)**: Text, Variable (e.g., Business Administration, Spanish)
- **Relationships to Other Elements**: Minors are linked to degree programs and courses, serving as a complementary area of study.
- **Range of Values**: Varied based on the university's offerings.
- **Validation Rules**: Meeting specific course and credit requirements associated with the chosen minor.

P

Prerequisite: A course or requirement that must be completed before a student can enroll in a more advanced course.

- **Aliases**: Precondition, Entry Requirement
- **Description**: Prerequisites serve as a structured sequence of learning, guiding students through a curriculum in a logical and progressive manner.
- **Format (Type, Length, Unit)**: Course Title or Requirement
- **Relationships to Other Elements**: Prerequisites are directly related to the courses they precede and are crucial for academic planning.
- **Range of Values**: Specific course titles or requirements.
- **Validation Rules**: Students must successfully complete all specified prerequisites to enroll in advanced courses.

R

Registration Period: The timeframe during which students can sign up for courses for an upcoming academic term.

- **Aliases**: Enrollment Period, Registration Window
- **Description**: The registration period is a critical phase for students to secure their desired courses, ensuring that they can progress toward their academic goals.
- **Format (Type, Length, Unit)**: Timeframe
- **Relationships to Other Elements**: Registration periods are associated with course registration and academic calendars.
- **Range of Values**: Start and end dates for registration, as determined by the university.
- **Validation Rules**: N/A

Registrar: An administrative office responsible for managing student records, including course registrations and transcripts.

- **Aliases**: Office of the Registrar, Registration Office
- **Description**: The registrar's office serves as the custodian of academic records, supporting students, faculty, and other administrative units with essential services.

- **Format (Type, Length, Unit)**: Administrative Office
- **Relationships to Other Elements**: The registrar's office is closely linked to students, faculty, course sections, and academic departments.
- **Range of Values**: N/A
- **Validation Rules**: N/A

Room Capacity: The maximum number of students that a specific classroom or lecture hall can accommodate.

- **Aliases**: Seating Capacity, Maximum Occupancy
- **Description**: Room capacity information helps determine the suitability of a location for hosting classes, examinations, and events.
- **Format (Type, Length, Unit)**: Numeric (e.g., 50 students, 150 seats)
- **Relationships to Other Elements**: Room capacity is associated with specific course sections and scheduling.
- **Range of Values**: Varies by room or venue and may depend on factors such as seating arrangement.
- **Validation Rules**: Course sections should not exceed the specified room capacity to ensure safety and comfort.

S

Semester: A half of an academic year, typically divided into fall and spring terms.

- **Aliases**: Term, Academic Semester
- **Description**: Semesters provide a standardized framework for organizing coursework and assessing academic progress.
- **Format (Type, Length, Unit)**: Timeframe
- **Relationships to Other Elements**: Semesters are closely tied to course scheduling, registration periods, and academic calendars.
- **Range of Values**: Typically two semesters per academic year, but may vary based on the university's academic calendar.
- **Validation Rules**: Courses and registrations should align with the designated semester.

Student ID: A unique identification number assigned to each student for administrative and record-keeping purposes.

- **Aliases**: ID Number, Student Identification
- **Description**: Student IDs streamline administrative processes, including registration, record-keeping, and authentication of student identities.
- **Format (Type, Length, Unit)**: Alphanumeric or Numeric (e.g., ABC12345, 123456)
- **Relationships to Other Elements**: Student IDs are associated with individual students and their academic records.
- **Range of Values**: Unique for each student.
- **Validation Rules**: Student IDs should be unique, and their format may follow specific patterns or standards.

Syllabus: A document outlining the course objectives, content, reading materials, assignments, and assessment methods.

- **Aliases**: Course Outline, Class Syllabus
- **Description**: The syllabus provides students with essential information about what to expect in the course, helping them prepare and manage their time effectively.
- **Format (Type, Length, Unit)**: Document (Digital or Print)
- **Relationships to Other Elements**: Syllabi are directly linked to course sections and instructional content.
- **Range of Values**: Content can vary by course and instructor, but typically includes course objectives, reading lists, assessment methods, and grading scales.
- **Validation Rules**: N/A

T

Transcript: An official record of a student's academic performance, including courses taken, grades earned, and degree(s) conferred.

