BILKENT UNIVERSITY
COMPUTER SCIENCE DEPARTMENT
CS 319 OBJECT-ORIENTED SOFTWARE ENGINEERING
DELIVERABLE 1 ITERATION 1
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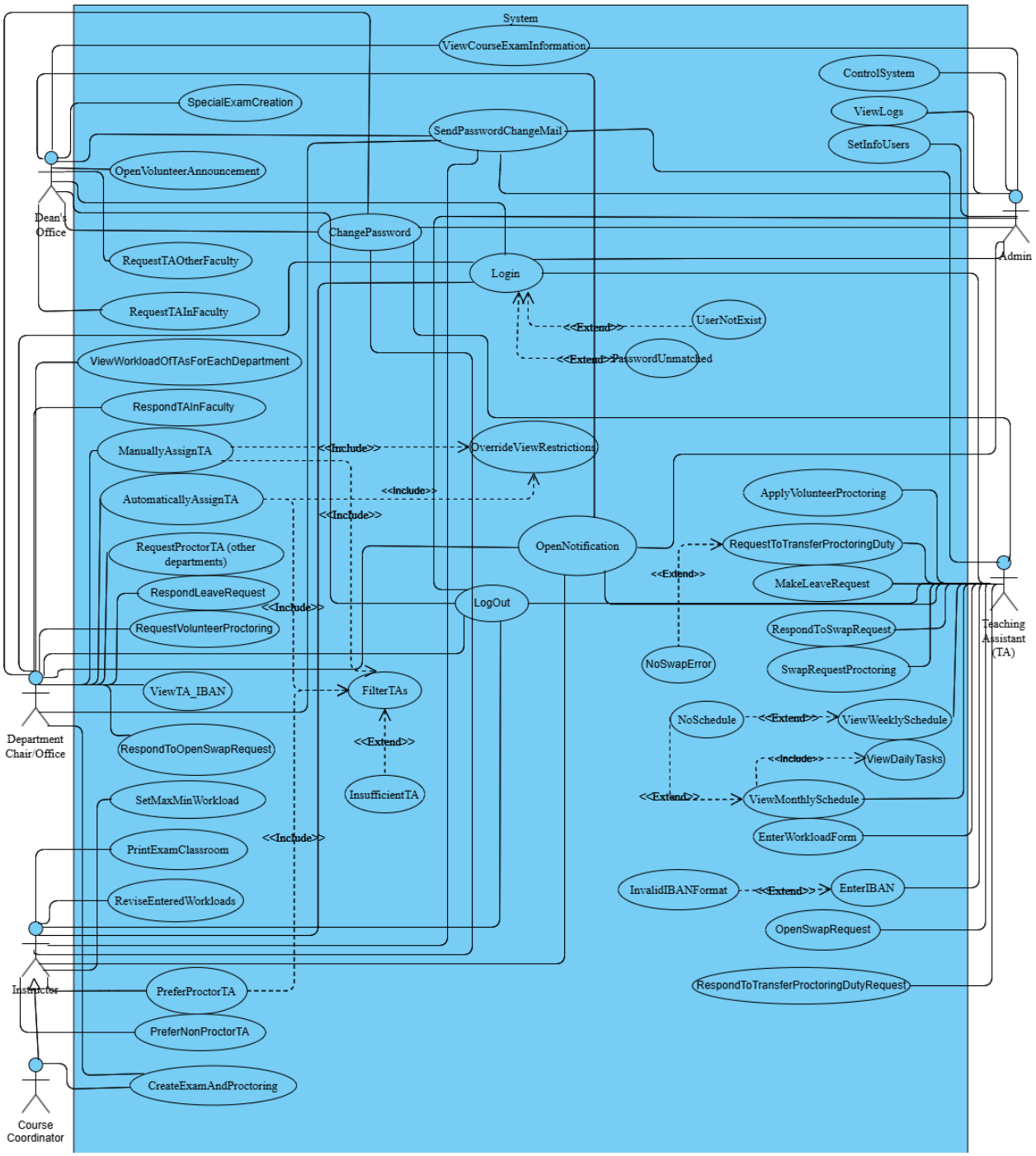
1. USE CASE DIAGRAM



The link: [visual_paradigm]

2. USE CASE TEXTUAL DESCRIPTION

1.
Unique name: Login
Participating actors: All actors
Entry conditions: The user entered the correct ID and password.
Exit conditions: The user successfully logs in and is directed to the main page.
Flow of events:

1. The user enters their ID and password in separate provided blocks.
2. The user clicks the login button.
3. The user is directed to the main page or gets an error on the login page.

