CS 319-001
Object-Oriented Software Engineering

ProctorHub
Deliverable-1

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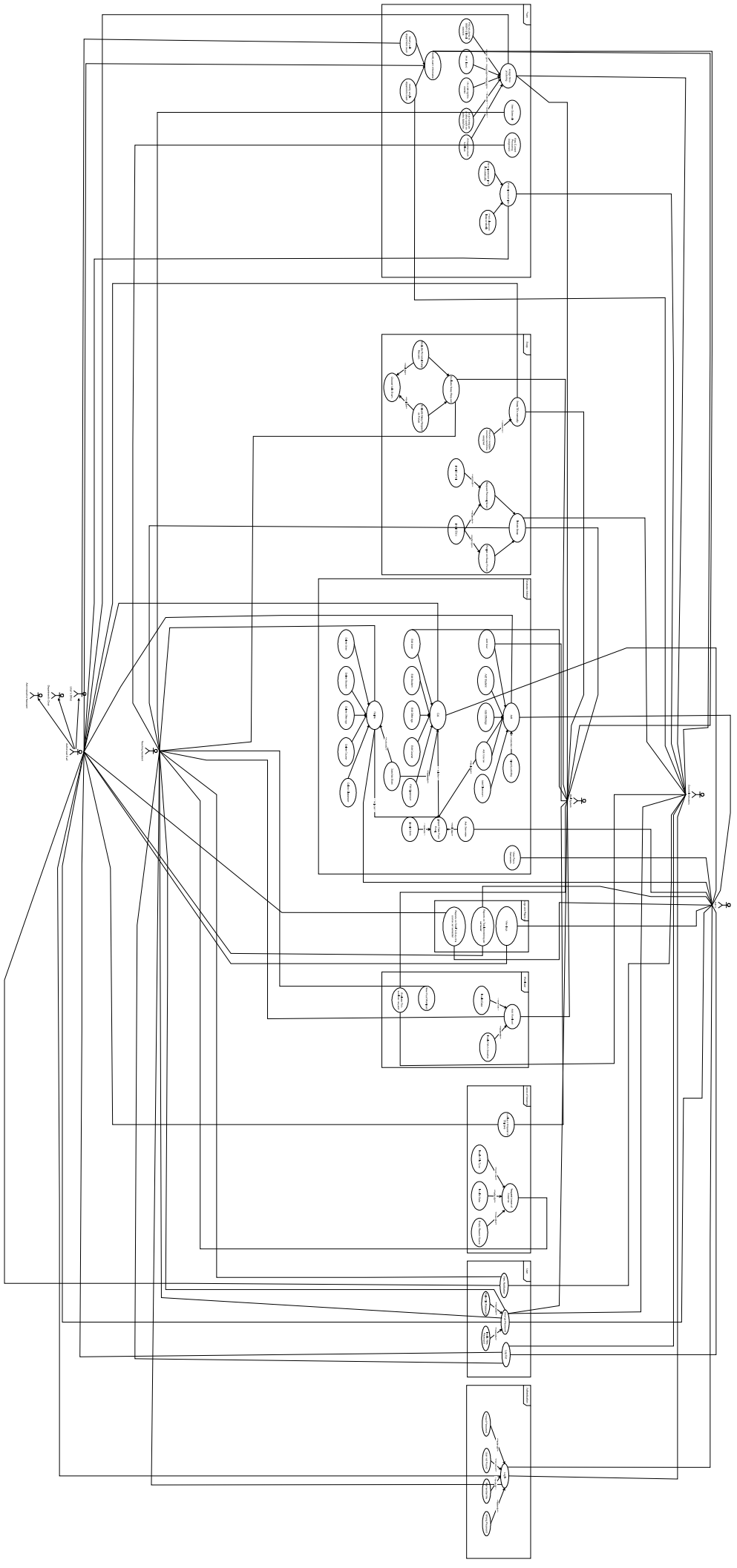
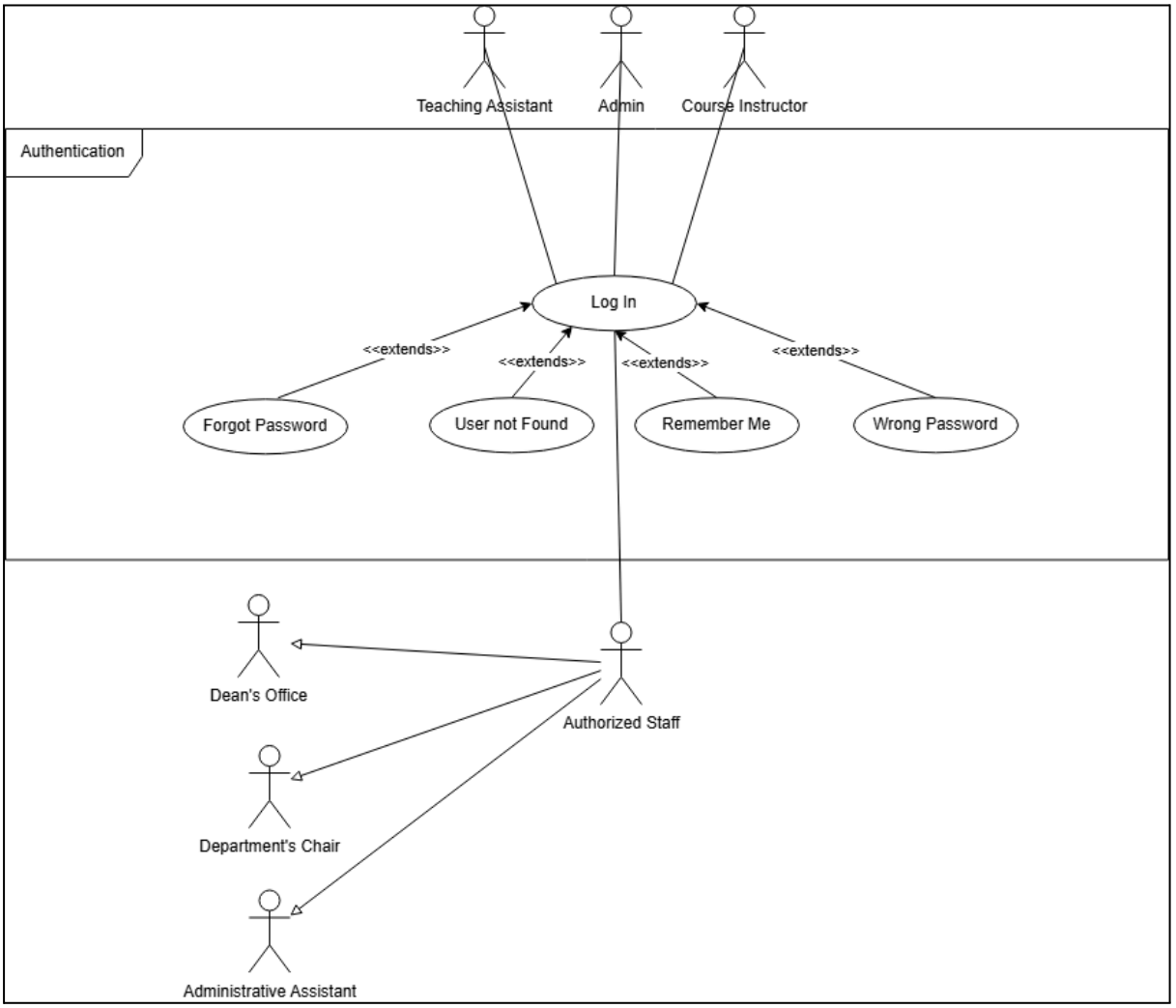
1. USE CASE DIAGRAM



2. Textual Use Case Description

Authentication Frame



Log In

1. Name: Login
2. Participating Actors: Admin, Authorized Staff, Course Instructor, Teaching Assistant
3. Entry Condition: The user opens the website.
4. Exit Condition: The user either successfully signs in or requests new password with the forgot password option.
5. Flow of Events:
   - **5.1.** The user has two alternative ways to log in:
     - **5.1.1.** The user may enter its email and password to the given text boxes.
     - **5.1.2.** The user may also enter its school id and password to the given text boxes.

