TA Management System

CS319 - Deliverable 1
Section 1
Team 9

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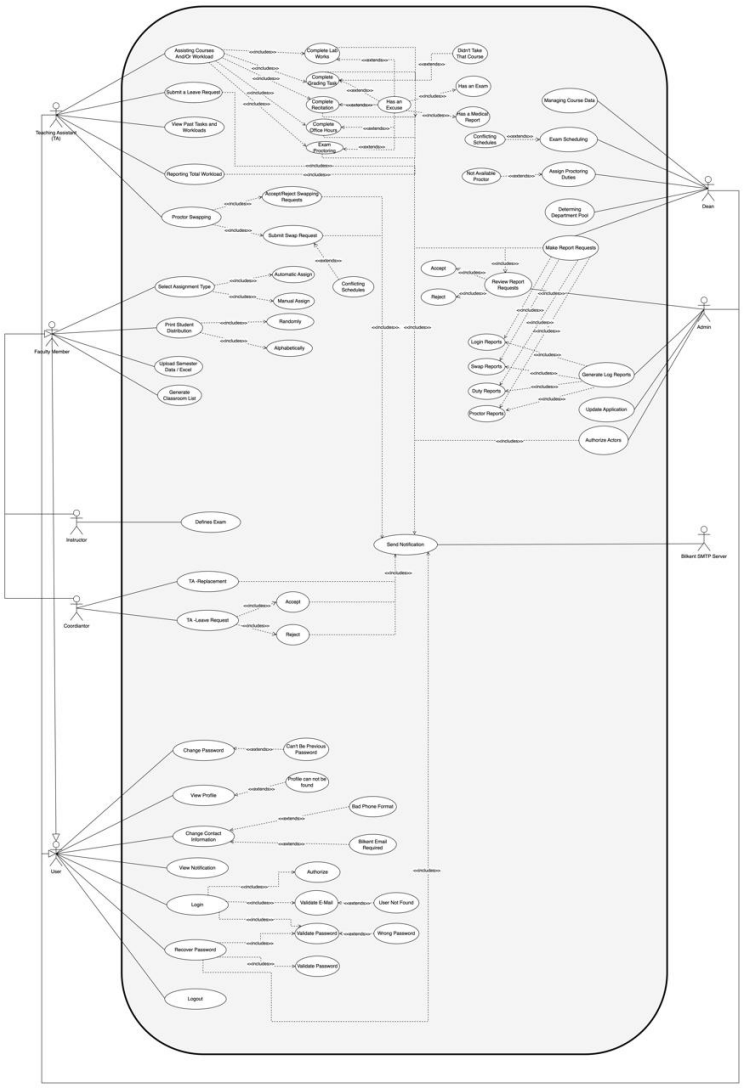
0. USE CASE DIAGRAM



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1. USE CASE TEXTUAL DESCRIPTION

1.1 Authentication

1.1.1 Login

- Name: Login
- Actors: User (with roles such as TA, Faculty, Authorized Staff, etc.)
- Entry Conditions:
  - The user is not currently logged into the system.
- Exit Conditions:
  - The user is successfully logged in and gains access to system features appropriate to their role.
  - Or the user remains logged out if the login attempt fails.
- Flow of Events:

1. The user navigates to the Login page.
2. The user enters their email/username and password.
3. The system validates the entered credentials (e.g., checks email format, password correctness).
4. If valid, the system determines the user's role and redirects them to the appropriate dashboard or home page.
5. The system updates the user's session status to "logged in."

- Exceptional Flows:
  - User Not Found: If the email/username is not recognized, the system displays an error.
  - Wrong Password: If the password is incorrect, the system displays an error.
  - Invalid Email Format: If the email does not meet the required format (e.g., Bilkent Email Required), the system displays an appropriate error message.