Special / quality requirements:

1. The user must be marked active on the system.
2. The password can be wrong.
3. ID can be wrong.

2.
Unique name: UserNotExist
Participating actors: All actors
Entry conditions: The user tries to enter the system with a non-existent ID in the database
Exit conditions: The system gives an error message indicating no such user.
Flow of events:

1. The user enters the ID during the login.
2. The system checks in the database for the existence of an ID.
3. The system displays an error message and prompts the user to try again.

Special / quality requirements: None

3.
Unique name: PasswordUnmatched
Participating actors: All Actors
Entry conditions:

1. The user is entering or confirming a new password.
2. The “new password” and “confirm password” fields do not match.

Exit conditions: The system displays an error message and prompts the user to re-enter matching passwords.
Flow of events:

1. The user types a new password in the “New Password” field.
2. The user types a different password in the “Confirm Password” field.
3. The user clicks “Submit” or “Change Password.”
4. The system checks if both fields match.
5. The system displays an error: “Passwords do not match.”

Special / quality requirements:

1. Error messages should be clear and immediate.
2. The user must not proceed until the passwords match.

4.
Unique name: SendPasswordChangeMail
Participating actors: All Actors
Entry conditions: The user clicks “Forgot Password?” on the login page.
Exit conditions: An email containing a link to reset the password is sent successfully.
Flow of events:
1. The user forgets the password.
2. The user clicks the “Forgot Password?”
3. The user is navigated to the page where the User should write his email.
4. The system checks the correctness of the email.
5. The system generates a unique link for resetting the password.
6. The system sends the mail to the given email.

Special / quality requirements: None.

5.
Unique name: LogOut
Participating actors: All Actors
Entry conditions: The user is currently logged into the system.
Exit conditions: The user session is terminated, and the user is redirected to the login page.
Flow of events:
1. The user clicks the “Log Out” button or link.
2. The system invalidates the current session token.
3. The system redirects the user to the login page (or home page if configured).

Special / quality requirements:
1. Session termination must be secure, ensuring no unauthorized re-entry.
2. All session data should be cleared from the browser.

6.
Unique name: RespondToSwapRequest
Participating actors: Teaching Assistant(TA)
Entry conditions: TA gets the notification for swapping proctoring from another TA.
Exit conditions: TA either approves or declines the request.
Flow of events:
1. TA gets the notification for swapping.
2. TA decides to approve or decline and clicks respectively.

Special / quality requirements:
1. Approval/decline needs to happen 6 hours before both of the proctoring duties.

7.
Unique name: NoSwapError

Participating actors: Teaching Assistant (TA)
Entry conditions: TA tries to swap proctoring 6 hours before the exam.
Exit conditions: The system gives an error message that TA can not swap proctoring.
Flow of events:

1. The TA opens the page where his proctoring duties are listed.
2. The TA tries to choose the swapping option to change that specific exam.
3. The system checks the time the request is sent and compares it with the exam time in the database.
4. The system gives the error message about the inability to swap.

Special / quality requirements: None.

8.
Unique name: ViewMonthlySchedule
Participating actors: Teaching Assistant (TA)
Entry conditions: TA requests to view his monthly schedule, and the system navigates the user to the schedule page. TA's course schedule must be present in the system.
Exit conditions: The monthly schedule is displayed.
Flow of events:

1. The user clicks the monthly schedule button.
2. The system retrieves the data from the database.
3. The monthly schedule for the current and next month is displayed to the TA.

Special / quality requirements:

1. Data retrieval from the database and display feature should take less than 3 seconds.
2. The course schedules must have been announced.
3. In the calendar, exam proctoring sessions will be displayed on the days. When clicking on a day, exam proctoring sessions will be shown along with other tasks (such as classes).

9.
Unique name: ViewWeeklySchedule
Participating actors: Teaching Assistant (TA)
Entry conditions: TA requests to view his weekly schedule, and the system navigates the user to the schedule page.
Exit conditions: The weekly schedule is displayed.
Flow of events:

1. The user clicks the schedule button.
2. The system retrieves the data from the database.
3. The schedule is displayed to the TA.

Special / quality requirements:

1. Data retrieval from the database and display feature should take less than 3 seconds.
2. The weekly course schedule and labs will be displayed. Exam proctoring sessions will not be shown.