5.2. If the user checks “Remember Me” checkbox before logging in:

5.2.1. The system will save the user’s account information and log in automatically without asking for account information.

5.3. If the user clicks the “Forgot Password?” button:

5.3.1. The system initiates a process to create a new password.

5.4. If the entered account information does not exist in the system:

5.4.1. The system displays “Wrong e-mail address or school ID. Please try again.” message, indicating that entered e-mail or ID does not exist in the system.

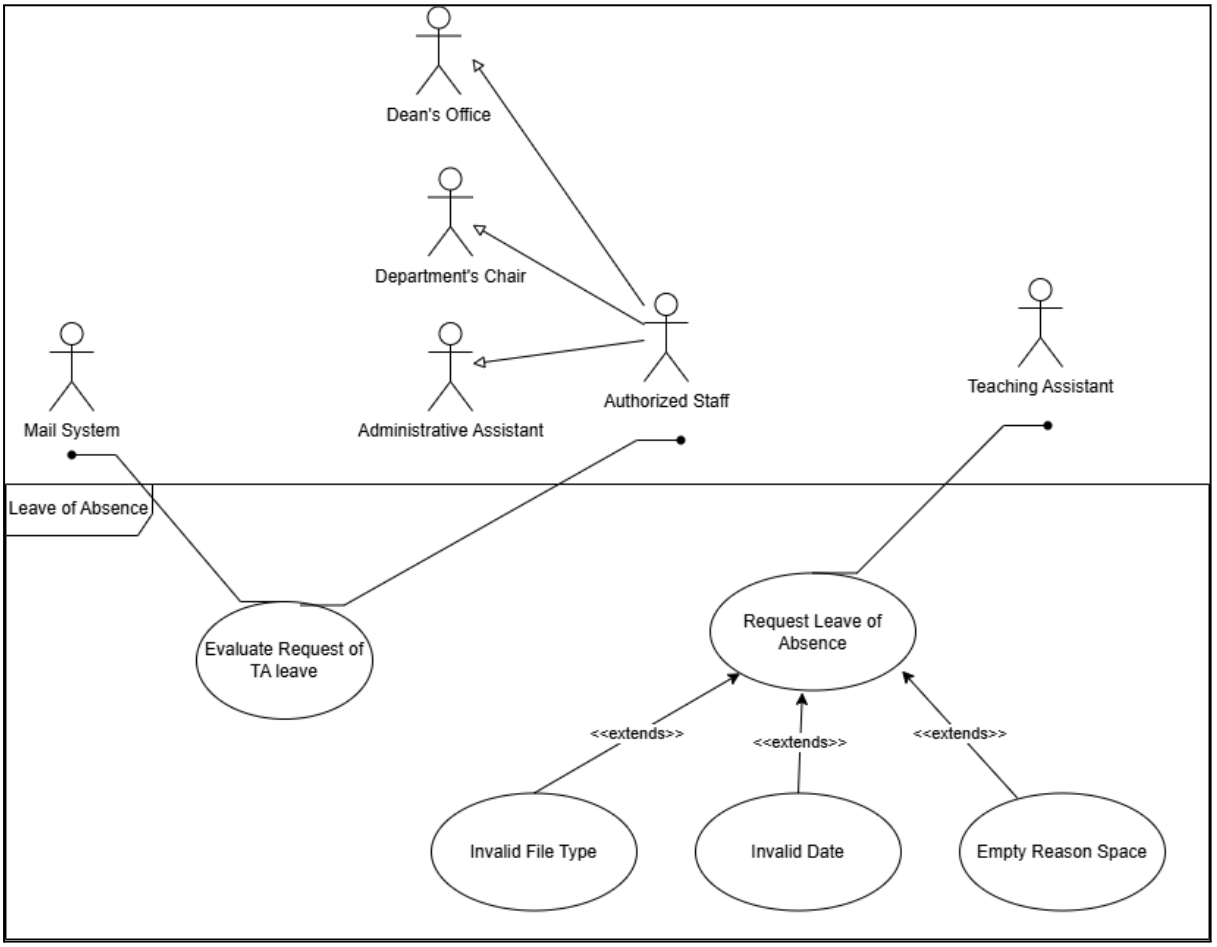
5.5. If the entered password does not match with the entered e-mail or ID:

5.5.1. The system displays “Password does not match with e-mail/ID” message, indicating that entered password does not belong to that account.

5.6. If the user fails to log in 5 times:

5.6.1. The system will disable computer’s ability to log into the system in order to prevent Denial-of-Service attacks or brute force password attempts for entering other people’s accounts.

Leave of Absence Frame



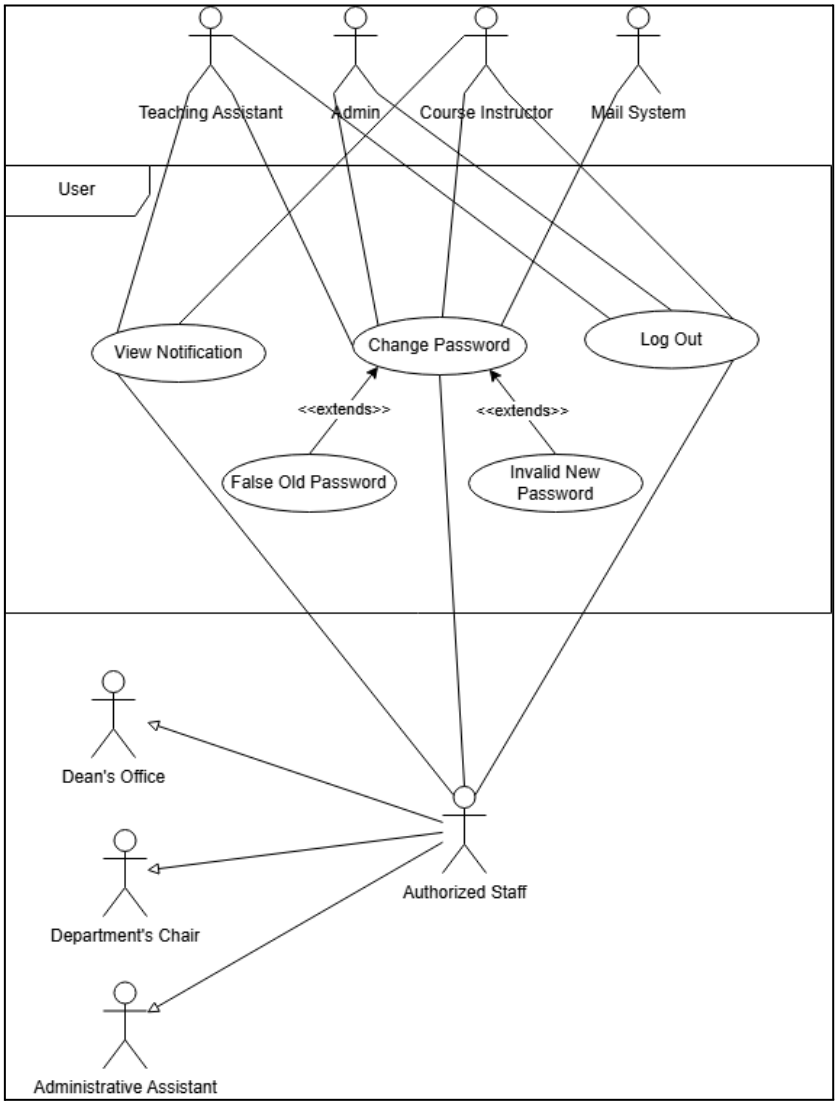
Evaluate TA's Leave Request

1. Name: Evaluate TA's Leave Request
2. Participating Actor: Authorized Staff
3. Entry Condition: The user is authenticated in and accesses the "Leave of Absence Requests" section.
4. Exit Condition: The user can leave the section by navigating to other sections.
5. Flow of Events:
   - **5.1.** The user selects a specific leave request from the list of requests.
   - **5.2.** The system displays the reason, date, and exam information of the leave request.
   - **5.3.** If the user clicks "Accept Request" button:
     - **5.3.1.** The system removes specified proctoring tasks from TA's account.
     - **5.3.2.** The system notifies TA about the acceptance of its request.
   - **5.4.** If the user clicks "Reject Request" button:
     - **5.4.1.** The system notifies TA about the rejection of its request.