1.1.2 Recover Password

- Name: Recover Password
- Actors: User
- Entry Conditions:
  - The user has forgotten their password or wishes to reset it.
- Exit Conditions:
  - The user successfully resets their password.
  - Or the system fails to locate the user's account, and no reset occurs.
- Flow of Events:

1. The user navigates to the Recover Password page (often linked from the Login page).
2. The system prompts the user to enter their registered email/username.

3. The system verifies whether the account exists.
4. If it exists, the system sends a password reset link or code to the user's email.
5. The user follows the link (or enters the code) and creates a new password.
6. The system updates the user's password and confirms the reset.

- Exceptional Flows:
  - User Not Found: If the system cannot locate the user's email, it displays a "User Not Found" error.
  - Invalid Password Complexity: If the new password does not meet complexity requirements, the system displays an error and prompts for a new entry.

1.1.3 Logout

- Name: Logout
- Actors: User
- Entry Conditions:
  - The user is logged into the system.
- Exit Conditions:
  - The user's session is terminated, and the user is returned to a public or login page.
- Flow of Events:

1. The user clicks the Logout button or link.
2. The system invalidates the user's session and clears any session cookies.
3. The user is redirected to the login page or a public homepage.

- Exceptional Flows:
  - Already Expired Session: If the session is already expired or invalid, the system simply redirects to the login page.

1.1.5 Authorization

- Name: Authorization
- Actors: Admin, Coordinator, TA (any authenticated user)
- Entry Conditions:
  - The user has successfully authenticated (logged in).
- Exit Conditions:
  - The user gains access only to the functionalities and data permitted for their role.
- Flow of Events:

1. Upon successful login, the system retrieves the user's role(s) from the database.

2. The system loads a token (JWT) that includes role information.
3. The user attempts to access a resource.
4. The system evaluates whether the user's permissions include the requested operation.
5. Access is either granted or denied based on the user's role.

- Exceptional Flows:
  - Permission Denied: If the user tries to perform an action outside their role, the system denies access.

1.2 Profile Management

1.2.1 View Profile

- Name: View Profile
- Actors: User
- Entry Conditions:
  - The user is logged into the system.
- Exit Conditions:
  - The user's profile information is displayed on the screen.
- Flow of Events:

1. The user navigates to View Profile.
2. The system retrieves the user's profile data (e.g., name, email, phone number, role).
3. The system displays the retrieved information.

1.2.2 Change Password

- Name: Change Password
- Actors: User
- Entry Conditions:
  - The user is logged into the system.
- Exit Conditions:
  - The user's password is updated in the system.
- Flow of Events:

1. The user navigates to the Change Password section.
2. The system prompts the user to enter their current password and a new password (with confirmation).
3. The system validates the current password.

4. The system checks the new password against complexity rules and ensures it is not the same as the current one.
5. If valid, the system updates the password and confirms success.

- Exceptional Flows:
  - Incorrect Current Password: If the current password is incorrect, the system displays an error and requests re-entry.
  - Invalid Complexity: If the new password fails complexity checks, the system displays an error (e.g., length or character requirements).

1.2.3 Change Contact Information

- Name: Change Contact Information
- Actors: User
- Entry Conditions:
  - The user is logged into the system.
- Exit Conditions:
  - The user's contact information (phone, email, etc.) is successfully updated.
- Flow of Events:

1. The user navigates to the Change Contact Information section.
2. The system displays the current contact details (e.g., phone number, email).
3. The user enters new contact information.
4. The system validates the format of the entered data (e.g., phone format, email domain).
5. If valid, the system updates the user's profile and confirms the changes.

- Exceptional Flows:
  - Bad Phone Format: If the new phone number does not match the required format, the system displays a "Bad Phone Format" error.
  - Bilkent Email Required: If the user attempts to remove or alter the institutional email, the system displays an error requiring a valid email address.

1.2.4 Upload Schedule

- Name: Upload Schedule
- Actors: TAs
- Entry Conditions:
  - The user is authenticated and selects the Profile/Upload Schedule option.
- Exit Conditions:
  - The user may navigate away without taking any action.