- **Aliases**: Academic Record, Educational Transcript
- **Description**: Transcripts are vital for verifying a student's academic history, and they are often required for graduate school applications, job opportunities, and professional licensing.
- **Format (Type, Length, Unit)**: Document (Digital or Print)
- **Relationships to Other Elements**: Transcripts are directly linked to students, courses, and graduation records.

- **Range of Values**: Various data points, including course titles, grades, credits, and degree information.
- **Validation Rules**: Transcripts should accurately reflect a student's academic record and comply with university policies.

Term: An academic period within the university year, which can be a semester, quarter, or other specified time frame.

- **Aliases**: Academic Term, School Year Segment
- **Description**: Terms provide a structured timeline for the organization of courses, student registration, and administrative processes.
- **Format (Type, Length, Unit)**: Timeframe
- **Relationships to Other Elements**: Terms are associated with course scheduling, registration periods, and academic calendars.
- **Range of Values**: The university defines the number and structure of terms in an academic year.
- **Validation Rules**: Courses and academic activities should align with the designated term.

Transfer Credits: Credits earned at another educational institution that are accepted by the university for the purpose of fulfilling degree requirements.

- **Aliases**: Transferable Credits, Credit Transfer
- **Description**: Transfer credits allow students to bring their previous coursework into their current academic journey, potentially reducing the time and effort required to earn a degree.
- **Format (Type, Length, Unit)**: Numeric (Credit Hours)
- **Relationships to Other Elements**: Transfer credits are associated with the courses they are transferring from and the degree program requirements.
- **Range of Values**: Varies based on the courses transferred and university policies.
- **Validation Rules**: Transfer credits must meet the university's specific criteria for acceptance, including content and grade requirements.

W

Waitlist: A list of students who are interested in enrolling in a course that is currently at full capacity. Students on the waitlist may be admitted if a spot becomes available.

- **Aliases**: Waiting List, Course Standby
- **Description**: Waitlists help manage course demand and provide students with the opportunity to secure a spot in a popular course if space becomes available.
- **Format (Type, Length, Unit)**: List
- **Relationships to Other Elements**: Waitlists are linked to course registration and student schedules.
- **Range of Values**: The number of students on a waitlist can vary based on course popularity and seat availability.
- **Validation Rules**: Admission from the waitlist typically follows a "first-come, first-served" principle, and students must meet any prerequisites or restrictions associated with the course.

Data Dictionary Attributes

- **Aliases**: Alternative names or terms that may be used to refer to the same concept.
- **Description**: Additional information or context about the term to provide a deeper understanding.
- **Format (Type, Length, Unit)**: The data type, character length, and measurement unit if applicable, for data associated with the term.
- **Relationships to Other Elements**: How the term is related to other terms or entities within the system, such as the relationship between a student and their course registration.
- **Range of Values**: The allowable values or acceptable range for data associated with the term, for example, the range of possible credit hours.
- **Validation Rules**: Specific rules and criteria that data associated with the term must meet to be considered valid, which can include format, range, or other constraints.

These terms and attributes collectively serve as the foundation for developing and maintaining the university course registration system, guiding the system's behavior, and ensuring that it meets the requirements of both students and administrative staff.

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3)Functional Requirements

System must read the transcripts from a json file for each student such as "150119055.json" and update these files at the end of the run.

System must have a parameters.json file to read system parameters from.

System must allow users enter the system if their name and password are registered.

System must compute course prerequisites to register a course.

System must allow advisors to deny or approve a student to take a course.

Non-Functional Requirements:

Outputs, system logs and variable names must be clear, understandable, easy names for users and developers.

New courses, advisors, students are added, system must be integrated without any bugs.