10.

Unique name: ViewDailyTasks
Participating actors: Teaching Assistant (TA)
Entry conditions: The user is logged in and has assigned tasks or proctoring duties for the day.
Exit conditions: The user views all tasks scheduled for the current day.
Flow of events:

1. The user clicks on a specific day in the monthly schedule.
2. The system retrieves tasks (lectures, labs, proctoring, office hours) from the database.
3. The system displays the list of tasks with time and location.
4. The user can click each task for more details.

Special / quality requirements: Data should be sorted chronologically. Retrieval must be fast (under 2 seconds).

11.
Unique name: NoSchedule
Participating actors: Teaching Assistant (TA)
Entry conditions: TA clicks to see the monthly or weekly schedule. The current semester's courses haven't been assigned to the TAs and the workload is not clear.
Exit conditions: An empty page explaining the condition is displayed.
Flow of events:

1. The actor clicks to view the schedule.
2. The system tries to retrieve the information on the TA's schedule.
3. The system displays the status message on the directed page.

Special / quality requirements: None.

12.
Unique name: ViewLogs
Participating actors: Admin
Entry conditions: Admin requests to see the logs by clicking the Log button.
Exit conditions: Close the page by clicking the main page or another button.
Flow of events:

1. The user clicks the Logs button on the Admin main page.
2. The page is directed to a new page containing all logs of the processes done by all actors.
3. By clicking the courses, a course can be selected and the related workload of that course can be seen also it can be filtered by semester, student, etc and its report can be made in PDF and printed.
4. By clicking the proctoring duties, all proctoring logs can be seen.
5. The page can be closed by clicking the main page.

Special / quality requirements: None

13.
Unique name: MakeLeaveRequest
Participating actors: Teaching Assistant (TA)

Entry conditions: TA is active and has tasks in the current semester. TA wants to report his/her leave for a long time or a few days for exam duty.
Exit conditions: Request is sent to the Department Office.
Flow of events:

1. The user clicks to fill out the leave report.
2. The user enters the start date and end date for their leave and they can select whether it is permanent or temporary.
3. The user can attach the file (PDF or any image type) of their medical report or reason for their leave.
4. The user can write a message that can explain their causes in the text.
5. The submit button is clicked and the form that is filled is sent to the Department Office.

Special / quality requirements: None.

14.
Unique name: RespondLeaveRequest
Participating Actors: Department Chair/Office
Entry Conditions: A leave request has been submitted.
Exit Conditions: Request is either approved or rejected.
Flow of Events:

1. The actor accesses all leave requests in a page.
2. The system displays pending requests.
3. The actor reviews the request details, attached file and excuse message that is written by the TA.
4. The actor selects approval or rejection.
5. The system updates the request status and notifies the TA about the update.

Special / quality requirements:

1. If approved, the system must block proctoring assignments during the leave period.
2. If rejected, a reason can be optionally provided.

15.
Unique name: SpecialExamCreation
Participating actors: Dean’s Office
Entry conditions: The uncertainty of the exams during that period.
Exit conditions: The scheduling of the exams.
Flow of events:

1. Determines the exams to be held, their number, and their timings.
2. Determines the amount of needed TAs and the departments of preferred TAs.
3. Requests for the TAs are sent to the related Department’s offices.
4. Notification is delivered to the Department's Office for them to deliver the desired amount of TAs.

Special / quality requirements: Exam times and locations cannot overlap.

16.

Unique name: PreferProctorTA
Participating actors: Course Coordinator
Entry conditions: The occurrence of that course's exam is determined by the Dean's Office. Course coordinator has that course offered and wants to have preference over some TAs of his department.
Exit conditions: The sending of the message.
Flow of events:

1. The number of TAs is specified, and if TAs are available, preferred and non-preferred TAs are indicated.
2. The button to send the preferences is clicked and that information is saved in the database and can be seen by the Department's office.

Special / quality requirements: None

17.
Unique name: FilterTAs
Participating actors: Instructor, Department Chair/Office
Entry conditions: For the instructor, the TA preferring button is clicked and TA course instructors are from the same department. For the department office/chair, ally or manually assigning proctoring is clicked.
Exit conditions: All restrictions are determined and TAs aligning those are listed.
Flow of events:

1. The instructor selects the proctoring duties of his courses. The department's office selects the proctoring duties of the faculty.
2. The instructor selects the amount that this duty needs and he can flag the TAs of their department to show which are more preferred and less preferred. The department's office selects manual assignments.
3. Both ways of assigning TAs are filtered by the restrictions and preferences of instructors.