  - If validated, the schedule file is uploaded and saved.

- Flow of Events:

1. The user selects the Upload Schedule option.
2. The system displays a prompt for the user to update a schedule.
3. The system validates the schedule.
4. If valid, the system saves the file and updates the user's schedule data.

- Exceptional Flows:
  - Invalid File Format: If the system cannot validate the file, the update is aborted and an error message is displayed.

1.2.5 Personal Information

- Name: Personal Information
- Actors: Admins, Coordinators
- Entry Conditions:
  - The user is authenticated and selects the Profile/Personal Information option.
- Exit Conditions:
  - The user may exit without changes, or updated contact details are saved.
- Flow of Events:

1. The user navigates to Personal Information.
2. The system displays the user's current email and phone.
3. The user can update the data, if needed.
4. The system saves the new info if valid.

1.3 Communication

1.3.1 View Notifications

- Name: View Notifications
- Actors: User
- Entry Conditions:
  - The user is logged into the system.
- Exit Conditions:
  - The user's notifications are displayed on the screen.
- Flow of Events:

1. The user navigates to the View Notifications section.

2. The system retrieves all relevant notifications (assignment updates, approval notices, workload adjustments, swap requests, etc.).
3. The system displays the notifications in chronological or priority order.

1.4 TA Management

1.4.1 Assisting Courses and Workload

- Name: Assisting Courses and Workload
- Actors: Teaching Assistant (TA)
- Entry Conditions:
  - The TA is logged into the system.
  - The TA is assigned to at least one course.
- Exit Conditions:
  - The TA's completed tasks are recorded.
  - Workload is updated accordingly.
- Flow of Events:

1. The TA navigates to Assisting Courses and Workload.
2. The system displays assigned tasks (lab work, grading, recitation, office hours, exam proctoring).
3. The TA completes or marks tasks done; if needed, enters hours/notes.
4. If the TA has an excuse (e.g., exam, medical), they submit it.
5. The system updates the TA's total workload.

- Exceptional Flows:
  - Didn't Take That Course: If the TA is not officially assigned, the system prevents task completion.
  - Has an Exam / Medical Report: The system marks the TA unavailable.

1.4.2 Submit a Leave Request

- Name: Submit a Leave Request
- Actors: Teaching Assistant (TA)
- Entry Conditions:
  - The TA is logged into the system.
- Exit Conditions:
  - The leave request is approved or rejected.
  - If approved, the TA is not assigned duties during the leave.
- Flow of Events:

1. The TA navigates to Submit a Leave Request.

2. The system prompts for leave dates and a reason (medical, conference, etc.).
3. The TA submits the request.
4. The system notifies authorized staff.
5. The authorized staff reviews and approves or rejects.
6. If approved, the system marks the TA unavailable; otherwise, the TA is notified with a reason.

- Exceptional Flows:
  - Overlapping Leave Requests: The system prevents overlapping leave entries.

1.4.3 View Past Tasks and Workloads

- Name: View Past Tasks and Workloads
- Actors: Teaching Assistant (TA)
- Entry Conditions:
  - The TA is logged into the system.
- Exit Conditions:
  - The TA sees task history and workload reports.
- Flow of Events:

1. The TA navigates to View Past Tasks and Workloads.
2. The system displays completed tasks, hours, and summary reports.
3. The TA reviews historical data.

1.4.4 Reporting Total Workload

- Name: Reporting Total Workload
- Actors: Teaching Assistant (TA)
- Entry Conditions:
  - The TA is logged into the system.
- Exit Conditions:
  - The TA reviews overall workload distribution.
- Flow of Events:

1. The TA navigates to Reporting Total Workload.
2. The system shows total hours worked (lab, grading, proctoring, etc.).
3. The TA reviews workload trends.