Request Leave of Absence

1. Name: Request Leave of Absence
2. Participating Actor: Teaching Assistant
3. Entry Condition: The user is authenticated in and accesses the “Request Leave of Absence” section.
4. Exit Condition: The user can leave the section by navigating to other sections.
5. Flow of Events:
    - **5.1.** The user can request a leave of absence by manually entering its reason, start date and end date as well as uploading a document related to its leave.
    - **5.2.** If the “Leave Reason” text box is empty:
        - **5.2.1.** The system displays “The leave reason must be filled.” message, indicating that the “Leave Reason” text box cannot be left empty.
    - **5.3.** If the entered end date is sooner than start date:
        - **5.3.1.** The system displays “Invalid date! End date cannot must be a date after start date.” message, indicating that there is a logical error between start and end date.
    - **5.4.** If the uploaded document’s file type is not supported by the system:
        - **5.4.1.** The system displays “Invalid file type! Please upload the document as pdf.” message, indicating that the file must be in pdf format.
    - **5.5.** If the user clicks “Send Request” button:
        - **5.5.1.** The request is sent to the related authorized staff for evaluation.

User Frame



View Notification

1. Name: View Notification
2. Participating Actors: Authorized Staff, Course Instructor, Teaching Assistant
3. Entry Condition: The user is authenticated in and navigates to the “Notifications” section.
4. Exit Condition: The user can leave the section by navigating to other sections.
5. Flow of Events:
   - **5.1.** The user can see notifications related to responses to its leave of absence and workload requests or the changes that are made to its program by authorized staff.

Change Password

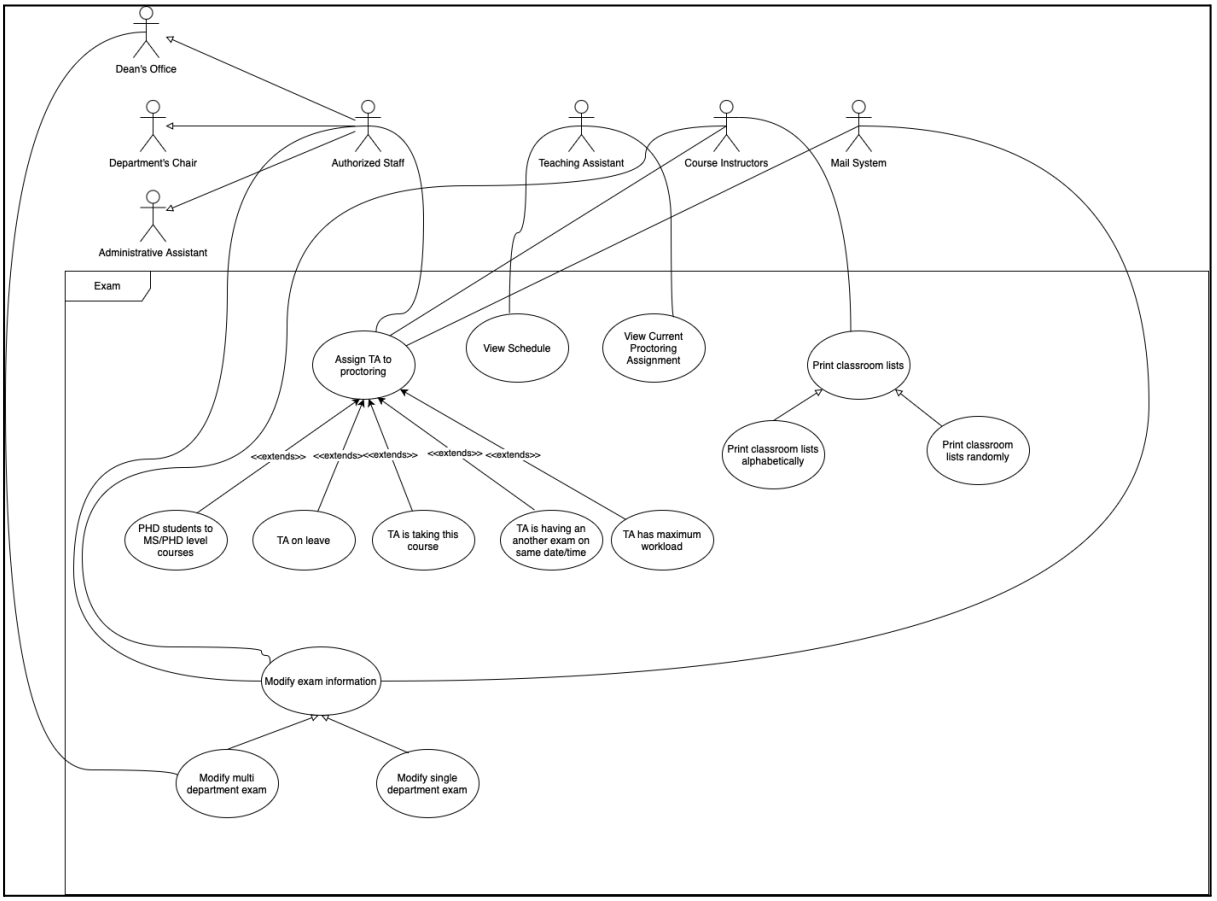
1. Name: Change Password
2. Participating Actors: Admin, Authorized Staff, Course Instructor, Teaching Assistant

3. Entry Condition: The user is authenticated in and accesses the “Change Password” section from “Settings” section.
4. Exit Condition: The user can leave the section by navigating to other sections.
5. Flow of Events:
    - **5.1.** The user can change its password from profile section by entering the new password and the old one that will be replaced.
    - **5.2.** If the user mistypes old password:
        - **5.2.1.** The system displays “The current password is not correct!” message, indicating that the entered current password does not match with the exact current password.
    - **5.3.** If the new password does not verify the password requirements.
        - **5.3.1.** The system displays “Invalid new password! Please enter a password according to the criteria” message, indicating that the entered new password does not satisfy the password criteria of the system.
    - **5.4.** If the current password is correct and a valid new password is typed:
        - **5.4.1.** The system changes the user’s password with the new one and displays “Password is changed.” message. After that change, the computers that are selected this account for “Remember Me” in log in section will forget this account for security purposes.

Log Out

1. Name: Log Out
2. Participating Actors: Admin, Authorized Staff, Course Instructor, Teaching Assistant
3. Entry Condition: The user is authenticated in and clicks on the “Log Out” button.
4. Exit Condition: The system verifies “Log Out” request and logs out the user.
5. Flow of Events:
    - **5.1.** The user clicks on the “Log Out” button.
    - **5.2.** The system logs out the user and that computer’s “Remember Me” selection resets.