Special / quality requirements: None.

18.
Unique name: InsufficientTA
Participating actors: Instructor, Department Office/Chair
Entry conditions: When filtering TAs, not enough TA is found for the need.
Exit conditions: By overriding current filtering restrictions or sending request TAs from the Dean's office.
Flow of events:

1. A message that shows the number of wanted TAs is more than the TAs found considering the restrictions and preferences.
2. Filtering restrictions are displayed and can be clicked to exclude from filtering.
3. Clicking the filtering button again or the request button, a new page is displayed.

Special / quality requirements: None.

19.
Unique name: ManuallyAssignTA

Participating actors: Department's Office/Chair
Entry conditions: Clicking the manually assign button of that department's proctoring duties.
Exit conditions: Clicking done in the assigning page and duties assigned to each selected TA without conflict.
Flow of events:

1. The exam proctoring is selected.
2. After selecting the necessary restrictions, the TAs are listed.
3. Department Office/Chair gets the TAs request considering PreferProctorTA and PreferNonProctorTA and manually chooses TAs from the list.
4. After choosing the TAs Department Office/Chair approves the decision.
5. The assigned TAs' workload is updated for proctoring and schedules of TAs' are updated.
6. Notifications are sent to all relevant parties.

Special / quality requirements: None.

20.
Unique name: RequestProctorTA(Other Departments)
Participating actors: Department Chair/Office
Entry conditions:

1. There are unassigned proctoring duties for an exam.
2. The Department Office has determined that there are not enough available TAs within their own department or other reasons.

Exit conditions:

1. The request for additional TAs is sent to the Dean's Office.
2. The Dean's Office forwards the request to other departments.

Flow of events:

1. The Department Office sends a request to the Dean's Office for additional TAs.
2. The Dean's Office receives the request and determines how many TAs are needed.
3. The Dean's Office forwards the request to relevant departments.
4. Other departments receive the request and review availability.
5. If other departments accept, they begin searching for available TAs.
6. The Dean's Office monitors the process and updates the requesting department.

Special / quality requirements:

1. The system must track and log all requests.
2. Departments should respond within a set timeframe.
3. The Dean's Office must be able to monitor request statuses.

21.
Unique name: AutomaticallyAssignTA
Participating actors: Department Chair/Office
Entry conditions:

1. An exam requires proctoring, or TAs should be assigned for grading and general tasks of the course.
2. The system attempts to find the required number of available TAs.

Exit conditions:

1. TAs are successfully assigned to the exam, grading, or other tasks.
2. Classrooms for the exam are recorded for proctoring.
3. Notifications are sent to all relevant parties.
4. The assigned TAs' workload is updated for proctoring and schedules of TAs' are updated.

Flow of events:

1. The system searches for available TAs based on predefined rules.
2. If enough TAs are found, proceed to the assignment.
3. If not enough TAs are available, the system prompts the user to override restrictions (e.g., consecutive days, MS/PhD limits).
4. If still insufficient, the system sends a request to other departments via the Dean's office for proctoring.
5. Once enough TAs are secured, the system requests assignment details.
6. After confirmation, the system finalizes assignments.
7. Automatic email notifications are sent to TAs, the coordinator, and relevant staff.
8. The system updates the workload of assigned TAs.

Special / quality requirements:

1. The system must ensure fair workload distribution among TAs.
2. Override requests must be logged for transparency.
3. Automatic email notifications should be timely and accurate..

22.

Unique name: OpenVolunteerAnnouncement

Participating actors: Dean's Office

Entry conditions: A request for more TAs is sent by the Department's office/chair.

Exit conditions: Volunteer announcement made and becomes open for requests by TAs.

Flow of events:

1. The request of how many TAs are displayed in the Dean's office.
2. Create a new volunteering announcement by selecting the departments that can see those.
3. Announcement becomes only available to the allowed departments' TAs.

Special / quality requirements: None.

23.

Unique name: ApplyVolunteerProctoring

Participating actors: Teaching Assistant (TA)

Entry conditions: Volunteer proctoring applications must be open and the TA wants to apply for an available volunteer proctoring request.

Exit conditions: The volunteer proctoring application is successfully submitted to the Dean's Office.

Flow of events:

1. The actor views the open volunteer proctoring request.

2. The actor clicks on the apply option.
3. The application is submitted to the Dean's Office.

Special / quality requirements: None.