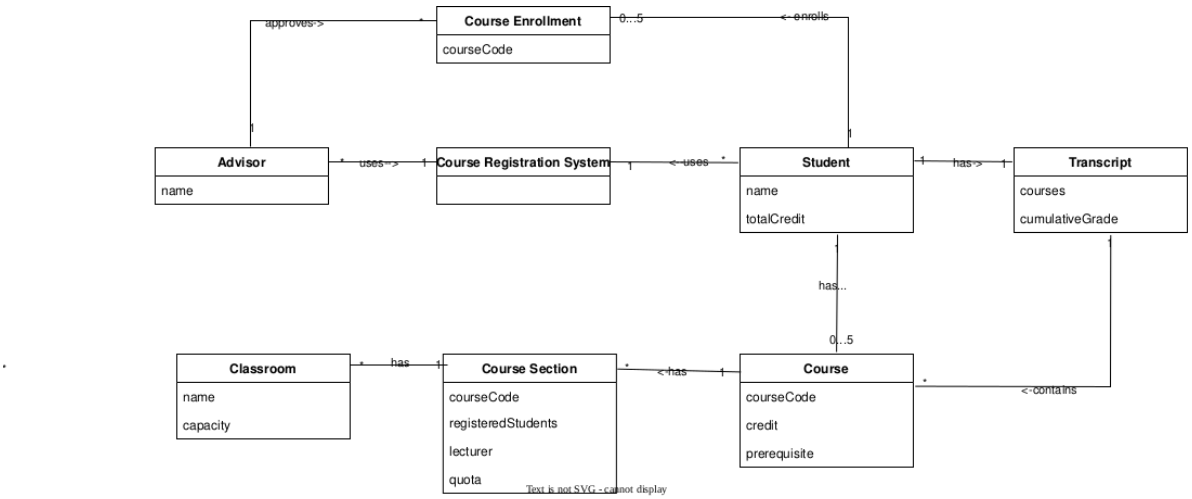
The source code must be tested and can not include any bugs.

All data must be stored in json files.

The source code must be easy to understand.

All possible errors must be logged to a file.

5)Domain Model



6)Use Case

Use Case #1

Description

This usage scenario explains how a student enrolls in courses through the system and how the process progresses.

Stakeholders and Interests

• **Student**: The student wants to register for selected courses, check the suitability and prerequisites of the courses, view their course schedule, and access an updated transcript.

• **Course Registration System**: The system aims to securely verify student identities and accurately process course registrations and updates.

• **Academic Advisors**: Advisors play a role in approving or guiding students in their course selections. They want to assist students in making appropriate course choices and review and approve course registration requests.

Actors

• **Primary Actor**: Student

• **Supporting Actors**: Course Registration System, Database (JSON files)

Preconditions

• The student must be a registered and active student in the system.

• The student needs to log in with their username and password.

• The course registration period must be open.

• The student must meet the registration requirements, such as prerequisites and credit limits.

Success Guarantee (Postconditions)

• The student's course registration is successfully completed, and the student can access their course schedule, the list of registered courses, and an updated transcript.

Basic Flow

1. System Login:

1.1. The student logs into the system using their username and password.

1.2. The system verifies the student's identity and redirects them to the main page upon successful login.

2. View Course List:

2.1. The student selects the "Course Registration" module.

2.2. The system displays a list of courses available for registration for the current term.

3. Course Selection:

3.1. The student selects the course(s) they wish to register for from the list.

3.2. The system checks the prerequisites of the selected course(s) and the student's previous course records.

4. Conflict Check and Approval:

4.1. The system checks if there are any time conflicts between the selected courses.
4.2. If there are no conflicts or prerequisites issues, the system presents the option to confirm the selection to the student.

5. Registration Process:

5.1. The student confirms their selection.

5.2. The system records the student's registration and updates the registration in the JSON database.

6. Registration Result and Transcript Update:

6.1. The system sends a successful registration message to the student.

6.2. The student's transcript and course schedule are updated, and this information is made available to the student.

Alternative Flows

1.1.a) The student uses unwanted special characters in the username.

1.1.a.1) The system detects unwanted special characters in the username and informs the student with an error message.

1.1.a.2) The student realizes that a valid username is required and retries with a corrected username.

1.1.a.3) The system accepts the corrected username and proceeds to the password request step.

1.2.a) If the system detects an incorrect username or password, it displays an error message and redirects to the login screen.