1.4.5 Proctor Swapping

- Name: Proctor Swapping
- Actors: Teaching Assistant (TA), Coordinator
- Entry Conditions:
  - The TA is assigned an exam proctoring duty.
- Exit Conditions:
  - The proctoring swap is completed or the request is rejected.
- Flow of Events:

1. The TA navigates to Proctor Swapping.
2. The TA selects Submit Swap Request and chooses a replacement TA.
3. The requested TA accepts or rejects the swap.
4. If accepted, the system updates assignments and notifies all parties.
5. If rejected, the original TA remains assigned.

- Exceptional Flows:
  - Conflicting Schedules: The system blocks the swap if the replacement TA is unavailable.

1.5 Faculty Tools

1.5.1 TA Assignment Workflow

- Name: TA Assignment Workflow
- Actors: Faculty Member
- Entry Conditions:
  - The faculty member is logged in.
  - The course(s) and student list(s) exist in the system.
- Exit Conditions:
  - The system has assigned students to the course (or its sections) according to the chosen method.
  - A confirmation or summary is displayed.
- Flow of Events:

1. The faculty member navigates to Assign TA/ Select Assignment Type.
2. The system prompts for the assignment method (Automatic, Manual, Random, Alphabetical).
3. If Automatic, the system balances sections based on capacity.
4. If Manual, the faculty member selects TA individually.
5. The faculty member reviews and confirms.
6. The system updates course rosters and displays a final distribution.

- Exceptional Flows:
  - No TA Available: The system displays an error if there are no enrollees.
  - Over-capacity: If a section is full, the system prompts a reassign or override.
  - Data Inconsistency: Incomplete or corrupt data halts the process until corrected.

1.5.2 Print Student Distribution

- Name: Print Student Distribution
- Actors: Faculty Member
- Entry Conditions:
  - The faculty member is logged into the system.
  - Students are assigned to the course(s).
- Exit Conditions:
  - A printable or downloadable report of the student distribution is generated.
- Flow of Events:

1. The faculty member navigates to Student Distribution or Print Report.
2. The system displays available courses/sections.
3. The faculty member selects which distribution to print (section lists, capacities, etc.).
4. The system generates a preview.
5. The faculty member prints or downloads (PDF/Excel).
6. If Random, the system randomly assigns students to sections.
7. If Alphabetical, the system assigns by alphabetical order.

- Exceptional Flows:
  - No Assignments Found: If no students are assigned, the system indicates no data is available.

1.5.3 Upload Semester Data

- Name: Upload Semester Data / Excel
- Actors: Faculty Member
- Entry Conditions:
  - The faculty member is logged in.
  - The system supports data import (Excel/CSV).
- Exit Conditions:
  - The uploaded data (courses, students, sections) is integrated.
  - Invalid data entries are flagged.

- Flow of Events:

1. The faculty member navigates to Upload Data.
2. The system prompts for a file (Excel/CSV).
3. The user uploads the file.
4. The system validates format (columns, data types) and checks duplicates.
5. If valid, the system imports the data. A summary report is displayed.

- Exceptional Flows:
  - Invalid File Format: The system rejects unsupported files.
  - Partial Import: Valid rows are imported; invalid ones require manual correction.

1.5.4 Generate Classroom List

- Name: Generate Classroom List
- Actors: Faculty Member
- Entry Conditions:
  - The faculty member is logged into the system.
  - Classroom allocations or the semester schedule is available.
- Exit Conditions:
  - A classroom list (rooms, capacity, schedule) is displayed or generated.
- Flow of Events:

1. The faculty member navigates to Generate Classroom List.
2. The system retrieves available classroom data (room numbers, capacities, etc.).
3. The faculty member optionally filters by date/time/building.
4. The system displays a list of suitable classrooms.
5. The faculty member prints or exports the list.

- Exceptional Flows:
  - No Classrooms Match: If none meet the criteria, the system notifies the faculty member.
  - Data Inconsistency: Missing or outdated data triggers an error prompt.