24.

Unique name: RequestTAOtherFaculty

Participating actors: Dean's Office

Entry conditions: The Department Office must have previously applied to the Dean's Office to request volunteer TAs from other faculties if no one is found within the faculty and there are still unassigned proctoring duties for the exam.

Exit conditions: The request is forwarded to the other faculty.

Flow of events:

1. A message is sent indicating from which department and how many TAs are requested from other faculties.
2. If the other faculties accept, the relevant departments announce the exam proctoring duty as a voluntary position, similar to a job posting, to find volunteers.

Special / quality requirements: None

25.

Unique name: RequestTAInFaculty

Participating actors: Dean's Office

Entry conditions: The Department Office must have previously applied to the Dean's Office to request TAs from other departments if no one is found within the department and there are still unassigned proctoring duties for the exam.

Exit conditions: The request is forwarded to the other departments in the same faculty.

Flow of events:

1. A message is received indicating how many TAs are requested from the relevant departments.
2. If other departments accept, the relevant departments search for people for the exam proctoring duty.

Special / quality requirements: None.

26.

Unique name: ReviseEnteredWorkloads

Participating actors: Instructor, Course Coordinator

Entry conditions: The instructor has previously entered workloads for courses and wants to make changes.

Exit conditions: Workloads are successfully revised and saved.

Flow of events:

1. Instructor selects the workload revision option.
2. The system displays the previously entered workloads.
3. The instructor modifies the workloads.
4. The system validates and updates the workloads.

5. The confirmation screen is displayed to the instructor and returned to the workload lists.

Special / quality requirements: Data validation and update logs should be maintained.

27.

Unique name: SetInfoUsers
Participating Actors: Admin
Entry Conditions: The admin wants to update user information.
Exit Conditions: User information is successfully updated.
Flow of Events:

1. The admin selects a user.
2. The system displays current user details.
3. The admin modifies desired information about the user.
4. The system validates and updates the information.
5. Confirmation is displayed.

Special / quality requirements: Ensure data security and proper access control.

28.

Unique name: SetMaxMinWorkload
Participating Actors: Instructor
Entry Conditions: The workload limit is subject to change.
Exit Conditions: Maximum and minimum workloads are successfully set.
Flow of Events:

1. Workload settings are selected by the user.
2. The system displays current limits.
3. The instructor adjusts limits.
4. The system saves and applies the new values.
5. Confirmation is displayed.

Special / quality requirements: Limits should prevent scheduling conflicts and adjust the distribution of assignments.

29.

Unique name: ViewWorkloadOfTAsForEachDepartment
Participating Actors: Department Chair/Office
Entry Conditions: The actor needs workload data.
Exit Conditions: Workload data is displayed.
Flow of Events:

1. Staff navigates to the workload section.
2. The system retrieves and displays workload information.

Special / quality requirements: Data must be accurate and up-to-date since different departments will have different schedules to follow.

30.

Unique name: ViewTA_IBAN
Participating actors: Department Chair/Office

Entry conditions: Teaching Assistant(TA) has entered IBAN details.
Exit conditions: IBAN details are displayed.
Flow of events:

1. The actor selects a TA from the listed ones.
2. The system displays stored IBAN details.

Special / quality requirements: IBAN should be valid and securely stored.

31.
Unique name: ChangePassword
Participating actors: All Actors
Entry conditions: The user wants to change their password.
Exit conditions: Either the password is successfully updated or no change is made due to failures or a change of mind.
Flow of events:

1. The user enters a current password.
2. The user enters a new password.
3. The system validates and either updates the password or not.

Special / quality requirements: Passwords should follow security policies (Some patterns might be enforced for proper passwords).

32.
Unique name: EnterIBAN
Participating actors: Teaching Assistant(TA)
Entry conditions: TA needs to enter their IBAN and submit it.
Exit conditions: IBAN is stored.
Flow of events:

1. TA enters IBAN details on the IBAN page and clicks the submit button.
2. The system validates and if it is in the wanted format, it stores IBAN and deletes the old IBAN information.

Special / quality requirements: IBAN format must be correct.

33.
Unique name: EnterWorkloadForm
Participating actors: Teaching Assistant(TA)
Entry conditions: TA needs to submit workload details.
Exit conditions: The workload form is either submitted or the mission is aborted.
Flow of events:

1. The TA fills out the workload form.
2. The system validates and saves it.

Special / quality requirements: Ensure form completeness.