Exam Frame



Assign TA Proctoring

1. Name: Assign TA Proctoring
2. Participating Actors: Course Instructors and Authorized Staff
3. Entry Condition: The user selects the exam that its proctoring will be changed and then selects manual assignment.
4. Exit Condition: The user has assigned the desired TAs as proctor for the determined exam if the conditions are suitable, or if the conditions are not suitable for the desired TAs, the assignment cannot be made, and the system provides an appropriate error message.
5. Flow of Events:
   - **5.1.** The system displays a list of available TAs, prioritizing those with the least workload.
   - **5.2.** The user selects one or more TAs for the selected exam.
   - **5.3.** The system checks the assignment conditions for the selected TAs.
   - **5.4.** If the selected TA is a PHD student but the selected exam is not an exam of MS/PHD courses:
     - **5.4.1.** The system displays “The selected exam must be an exam from MS/PHD courses for this selected TA.” message, indicating that the PHD students cannot be assigned to the exams other than one of MS/PHD courses.

5.5. If the selected TA is on leave:

5.5.1. The system displays “The selected TA cannot be on leave.” message, indicating that the TA who is on leave cannot be assigned to the exams.

5.6. If the selected TA is taking the selected course:

5.6.1. The system displays “The selected TA cannot take the selected course.” message, indicating that the TA who is taking the selected course cannot be assigned to the exam.

5.7. If the selected TA has an another exam on same date/time:

5.7.1. The system displays “The selected TA cannot have another exam on the same date and time.” message, indicating that the TA cannot be assigned to the exams at the same time.

5.8. If the selected TA has maximum workload:

5.8.1. The system displays “The selected TA must have a workload below the maximum workload.” message, indicating that the TA who has maximum workload cannot be assigned to the exams.

5.9. If all conditions are met, the system confirms the assignment and updates the TA’s proctoring schedule and the total workload for the assigned TA(s).

5.10. The system sends an automatic notification to the assigned TA(s) and relevant staff.

View Schedule

1. Name: View Schedule

2. Participating Actors: Teaching Assistant (TA)

3. Entry Condition: The user should be logged in, and should select “Schedule” option.

4. Exit Condition: The TA navigates away by selecting another option, such as "Current Proctoring Assignments" or "Add Workload."

5. Flow of Events:

5.1. The TA selects the "Schedule" option.

5.2. The system displays the current schedule, which includes days from Monday to Sunday and hourly time slots for each day.

5.3. The system represents the schedule using a color-coded system.

5.3.1. If a time slot is available, the system displays it in green.

5.3.2. If a time slot contains an upcoming task or a course, the system displays it in red and shows the corresponding course code above it.

5.4. If the TA hovers over a specific time slot, the system provides additional details about the slot.

5.4.1. If the selected time slot is available, the system does not display any additional information.

5.4.2. If the selected time slot contains a task, the system displays a small information box containing the task name, duration, and other relevant details.

5.4.3. If the selected time slot contains a course that they take, the system displays a small information box containing the details of the course name, code, and classroom.

View Current Proctoring Assignments

1. Name: View Current Proctoring Assignments
2. Participating Actors: TA
3. Entry Condition: TA should be logged in and click the “Current Proctoring Assignment” menu.
4. Exit Condition: The TA navigates away by selecting another option, such as "Schedule" or "Add Workload."
5. Flow of Events:
   - **5.1.** The TA selects the “Current Proctoring Assignment”
   - **5.2.** The system retrieves and displays the list of all proctoring assignments assigned to the TA. The proctoring assignments are ordered in chronological order, from the earliest upcoming exam to the latest future exam.
   - **5.3.** The system displays the following details for each assignment:
     - **5.3.1.** Course Name and Code
     - **5.3.2.** Exam Date and Time
     - **5.3.3.** Exam Location
     - **5.3.4.** Number of Assigned TAs for the exam
   - **5.4.** If the TA wants to see detailed information about a specific proctoring assignment, they can click on the assignment.
     - **5.4.1.** List of other assigned TAs for the same exam.
     - **5.4.2.** Exam type (e.g., Open Book, Closed Book, Computer-Based Exam).
     - **5.4.3.** 3.6.4. Any special notes from the course instructor or authorized staff.
   - **5.5.** The system provides an option to download or print the assignment details.
   - **5.6.** If the TA does not want to attend the assigned proctoring duty, they can select "Request Swap", which directs them to the Swap page.

Print Classroom Lists Alphabetically

1. Name: Print Classroom Lists Alphabetically
2. Participating Actors: Course Instructors and Authorized Staff
3. Entry Condition: The user selects the exam for which they wants to print the classroom list.

4. Exit Condition: The classroom list for the selected exam is printed alphabetically and the user can leave the section by navigating to other sections.
5. Flow of Events:
    - **5.1.** The user clicks the “Print Alphabetically” button to print the classroom list of the selected exam.
    - **5.2.** The system retrieves the student list for the selected exam and sorts the student list in alphabetical order.
    - **5.3.** The system provides a preview of the list before printing.
    - **5.4.** The user confirms the print request.
    - **5.5.** The system sends the list to the selected printer.
    - **5.6.** The class list for the selected exam is successfully printed alphabetically.

Print Classroom Lists Randomly

1. Name: Print Classroom Lists Randomly
2. Participating Actors: Course Instructors and Authorized Staff
3. Entry Condition: The user selects the exam for which they wants to print the classroom list.
4. Exit Condition: The classroom list for the selected exam is printed randomly and the user can leave the section by navigating to other sections.
5. Flow of Events:
    - **5.1.** The user clicks the “Print Randomly” button to print the classroom list of the selected exam.
    - **5.2.** The system retrieves the student list for the selected exam and The system shuffles the student list randomly.
    - **5.3.** The system provides a preview of the list before printing.
    - **5.4.** The user confirms the print request.
    - **5.5.** The system sends the list to the selected printer.
    - **5.6.** The class list for the selected exam is successfully printed randomly.

Modify Multi-Department Exam Assignment

1. Name: Modify Multi-Department Exam Assignment
2. Participating Actors: Authorized Staff, Dean’s Office
3. Entry Condition: The Dean’s Office or authorized staff must be logged into the system, navigate to the "Modify Multi-Department Exam Assignment" section, a multi-department exam must already be scheduled in the system.
4. Exit Condition: The user modifies and saves the exam details successfully or they exits the modification screen without making changes.
5. Flow of Events:
    - **5.1.** The authorized staff or Dean’s Office selects an existing multi-department exam from the list of scheduled exams.

5.2. The system displays the current exam details, such as course name and code, date, time, and duration, current proctor assignments, assigned classroom details, current chosen departments.

5.3. The user can modify the exam details.

5.3.1. They can select or deselect departments whose TAs will be pooled for proctoring assignments..

5.3.2. They can change exam date, time, or duration.

5.3.3. They can modify the classroom allocation for the exam.

5.3.4. They can reassign specific TAs.

5.3.5. The user can switch from manual TA assignment to automatic TA assignment and vice versa.

5.3.6. If the user selects automatic assignment, the system applies the automatic TA assignment logic to determine the most suitable proctors for the exam.

5.3.6.1. The system prioritizes TAs with the least total workload to ensure fair distribution and TAs from the same department.

5.3.6.2. It is ensured that TAs who do not have another proctoring assignment one day before or after are assigned first.

5.3.6.3. It is ensured that only PhD students are assigned as proctor to MS/PhD courses, prevents assigning TAs who are on leave, enrolled in the course, or have another exam at the same time.

5.3.6.4. Assigned TAs are displayed for approval; if approved, assignments are finalized; if rejected, the user can adjust or switch to manual mode.