1.6 Dean Tools

1.6.1 Managing Course Data

- Name: Managing Course Data
- Actors: Dean
- Entry Conditions:
  - The Dean is logged in with privileges to manage course data.
- Exit Conditions:
  - Course data is created, updated, or removed.
  - Relevant departments, staff, or TAs may be notified.
- Flow of Events:

1. The Dean navigates to Manage Course Data.
2. The system displays existing courses and offers create/edit/remove options.
3. The Dean selects an action and enters/updates course details.
4. The Dean confirms changes.
5. The system validates and saves the data.

- Exceptional Flows:
  - Active Dependencies: If the Dean tries to remove a course with assigned TAs or scheduled exams, the system blocks removal.
  - Missing Fields: The system requires all mandatory fields before saving.

1.6.2 Exam Scheduling

- Name: Exam Scheduling
- Actors: Dean
- Entry Conditions:
  - The Dean is logged in with privileges to schedule exams.
- Exit Conditions:
  - The exam is scheduled with date/time/duration and the required number of proctors.
  - Notifications are sent to relevant parties.
- Flow of Events:

1. The Dean navigates to Exam Scheduling.
2. The system prompts for exam details (course, date/time, duration, exam type, number of proctors).
3. The Dean enters or selects the details.
4. The Dean confirms scheduling.
5. The system saves the exam data and notifies relevant staff.

- Exceptional Flows:
  - Scheduling Conflict: If times or rooms overlap, the system flags it (Conflicting Schedules).
  - Missing Fields: The system displays an error if required info is not provided.

1.6.3 Assign Proctoring Duties

- Name: Assign Proctoring Duties
- Actors:
  - Dean
- Entry Conditions:
  - An exam is already scheduled.
  - The Dean is logged in with privileges to manage proctor assignments.
- Exit Conditions:
  - TAs are assigned to the exam.
  - TA workloads are updated, and notifications are sent.
- Flow of Events:

1. The Dean navigates to Assign Proctoring Duties.
2. The Dean selects TAs from a prioritized list.
3. The Dean confirms assignments.
4. The system updates TA workload and sends notifications.

- Exceptional Flows:
  - TA Unavailability: If a TA is on leave or has a conflict, the system excludes that TA or prompts an override.
  - Insufficient TAs: The system prompts the Dean to request TAs from other departments or override restrictions.

1.6.4 Determining Department Pool

- Name: Determining Department Pool
- Actors: Dean
- Entry Conditions:
  - The Dean needs proctors for a cross-department exam.
- Exit Conditions:
  - The system is configured to draw TAs from the selected departments.
  - Notifications may be sent to those departments.
- Flow of Events:

1. The Dean navigates to Department Pool Selection.
2. The system lists all departments.
3. The Dean selects which departments to include.
4. The system saves this configuration.
5. The Dean proceeds with proctor assignments from the chosen pool.

- Exceptional Flows:
  - No Departments Selected: The system blocks assignment if no departments are chosen.
  - No Available TAs: The system flags departments with zero TAs.

1.6.5 Make Report Requests

- Name: Make Report Requests
- Actors: Dean
- Entry Conditions:
  - The Dean is logged in and needs to generate a report.
- Exit Conditions:
  - The requested report is displayed or exported.
- Flow of Events:

1. The Dean navigates to Reports.
2. The system displays available report types (e.g., total TA workload, exam proctor assignments).
3. The Dean applies filters (date range, course, department, etc.).
4. The system generates and displays the report.
5. The Dean exports or prints if needed.

- Exceptional Flows:
  - No Data Found: If filters match no data, the system shows "No Data Found."

1.7 Report Management

1.7.1 Review Report Requests

- Actors: Admin
- Entry Conditions:
  - A pending report request exists in the system.
- Exit Conditions:
  - The report request is either accepted or rejected.
- Flow of Events:

1. The system displays all pending report requests.
2. The admin reviews each request.
3. The admin can either “Accept” or “Reject” the request.
4. If accepted, the system proceeds with generating the required report.
5. If rejected, a notification is sent to the requester.