34.
Unique name: RequestToTransferProctoringDuty
Participating actors: Teaching Assistant(TA)

Entry conditions: The TA wants to transfer their proctoring duty to another TA.
Exit conditions: The request to transfer the proctoring duty has been successfully submitted.
Flow of events:

1. TA selects another TA to take over the proctoring duty.
2. TA submits the transfer request.
3. The system records the request and forwards it to the other TA.

Special / quality requirements:

1. All requests must be logged.
2. Must be initiated at least X hours before the exam (e.g., 6 hours).

35.
Unique name: RespondToTransferProctoringDutyRequest
Participating actors: Teaching Assistant(TA)
Entry conditions: The TA receives a notification regarding a request to transfer proctoring duty from another TA.
Exit conditions: The TA either approves or declines the request.
Flow of events:

1. The TA receives a notification about the proctoring transfer request.
2. The TA decides whether to approve or decline the request and clicks the respective option.

Special / quality requirements:

1. The approval or decline must occur at least X hours before both proctoring duties (e.g., 6 hours).

36.
Unique name: InvalidIBANFormat
Participating actors: Teaching Assistant(TA)
Entry conditions: The user entered an incorrect IBAN format.
Exit conditions: An error message is displayed.
Flow of events:

1. The user enters IBAN.
2. The system detects invalid formats.
3. The system prompts for correction.

Special / quality requirements:

1. Clear error messages will be provided to direct the user.

37.
Unique name: ViewCourseExamInformation
Participating actors: Admin, Dean's Office
Entry conditions:

1. The actor is logged into the system.
2. The actor requests listed exams.
3. The actor selects one of the provided exams.

Exit conditions: The requested course exam information is displayed.

Flow of events:

1. The actor (or authorized staff) navigates to the “Exam Management” section.
2. The system displays a list of available courses or exam offerings.
3. The actor selects a specific course/exam to load.
4. The system asks for the necessary exam information (date, time,
5. The actor is authorized to make changes (add/edit/delete):
    a. The actor can edit the exam details (e.g., date, time, assigned TAs)
    b. The actor can delete an exam record or create a new one if needed.
6. The actor confirms or cancels any changes.
7. The system saves the changes (if confirmed) and returns to the exam management overview.

Special / quality requirements:

Data retrieval must be accurate and fast (preferably under 2 seconds).

38.

Unique name: OverrideViewRestrictions

Participating actors: Department Chair/Office

Entry conditions:

1. The system has been unable to find enough available TAs due to restrictions (e.g., PhD/MS level restrictions, leave status, course enrollment, exam conflicts).
2. The user (admin or exam coordinator) is prompted to review and potentially override these restrictions.

Exit conditions:

1. The user either approves the override of one or more restrictions or cancels the request.
2. The system updates the TA assignment process based on the user's decision (allowing overrides).

Flow of events:

1. The system attempts to assign TAs to the exam but encounters restrictions (e.g., only PHD students are available for MS/PHD courses, or TA conflicts with exam schedules).
2. The system notifies the user (admin or coordinator) that there are not enough available TAs due to these restrictions.
3. The user is presented with options to override the restrictions, including
    a. Allowing TAs with consecutive or same-day assignments.
    b. Breaking MS/PHD restrictions to assign MS students to MS/PHD level courses.
    c. Sending requests to other departments via the Dean’s office for additional TAs.
4. The user chooses whether to apply these overrides.
5. If the overrides are accepted, the system proceeds with the assignment process using the newly relaxed restrictions.
6. If the overrides are rejected, the system either retries with stricter criteria or notifies the user that no assignments were made.

Special / quality requirements:

1. The system must log all overrides made for transparency and accountability.
2. Users should have clear warnings about the potential consequences of overriding restrictions.

3. The system must provide an easy-to-use interface for users to review and approve/reject overrides.
4. Notifications must be sent to all involved parties (TA, department, etc.) when restrictions are overridden.
5. The user should have the ability to send requests to other departments through the Dean's office interface when overrides are insufficient.

39.
Unique name: OpenNotification
Participating actors: All Actors
Entry conditions:
1. The user is logged into the system.
2. There are pending notifications for the user.

Exit conditions: The notification is marked as read or remains pending if the user closes it.
Flow of events:
1. The user clicks on the "Notifications" icon or link.
2. The system retrieves unread and reads notifications from the database.
3. The user selects a notification to view its details.
4. Some notifications may direct the user to take action depending on their role.
5. The system marks the notification as read.
6. The user can close or delete the notification.