5.3.7. If the user selects manual assignment,they can select TAs from a prioritized list, assigns them, and confirms.

5.4. After modifications are done, notifications will be sent.

Modify Single-Department Exam Assignment

1. Name: Modify Single-Department Exam Assignment

2. Participating Actors: Authorized Staff, Course Instructor

3. Entry Condition: The authorized staff or course instructor must be logged into the system, navigate to the "Modify Exam Assignment" section, and an existing single-department exam must already be existing.

4. Exit Condition: The user either modifies and saves the exam details successfully or exits the modification screen without making changes.

5. Flow of Events:

5.1. The user selects the exam which the changes will be applied.

5.2. The system displays the exam details.

5.3. The user can modify the exam details.

5.3.1. They can change exam date, time, or duration.

5.3.2. They can modify the classroom allocation for the exam.

5.3.3. They can reassign specific TAs.

5.3.4. The user can switch from manual TA assignment to automatic TA assignment and vice versa.

5.3.5. If the user selects automatic assignment, the system applies the automatic TA assignment logic to determine the most suitable proctors for the exam.

5.3.5.1. The system prioritizes TAs with the least total workload to ensure fair distribution and TAs from the same department.

5.3.5.2. It is ensured that TAs who do not have another proctoring assignment one day before or after are assigned first.

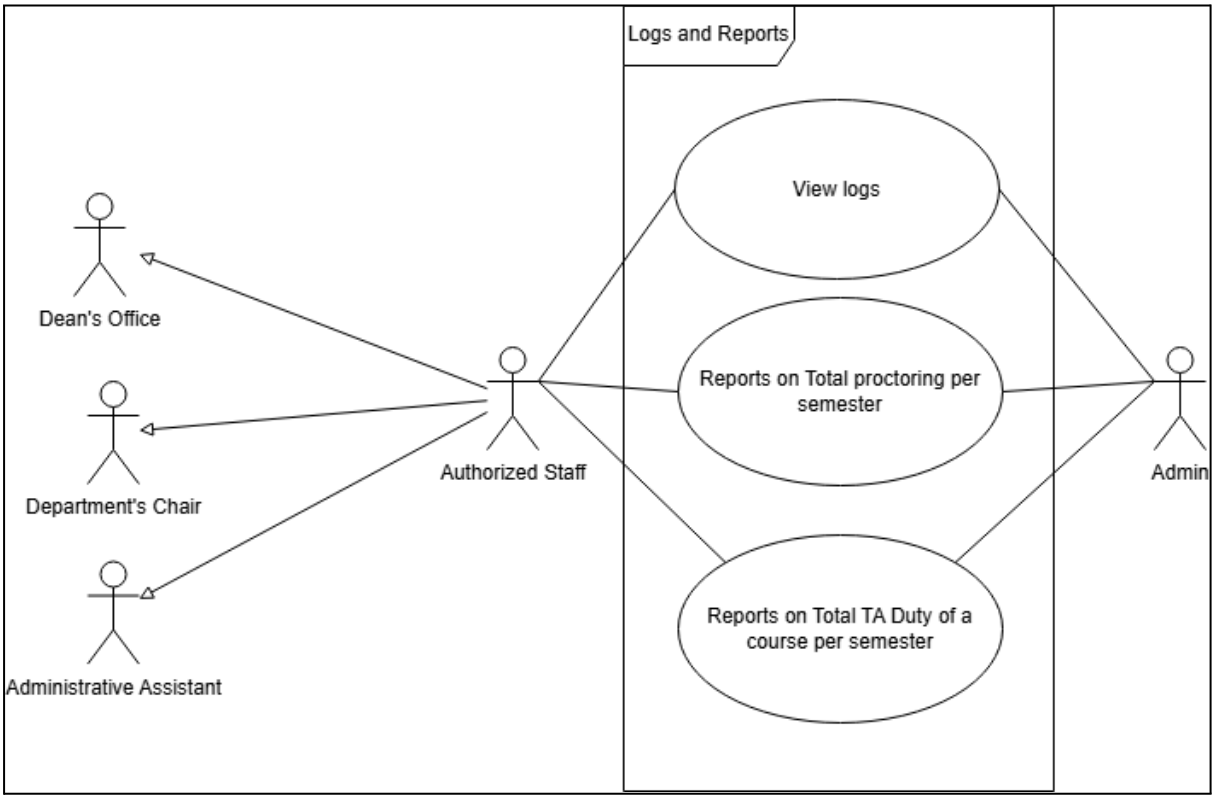
5.3.5.3. It is ensured that only PhD students are assigned as proctor to MS/PhD courses, prevents assigning TAs who are on leave, enrolled in the course, or have another exam at the same time.

5.3.5.4. Assigned TAs are displayed for approval; if approved, assignments are finalized; if rejected, the user can adjust or switch to manual mode.

5.3.6. If the user selects manual assignment,they can select TAs from a prioritized list, assigns them, and confirms.

5.4. After modifications are done, notifications will be sent

Logs and Reports Frame



Reports on Total Proctoring per Semester

1. Name: Reports on Total Proctoring per Semester
2. Participating Actors: Admin, Authorized Staff
3. Entry Condition: The user should be logged in and clicks the “Reports of Proctorings” button.
4. Exit Condition: The selected reports are displayed and the user can leave the section by navigating to other sections.
5. Flow of Events:
   - **5.1.** The user selects the type of report, either based on total proctorings per semester or based on specific TA’s proctorings.
   - **5.2.** If the user selects the report of total proctorings per semester:
     - **5.2.1.** The system retrieves and processes the total number of proctoring assignments per semester.
     - **5.2.2.** The report is displayed, including relevant statistics and details, TAs’ name and surnames, total proctorings, departments.
   - **5.3.** If user selects the report of proctoring assignments for a specific TA:
     - **5.3.1.** The system prompts the admin to select a TA from a list.
     - **5.3.2.** The system retrieves and displays the report for the selected TA, showing their assigned proctoring duties.
   - **5.4.** The user reviews the report and can choose to export, print, filter, refresh or navigate away.

5.4.1. The user can export the report and the system provides options to download the report in formats such as PDF, CSV, or Excel.

5.4.2. The user can print the report directly using the system's print function.

5.4.3. The user can apply filters such as semester, course, or department.

5.4.4. The user can request an updated report to reflect recent changes.

5.5. The user can leave the reports section and explore other areas of the system.

Reports on Total TA Duty of a Course per Semester

1. Name: Reports on Total TA Duty of a Course per Semester

2. Participating Actors: Admin, Authorized Staff

3. Entry Condition: The user should be logged in and clicks the "Reports of TA Duty" button.

4. Exit Condition: The selected reports are displayed and the user can leave the section by navigating to other sections.

5. Flow of Events:

5.1. The user selects the type of report, either based on total TA duty of a course per semester or based on specific TA's duty details.

5.2. If the user selects the report of total TA duty of a course per semester:

5.2.1. The system retrieves and processes the total TA duty of a course per semester.

5.2.2. The report is displayed, including course names, assigned TAs, total workload, and department details.

5.3. If the user selects the report of TA duty details for a specific TA:

5.3.1. The system prompts the admin to select a TA from a list.

5.3.2. The system retrieves and displays the report for the selected TA, showing their assigned duties across different courses.

5.4. The user reviews the report and can choose to export, print, filter, refresh or navigate away.

5.4.1. The user can export the report and the system provides options to download the report in formats such as PDF, CSV, or Excel.