1.2.a.1) The system identifies an incorrect username or password combination and informs the student with an error message.

1.2.a.2) The student understands that they need to enter the correct username and password and retries with corrected information.

1.2.a.3) The system accepts the correct username and password and proceeds to the course list viewing step.

2.2.a) If the courses for the term have not opened yet or the course list is empty, it displays an error message.

2.2.a.1) The system detects that the term has not started or the course list is empty and informs the student with an error message.

2.2.a.2) The student understands that they should check again later and is redirected to the main page.

3.2.a) If one or more of the selected courses do not meet prerequisites, it displays an error message.

3.2.a.1) The system identifies that one or more of the selected courses do not meet prerequisites and informs the student with an error message.

3.2.a.2) The student understands that they should choose appropriate courses and returns to the course selection step.

4.2.a) If there is a time conflict among the selected courses, the system displays conflicting courses and provides an opportunity for the student to resolve the conflict.

4.2.a.1) The system detects a time conflict among the selected courses and displays this conflict.

4.2.a.2) The student makes changes to the conflicting courses or selects a different time.

4.2.a.3) The system confirms the conflict-free course selection and proceeds to the approval step.

5.1.a) If the student chooses to cancel their confirmation before completing the registration, the registration process is cancelled.

5.1.a.1) The student chooses to cancel their confirmation before finalizing the registration.

5.1.a.2) The system informs the student that the registration process has been canceled and redirects them to the course selection step.

5.2.a) If an error occurs during the registration process, the system sends an error message and suggests repeating the registration process.

5.2.a.1) The system detects an error during the registration process and informs the student with an error message.

5.2.a.2) The student corrects the error and chooses to repeat the registration process.
5.2.a.3) The system accepts the corrected registration process and proceeds to the registration result and transcript update step.

Special Requirements

• The system should efficiently and securely handle user login and course registration processes.

Frequency

• This process occurs at the beginning of each academic term and during specified registration periods.

Use Case #2

Description

This use case explains the process of an advisor which approves the registrations to courses for each student through the system and outlines how this process will operate.
Stakeholders and Interests

• **Student:** The student wants to register for selected courses, check the suitability and prerequisites of the courses, view their course schedule, and access an updated transcript.

• **Course Registration System:** The system aims to securely verify student identities and accurately process course registrations and updates.

• **Academic Advisors:** Advisors play a role in approving or guiding students in their course selections. They want to assist students in making appropriate course choices and review and approve course registration requests.

Actors

• **Primary Actor:** Advisor

• **Supporting Actors:** Course Registration System, Database (JSON files)

Preconditions

• The advisor must be registered and an active advisor within the system.

• The advisor must be able to log in to the system with a username and password.

• The course registration period must be open for approval.

• The advisor must check the necessary conditions for registration for each students registration request.

Postconditions

• The advisor's course registration approvals is successfully completed and transcript has updated.

Basic Flow

1. System Login:

1.1. The advisor logs into the system by using their username and password.

1.2. The system authenticates the advisor's identity and redirects to the homepage if the login is successful.

2. Viewing Student List and Student Selection:

2.1. The advisor selects the "Student List" module selects student(s) from student list.
2.2. The system displays a list of students which advisor responsible for current term.

3. Checking and Confirmation:

3.1. The system checks for any time conflicts between selected courses and prerequisite information against the student's academic history for selected student.

3.2. If no conflicts or prerequisite issues are detected, the system is going to prompt a approve button to advisor's screen to confirm student's each course selection.

4. Registration Approval Process:

4.1. The advisor approves or deny each student’s course registration requests.

4.2. The system processes the registration and updates the records in the JSON database.

5. Registration Outcome and Transcript Update:

5.1. The system sends a successful approval message to the advisor.

5.2. The advisor updates student's transcript.

Alternative Flows

1.1.a) The advisor uses unwanted special characters in the username.

1.1.a.1) The system detects unwanted special characters in the username and informs the advisor with an error message.

1.1.a.2) The advisor realizes that a valid username is required and retries with a corrected username.

1.1.a.3) The system accepts the corrected username and proceeds to the password request step.

1.2.a) If the system detects an incorrect username or password, it displays an error message and redirects to the login screen.