Special / quality requirements:
1. Notification retrieval should be real-time or near real-time.
2. Large volumes of notifications should be paginated or filtered to maintain performance.

40.
Unique name: RequestVolunteerProctoring
Participating actors: Department Office/Chair
Entry conditions:
1. An exam is scheduled, and not enough TAs are available to proctor.

Exit conditions: The department asks the Dean's Office for volunteer proctoring of other departments.
Flow of events:
1. The actor opens the exam management page.
2. The actor selects "Request Volunteer Proctoring."
3. The system prompts for the number of TAs needed.
4. The system sends the volunteer request to the Dean's Office.
5. A confirmation message is displayed to the user.

Special / quality requirements:
1. The system should verify if some TAs are still available locally before sending the request.
2. The request must specify exam details and the deadline for volunteer responses.

41.
Unique name: PrintExamClassroom
Participating actors: Instructor, Course Coordinator
Entry conditions: The user opens the page with listed exams and clicks the printing option.
Exit conditions: The user downloads the PDF of that classroom.
Flow of events:

1. The user selects a classroom and clicks the Print option.
2. The system retrieves the relevant classroom exam details from the database.
3. The system generates a PDF containing the exam details for that classroom.
4. The system provides a Download button for the user.
5. The user downloads the PDF.

Special / quality requirements: None.

42.
Unique name: ControlSystem
Participating actors: Admin
Entry conditions:

1. Admin enters into the system.
2. The admin has the necessary permissions to access other roles' functionalities.

Exit conditions:

1. The admin successfully completes the task of the selected role.
2. Changes (if any) are saved and reflected in the system.

Flow of events:

1. Admin selects a role to act as (Dean's Office, Instructor, etc).
2. The system grants the admin access to that role's features.
3. The admin performs actions allowed for the selected role (e.g., managing schedules, and modifying data).
4. The system processes and records the admin's actions.
5. The admin can switch back to their default privileges at any time.

Special / quality requirements:

1. Must filter out TAs who are unavailable or ineligible (e.g., time conflicts).
2. Data retrieval should be updated in real-time.

43.
Unique name: CreateExamAndProctoring
Participating actors: Course Coordinator, Department Chair/Office
Entry conditions:

1. The actor enters the system.
2. Choose the option to create an exam.

Exit conditions: The exam is created successfully.
Flow of events:

1. Determines the exams to be held, their number, and their timings.
2. Determines the amount of needed TAs and the departments of preferred TAs.

3. Course Coordinator's requests for the TAs are sent to the related Department's offices.

Special / quality requirements: Exam times and locations cannot overlap.

44.

Unique name: OpenSwapRequest

Participating actors: Teaching Assistant (TA), Department Chair/Office

Entry conditions:

1. A TA is assigned to an exam proctoring duty.
2. The TA wants to swap their duty with another TA but is not authorized to do so directly.

Exit conditions:

1. The department chair/office approves or rejects the request to enable the swap option for the TA.
2. If approved, the swap option is activated, allowing the TA to request the swap.

Flow of events:

1. The TA attempts to initiate a swap with another TA but is unable to do so due to restrictions.
2. The TA submits a request to the department chair/office to open the swap option.
3. The system forwards the swap request to the department chair/office for review.
4. The department chair/office reviews the request and decides whether to approve or reject it.
5. If approved, the system allows the TA to swap the duty with another TA.
6. If rejected, the TA is notified, and no swap option is made available.

Special / quality requirements:

1. The system must ensure that only department chair/office can enable swap requests.
2. Requests and approvals should be tracked and logged for transparency and accountability.
3. The department chair/office should have a clear and efficient process to review and approve requests.

45.

Unique name: RespondToOpenSwapRequest

Participating actors: Department Chair/Office

Entry conditions:

1. A TA has submitted a request to swap their proctoring duty with another TA, but they do not have the authority to initiate the swap.
2. The department chair/office has received the swap request and must approve or reject it.

Exit conditions:

1. The department chair/office has responded to the request, either approving or rejecting it.
2. If approved, the system enables the TA to swap duties with another TA.
3. If rejected, the TA is notified, and the swap request is not granted.

Flow of events:

1. The TA submits a swap request to the department chair/office.
2. The department chair/office receives the request and reviews it.
3. The department chair/office decides whether to approve or reject the request.
4. If the request is approved, the system activates the swap functionality, allowing the TA to proceed with swapping duties with another TA.
5. If the request is rejected, the department chair/office notifies the TA that the swap request has been denied, and no changes are made to the assignment.