5.4.2. The user can print the report directly using the system's print function.

5.4.3. The user can apply filters such as semester, course, or department.

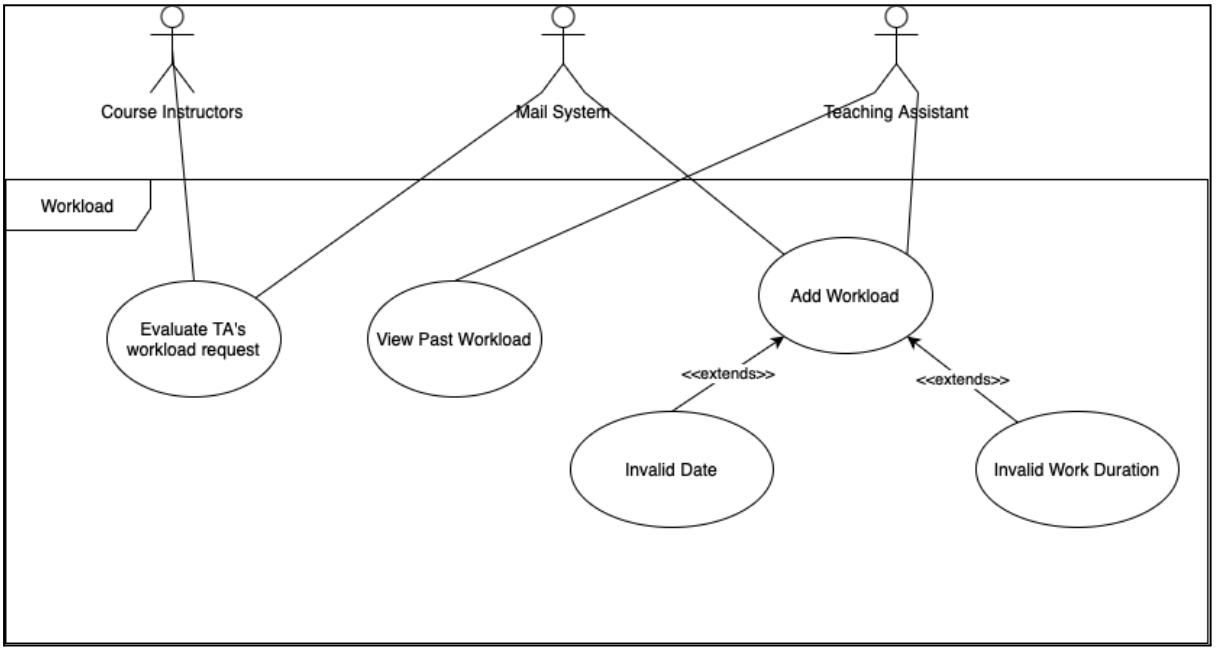
5.4.4. The user can request an updated report to reflect recent changes.

5.5. The user can leave the reports section and explore other areas of the system.

View Logs

1. Name: View Logs
2. Participating Actors: Admin, Authorized Staff
3. Entry Condition: User must be logged in and click on the “View Logs” section.
4. Exit Condition: The user navigates away.
5. Flow of Events:
    - **5.1.** The system retrieves and displays a list of logged activities, including: User logins and logs out, proctoring assignments and modifications, workload entries and approvals/rejections, proctor swaps and other relevant system actions.
    - **5.2.** The user selects the type of logs.
    - **5.3.** The user reviews the logs and can choose to export, filter, refresh, sort, search or navigate away.
        - **5.3.1.** The system provides options to download the logs in formats such as PDF, CSV, or Excel.
        - **5.3.2.** The user can apply filters such as date, action type, or user.
        - **5.3.3.** The user can request an updated view to reflect recent actions.
        - **5.3.4.** The user can sort logs based on time, user, or activity type.
        - **5.3.5.** The user can enter keywords to search for specific log entries.
    - **5.4.** The user exits the section or navigates to other parts of the system.

Workload Frame



Add Workload

1. Name: Add Workload
2. Participating Actors: Teaching Assistants
3. Entry Condition: The TA must be logged into the system and the TA selects the "Add Workload" option.
4. Exit Condition: TA's workload request is sent to the system.
5. Flow of Events:
   - **5.1.** TA selects the course among the ones he/she is assigned.
   - **5.2.** TA selects a task (Lab, Lab Preparation, Grading… etc.)
   - **5.3.** TA enters date/time.
   - **5.4.** TA enters the duration spent.
     - **5.4.1.** If date/time is invalid, the system will alert the user and say "Invalid Date".
   - **5.5.** TA clicks send and the TA's workload is sent to the instructor.
     - **5.5.1.** If the time spent is invalid, the system will alert the user and say "Invalid Work Duration".
   - **5.6.** An information mail is also sent to the instructor.

View Past Workload

1. Name: View Past Workload
2. Participating Actors: Teaching Assistants
3. Entry Condition: The TA must be logged into the system, navigate to the "Past Workload" part.
4. Exit Condition: The TA reviews the past workload records and either navigates away or logs out.

5. Flow of Events:

5.1. The system displays a list of past workload records including course name & code, task type (e.g., grading, lab assistance, office hours, date and duration of the task, approval status (Approved /Rejected /Pending).

5.2. If the TA hovers a specific workload entry, the system displays detailed information, including submission date, instructor who approved/ rejected it, reason for rejection (if applicable).

Evaluate TA's Workload Request

1. Name: Evaluate TA's Workload Request

2. Participating Actors: Course Instructors

3. Entry Condition: Instructor should be logged into the system, they should enter the "Workload Requests" section, and there should be at least one workload request

4. Exit Condition: They should accept or reject the request .

5. Flow of Events:

5.1. Course instructor sees all the workload requests, and selects one.

5.2. The instructor evaluates the request and decides to either approve or reject it.

5.3. If the instructor approves the request:

5.3.1. The system updates the TA's workload record accordingly.

5.3.2. The system notifies the TA of the approval.

5.4. If the instructor rejects the request:

5.4.1. The system prompts the instructor to provide a reason for rejection.

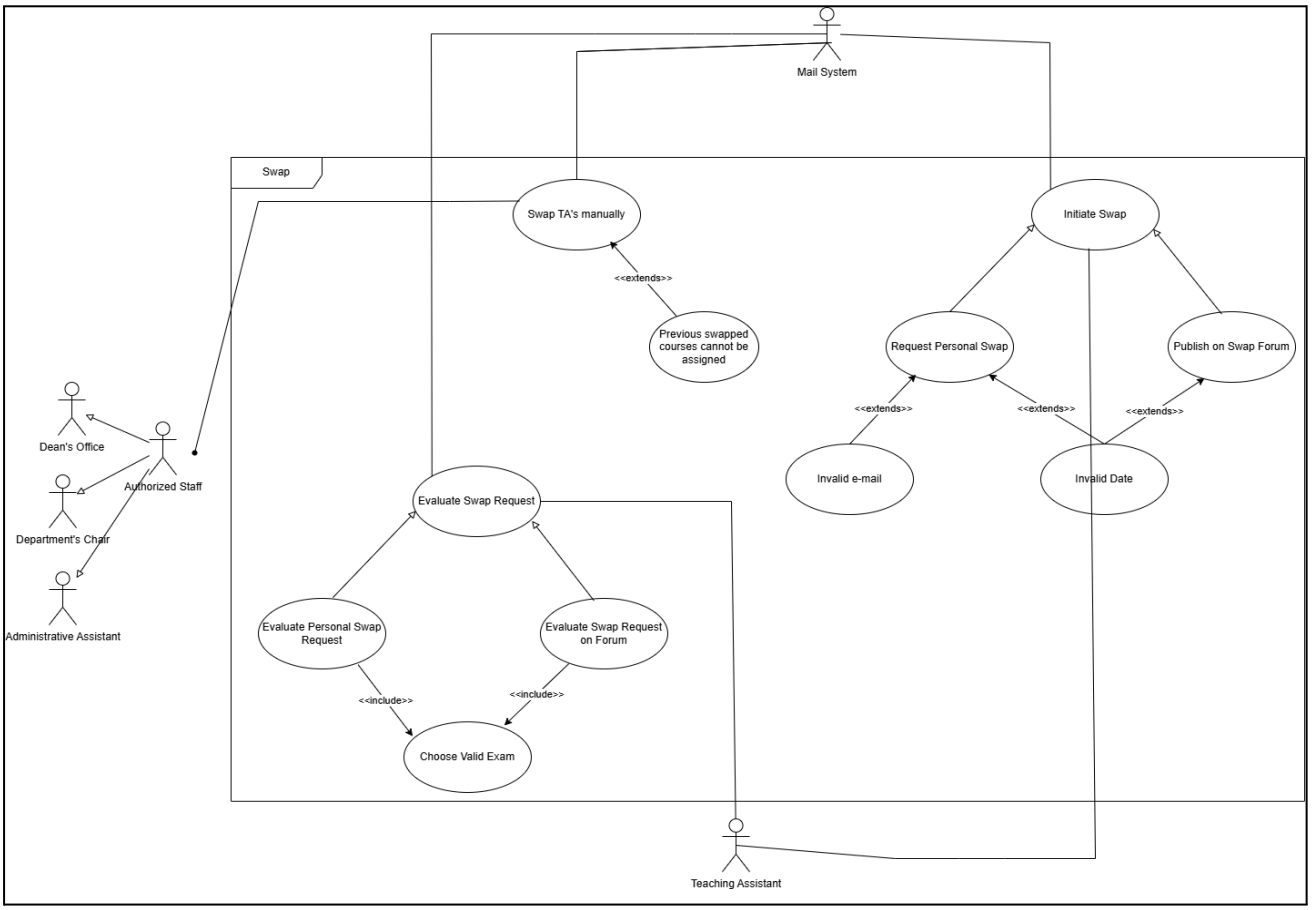
5.4.2. The system notifies the TA with the rejection reason.