1.7.2 Generate Log Reports

- Actors: Admin
- Entry Conditions:
  - The admin has accepted a report request.
- Exit Conditions:
  - The system generates and presents the log report.
- Flow of Events:

1. The admin initiates the report generation process.
2. The system retrieves relevant log data.
3. The system processes the data and compiles the report.
4. The admin can download, view, or print the report.

1.7.3 Report Categories (Login, Swap, Duty, Proctor Reports)

- Actors: Admin
- Entry Conditions:
  - The admin selects a specific report type.
- Exit Conditions:
  - The system generates the chosen report.
- Flow of Events:

1. The admin selects a report category (e.g., Login, Swap, Duty, Proctor).
2. The system gathers the required data.
3. The system compiles the report and presents it for review.

1.8 System Management

1.8.1 Update Application

- Actors: Admin
- Entry Conditions:
  - The admin decides to update the website.
- Exit Conditions:
  - The system updates successfully or notifies the admin of an error.
- Flow of Events:

1. The admin navigates to the Update Application section.
2. The system checks for available updates.
3. If updates are available, the admin initiates the update process.
4. The system deploys the updates and confirms the process.

1.8.2 Authorize Actors

- Actors: Admin
- Entry Conditions:
  - The admin needs to grant or modify user permissions.
- Exit Conditions:
  - The system updates the user's authorization status.
- Flow of Events:

1. The admin navigates to the Authorize Actors section.
2. The system displays a list of users and their current permissions.
3. The admin selects a user and updates their permissions.
4. The system applies the changes and logs the action.

1.9 Instructor & Coordinator Workflow

1.9.1 Define Exam

- Actors: Instructor
- Entry Conditions:
  - The instructor is logged into the system.
- Exit Conditions:
  - The exam is successfully defined and saved.
- Flow of Events:

1. The instructor navigates to the Define Exam section.
2. The system prompts for exam details (date, time, format).
3. The instructor enters the necessary details.
4. The system validates and saves the exam.
5. The system may trigger a notification to relevant users.

1.9.2 TA Replacement

- Actors: Coordinator, Bilkent SMTP Server
- Entry Conditions:
  - The system has a pending request for a Teaching Assistant (TA) replacement.
- Exit Conditions:
  - The TA replacement request is processed (approved or denied).
- Flow of Events:

1. The coordinator navigates to the TA Replacement section.
2. The system displays pending TA replacement requests.
3. The coordinator reviews the request and available TA options.
4. The coordinator approves the replacement.
5. The system updates the TA assignment and sends a mail.

1.9.3 TA Leave Request

- Actors: Coordinator
- Entry Conditions:
  - A TA has submitted a leave request.
- Exit Conditions:
  - The leave request is either approved or rejected.
- Flow of Events:

1. The coordinator navigates to the TA Leave Request section.
2. The system displays the TA leave request details.
3. The coordinator selects either “Accept” or “Reject.”
4. If accepted, the system processes the leave and logs the approval.
5. If rejected, the system mthe TA of the decision.
6. The system sends a notification of the decision to relevant users.

2. Tech Stack

We will use the following technologies in the project: React.js
Spring Boot
MySQL

2.1 React.js

React.js is a JavaScript library used for building user interfaces. It allows us to create web applications that can update and render efficiently in response to data changes. We will utilize it because it is an up-to-date frontend framework and provides various tools that facilitate an efficient and responsive user experience.

2.2 Spring Boot

Spring Boot is a Java-based framework used to create robust and scalable backend services. It simplifies application development by offering built-in features for dependency injection, security, and database connectivity. We are using it as our backend framework to ensure high performance and maintainability.

2.3 MySQL

MySQL is a widely used relational database management system (RDBMS) that offers scalability, security, and reliability. It is ideal for handling structured data and supports complex queries efficiently. We will use MySQL as the database to store and manage system records, including user data, assignments, and workload information.