Special / quality requirements:

1. The system must ensure that only the authorized department chair/office can approve or reject swap requests.
2. All requests, responses, and decisions should be logged for accountability.
3. The department chair/office can easily approve or reject requests via a simple interface.
4. The system should notify the TA of the department chair's decision.

46.

Unique name: RespondTAInFaculty

Participating actors: Department Chair/Office

Entry conditions:

1. The RequestTAInFaculty has been sent by the Dean's Office to other departments requesting TAs for proctoring duties.
2. The relevant departments have reviewed the request and are ready to respond.

Exit conditions:

1. The other departments have either accepted or rejected the request.
2. The system updates the status of the request, notifying the Dean’s Office of the decision.

Flow of events:

1. The system forwards the request for TAs to the relevant departments.
2. The departments review the request for TAs and check their available pool of proctors.
3. Each department decides whether they can provide the required TAs.
    - If a department accepts, they begin searching for available TAs.
    - If a department rejects, they notify the Dean's Office that they cannot fulfill the request.
4. The system updates the status of the request and notifies the Dean’s Office of the decisions made by the departments.
5. The Dean's Office can take further actions (e.g., seeking additional TAs from other departments or adjusting the request).

Special / quality requirements:

1. The system must log and track all responses for transparency and reporting purposes.
2. Departments must have a clear response mechanism in place to either accept or reject requests.
3. The Dean’s Office should be notified in real-time of responses to ensure prompt actions.
4. The system should ensure prompt forwarding of requests and provide status updates for all involved parties.

47.
Unique name: SwapRequestProctoring
Participating actors: Teaching Assistant (TA)
Entry conditions: The TA is assigned to at least one exam duty. The TA wants to see existing or potential swaps.The TA requests the system to swap proctoring duties with another TA. The system navigates to the list of proctoring duties page.
Exit conditions: TA sends the request for swapping to another TA successfully. The system displays the swap request interface or an error if none exists.
Flow of events:

1. TA clicks the swap list button and is directed to another page
2. The system displays only TAs available during the exam time and satisfying the exam requirements and also the proctoring with the pending status of the old request if no response is given.
3. TA can choose from the options.
4. The system sends a request to the chosen TA for approval.

Special / quality requirements:

1. Must filter out TAs who are unavailable or ineligible (e.g., time conflicts).
2. Data retrieval from the database and display feature should take less than 3 seconds.
3. It must have been sent at least 6 hours before the exam time.
4. A person cannot receive multiple requests for the same task. If a response has been given, it can be sent again.

48.
Unique name: PreferNonProctorTA
Participating actors: Instructor
Entry conditions: Being an instructor with a course that brings a workload like lab or grading.
Exit conditions: Approve the preference list.
Flow of events:

1. The number of TAs is specified, and if TAs are available, preferred and non-preferred TAs are indicated.
2. The button to send the preferences is clicked and that information is saved in the database and can be seen by the Department's office.

Special / quality requirements: None

3. TECH STACK

Backend: Spring Boot

- Fast and Easy Development: Minimal configuration, allowing rapid development.
- Microservice Compatibility: Ideal for modular and scalable applications.

- Robust Ecosystem: Integrates well with Spring Security, Spring Data, and Spring Cloud.
- REST API Support: Provides structured and efficient RESTful services.
- Easy Integration: Compatible with databases like PostgreSQL and MySQL.

Frontend: React.js + TypeScript

- Component-Based Architecture: Enables modular and reusable UI components.
- Rich Ecosystem: A vast collection of libraries accelerates development.
- High Performance: Virtual DOM ensures efficient rendering.
- TypeScript Support: Enhances type safety, debugging, and code maintainability.

Why Do We Use Apache Tomcat?

- It is a lightweight and reliable Java-based web server.
- It can integrate with the Apache HTTP Server if needed.
- It is included by default in Spring Boot as an embedded server, requiring no additional configuration.

How They Work Together

- React Frontend Deployment: The built React application (static files) will be hosted on Apache Tomcat.
- Backend Communication: API requests from the front end will be proxied through Apache Tomcat to the Spring Boot backend.
- Security and Optimization: SSL management, caching, and request forwarding will be handled by Apache Tomcat.

This architecture ensures that the Spring Boot and React integration provides a scalable, high-performance, and secure deployment strategy.