5.5. The answer is saved to the system and following changes are done:

5.5.1. The system logs the decision for future reference.

5.5.2. The system updates the TA's workload record accordingly.

Swap Frame



Swap TA's Manually

1. Name: Swap TA's Manually
2. Participating Actors: Authorized Staff
3. Entry Condition: Authorized staff should log into the system.
4. Exit Condition:
   - **4.1.** The TA's are successfully swapped and get a notification.
   - **4.2.** Either or both TAs are already assigned to the selected exams, the swap is not executed, and the system alerts the authorized staff.
5. Flow of Events:
   - **5.1.** Authorized staff selects 2 exam slots and TA's to swap.
   - **5.2.** They confirm the swap by clicking "Submit."
   - **5.3.** If the TA's were previously assigned to the exams that the authorized staff chooses to assign:
     - **5.3.1.** The system checks if the selected TAs are already assigned to the new exams:
       - **5.3.1.1.** If they are, the system alerts the staff and prevents the swap.
       - **5.3.1.2.** If not, the system swaps the exams and notifies both TAs via email.

Request Personal Swap

1. Name: Request Personal Swap
2. Participating Actors: Teaching Assistants
3. Entry Condition: TA should log into the system and TA should write valid email and choose a valid date.
4. Exit Condition:
   - **4.1.** TA sends a request to another TA for swapping exams.
   - **4.2.** TA chooses an invalid email or date and the system issues a warning and does not proceed.
5. Flow of Events:
   - **5.1.** The TA enters the email of the TA they want to swap with.
   - **5.2.** The TA selects the exam and date they wish to swap.
     - **5.2.1.** If the email is invalid, the system displays an error message.
     - **5.2.2.** If the date is invalid, the system alerts the user.
     - **5.2.3.** If both are valid, the system sends a swap request to the specified TA for the selected date.

Publish on Swap Forum

1. Name: Publish on Swap Forum
2. Participating Actors: Teaching Assistants
3. Entry Condition: TA should log into the system.
4. Exit Condition:
   - **4.1.** A swap request is successfully published on the forum.
   - **4.2.** TA chooses an invalid date and the system alerts the TA and does not proceed.
5. Flow of Events:
   - **5.1.** TA enters the date that they want to swap with.
   - **5.2.** TA chooses the exam they want to swap.
   - **5.3.** The system checks the validity of the date:
     - **5.3.1.** If the date is invalid, the system tells the user.
     - **5.3.2.** If valid, the swap request is published on the forum for other TAs to see and respond to.

Evaluate Personal Swap Request

1. Name: Evaluate Personal Swap Request
2. Participating Actors: Teaching Assistants
3. Entry Condition:
   - **3.1.** The TA should log into the system.
   - **3.2.** The TA must have received at least one swap request.
4. Exit Condition:
   - **4.1.** TA either accepts or rejects a personal swap request.
   - **4.2.** TA does not have an exam on the requested date, he/she is prevented from accepting the request.
5. Flow of Events:
   - **5.1.** TA chooses the swap request.
   - **5.2.** TA chooses an exam on the request date if they have an exam.
   - **5.3.** If they click reject,