1.2.a.1) The system identifies an incorrect username or password combination and informs the student with an error message.

1.2.a.2) The advisor understands that they need to enter the correct username and password and retries with corrected information.

1.2.a.3) The system accepts the correct username and password and proceeds to the course list viewing step.

2.2.a) If the courses for the term have not opened yet or the student list is empty, it displays an error message :

2.1.a.1) The system detects that the term has not started or student list is empty and informs the advisor with an error message.

2.1.a.2) The advisor understands that they should check the student list again later on.

3.2.a) If one or more of the selected courses do not match prerequisites or there is a time conflict, it displays and error message.

3.2.a.1) The system identifies that one or more registration request do not match with the prerequisites and informs the advisor with an error message.

3.2.a.2) The advisor understands that students request got denied by system and returns to student list.

4.2.a) If error occurs during approval process, the system displays an error message.

4.2.a.1) The system detects an error during approval process and informs the advisor with an error message.

4.2.a.2) The advisor understands the what causes an error message and denies the requests.

4.2.a.3) The system accepts advisor's feedback and updates the transcript.

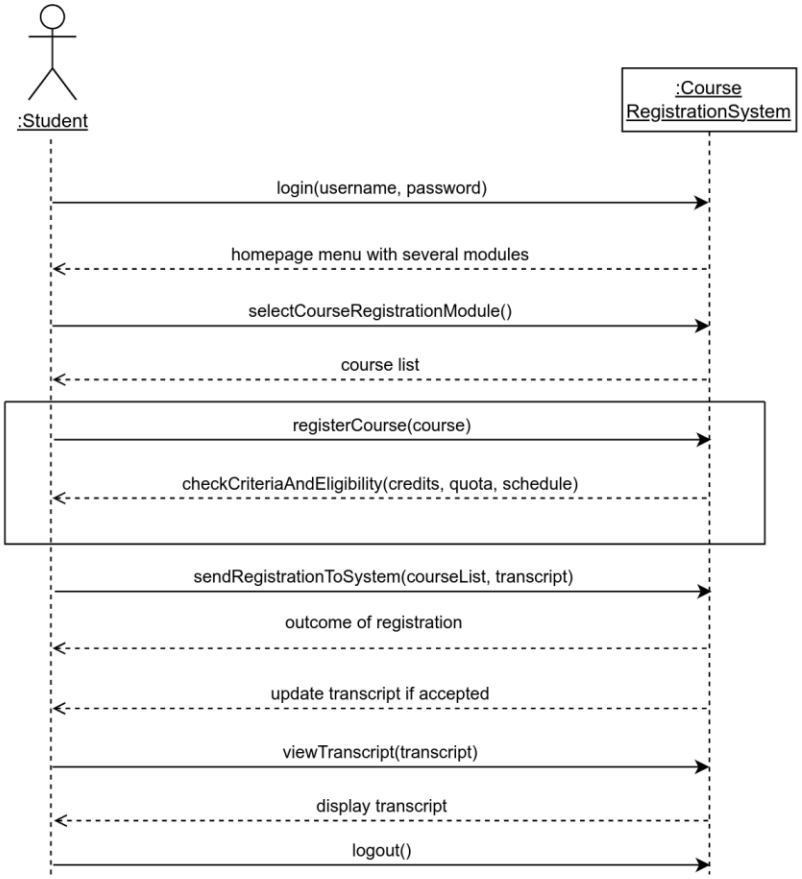
Special Requirements

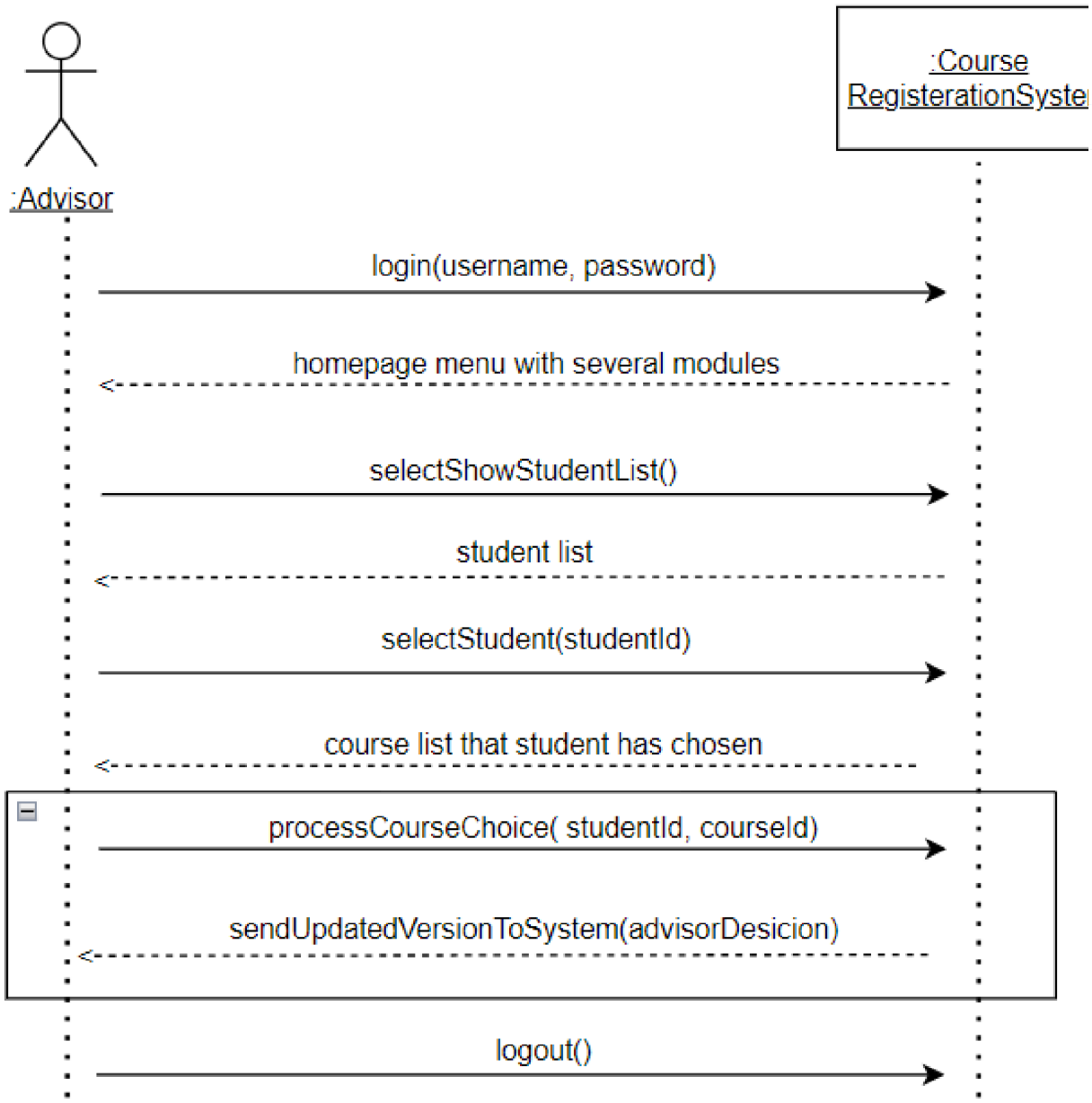
• The system must perform securely and swiftly during user login and course registration processes.

Frequency

• This process will occur at the beginning of each academic term and during designated registration periods.

7)System Sequence Diagram


:Student
:Course RegistrationSystem
login(username, password)
homepage menu with several modules
selectCourseRegistrationModule()
course list
registerCourse(course)
checkCriteriaAndEligibility(credits, quota, schedule)
sendRegistrationToSystem(courseList, transcript)
outcome of registration
update transcript if accepted
viewTranscript(transcript)
display transcript
logout()


:Advisor
:Course RegisterationSyste
login(username, password)
homepage menu with several modules
selectShowStudentList()
student list
selectStudent(studentId)
course list that student has chosen
processCourseChoice(studentId, courseId)
sendUpdatedVersionToSystem(advisorDesicion)
logout()