5.3.1. The swap does not proceed

5.4. If they click accept,

5.4.1. If TA has an exam on the requested date and selected an exam,

5.4.1.1. The system swaps the exams.

5.4.1.2. If not, the system alerts the user.

Evaluate Swap Request on Forum

1. Name: Evaluate Swap Request on Forum

2. Participating Actors: Teaching Assistants

3. Entry Condition: TA should log into the system.

4. Exit Condition:

4.1. TA either accepts or rejects a personal swap request.

4.2. TA does not have an exam on the requested date, he/she is prevented from accepting the request.

5. Flow of Events:

5.1. The TA selects a swap request from the forum.

5.2. If they click reject,

5.2.1. The swap does not proceed

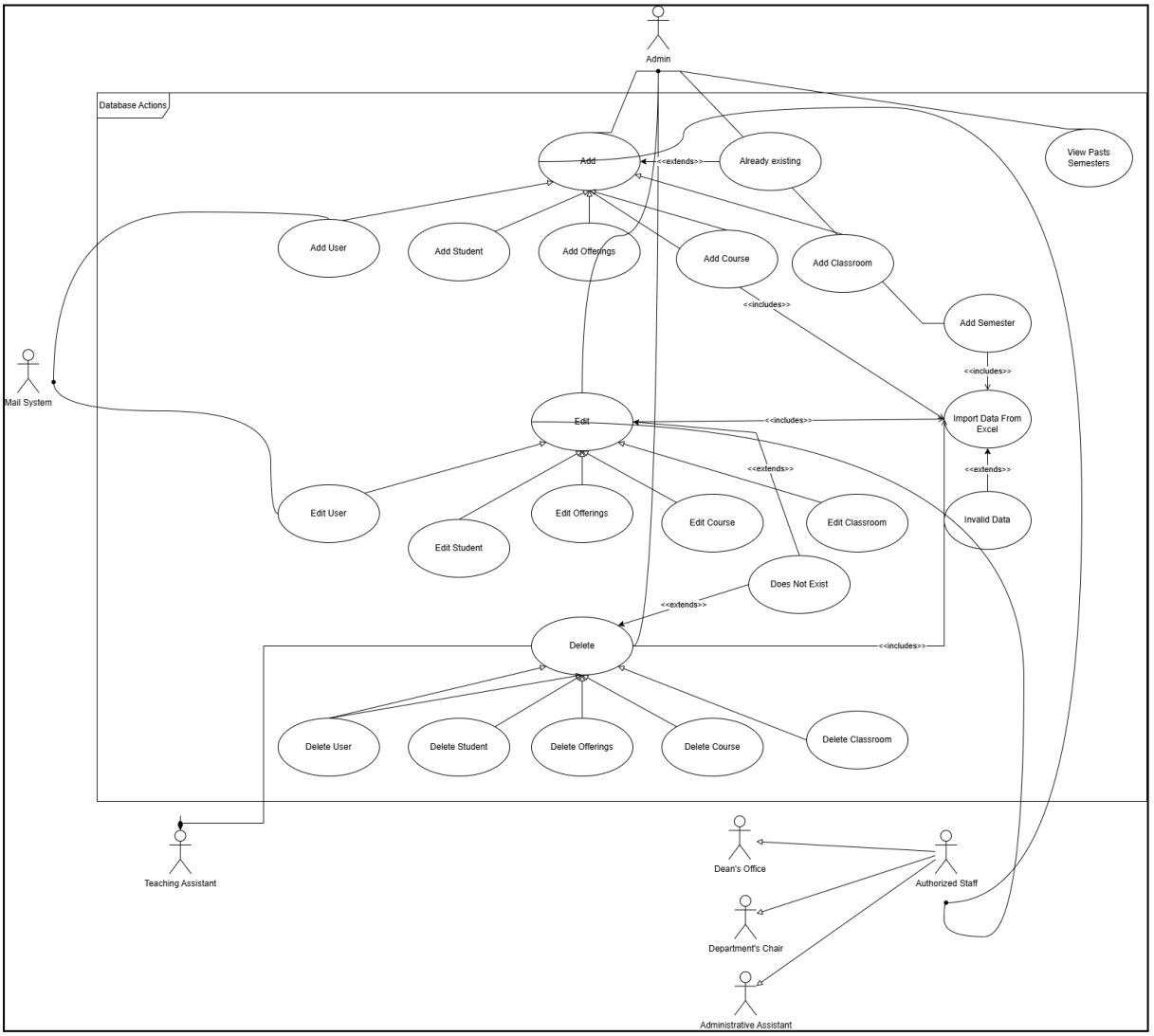
5.3. If they click accept,

5.3.1. If TA has an exam on the requested date and selected an exam,

5.3.1.1. The system swaps the exams.

5.3.1.2. If not, the system alerts the user.

Database Frame



Add User

1. Name: Add User
2. Participating Actors: Admin and Authorized Staff
3. Entry Condition: User must be logged into the system and the user should navigate to the "Add User" section.
4. Exit Condition:
   - **4.1.** The user is successfully added, and a confirmation message is displayed.
   - **4.2.** The system detects an existing user (extends "Already Exists") and prompts the user to enter different credentials.
   - **4.3.** The user cancels the process, and no changes are made.
5. Flow of Events:
   - **5.1.** The user selects the "Add User" option.
   - **5.2.** If the user selects the “Manual Entry” option:

5.2.1. The system displays a form requiring:
5.2.1.1. Full Name
5.2.1.2. Email Address
5.2.1.3. User Role (Admin, Instructor, TA, Student)
5.2.1.4. Department
5.2.1.5. ID

5.2.2. The user enters the details and submits the form.

5.2.3. The system checks if the submitted form is well formatted and proper.

5.2.4. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.3. If the user selects the “Upload File” option:

5.3.1. The system displays an interface and the user uploads an Excel/CSV file.

5.3.2. System checks if the entered data are well formatted and proper without conflict.

5.3.3. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.4. The system checks for duplicate users by emails or IDs (extends "Already Exists") and validates required fields.

5.5. If valid, the system creates the user and sends a confirmation message.

5.6. If not valid, the system provides an error report which shows where the error occurs in the file.

Add Student

1. Name: Add Student

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition: User must be logged into the system and user should navigate to the "Add Student" section.

4. Exit Condition:

4.1. The classroom is successfully added, and a confirmation message is displayed.

4.2. The system detects an existing classroom (extends "Already Exists") and prompts the user to enter different details.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Add Student" option.

5.2. If the user selects the “Manual Entry” option:

5.2.1. The system displays a form requiring:

5.2.1.1. Full Name

5.2.1.2. Student ID

5.2.1.3. Email Address

5.2.1.4. Department
5.2.1.5. Lessons they take

5.2.2. The user enters the details and submits the form.
5.2.3. The system checks if the submitted form is well formatted and proper.
5.2.4. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.3. If the user selects the “Upload File” option:
5.3.1. The system displays an interface and the user uploads an Excel/CSV file.
5.3.2. System checks if the entered data are well formatted and proper without conflict.
5.3.3. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.4. The system checks for duplicate students by emails or IDs (extends "Already Exists") and validates required fields.
5.5. If valid, the system creates the students and sends a confirmation message.
5.6. If not valid, the system provides an error report which shows where the error occurs in the file.

Add Offerings

1. Name: Add Offerings
2. Participating Actors: Admin and Authorized Staff
3. Entry Condition: User must be logged into the system and the user should navigate to the "Add Offerings" section.
4. Exit Condition:
4.1. The course offering is successfully added, and a confirmation message is displayed.
4.2. The system detects an existing offering (extends "Already Exists") and prompts the user to enter different details.
4.3. The user cancels the process, and no changes are made.

5. Flow of Events:
5.1. The user selects the "Add Course Offering" option.
5.2. If the user selects the “Manual Entry” option:
5.2.1. The system displays a form requiring details such as:
5.2.1.1. Course Code and Name
5.2.1.2. Instructor(s) Assigned
5.2.1.3. Semester and Year
5.2.1.4. Section Number
5.2.1.5. Number of Students
5.2.1.6. Section Time

5.2.2. The user enters the details and submits the form.

5.2.3. The system checks if the submitted form is well formatted and proper.

5.2.4. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.3. If the user selects the “Upload File” option:

5.3.1. The system displays an interface and the user uploads an Excel/CSV file.

5.3.2. System checks if the entered data are well formatted and proper without conflict.

5.3.3. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.4. The system validates the provided data:

5.4.1. Ensures the course exists in the catalog.

5.4.2. Checks if the section number is unique within the semester.

5.4.3. Ensures that an instructor is assigned.

5.5. If the data is valid, the system creates the course offering.

5.6. The system updates the instructor’s and students’ records accordingly.

5.7. A confirmation message is displayed, and the offering is added to the semester schedule.

Add Course

1. Name: Add Course

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition: User must be logged into the system and the user should navigate to the "Add Course" section.

4. Exit Condition:

4.1. The course is successfully added, and a confirmation message is displayed.

4.2. The system detects an existing course (extends "Already Exists") and prompts the user to modify the details.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Add Course" option.

5.2. If the user selects the “Manual Entry” option:

5.2.1. The system displays a form requiring details such as:

5.2.1.1. Course Code

5.2.1.2. Course Name

5.2.1.3. Department

5.2.1.4. Credit

5.2.1.5. Course Level (Undergraduate/Graduate)

5.2.1.6. Number of Lab Hours

5.2.2. The user enters the details and submits the form.

5.2.3. The system checks if the submitted form is well formatted and proper.

5.2.4. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.3. If the user selects the “Upload File” option:

5.3.1. The user uploads an Excel/CSV file.

5.3.2. System checks if the entered data are well formatted and proper without conflict.

5.3.3. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.4. The system validates the provided data:

5.4.1. Ensures the course code is unique (extends "Already Exists" if found).

5.4.2. Checks if all required fields are filled.

5.5. If the data is valid, the system adds the course to the catalog.

5.6. A confirmation message is displayed, and the course is available for future offerings.

Add Classroom

1. Name: Add Classroom

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition: User must be logged into the system and the user should navigate to the "Add Classroom" section.

4. Exit Condition:

4.1. The classroom is successfully added, and a confirmation message is displayed.

4.2. The system detects an existing classroom (extends "Already Exists") and prompts the user to enter different details.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Add Classroom" option.

5.2. If the user selects the “Manual Entry” option:

5.2.1. The system displays a form requiring:

5.2.1.1. Classroom Name/ID

5.2.1.2. Building

5.2.1.3. Capacity

5.2.1.4. Exam Seating Capacity

5.2.2. The user enters the details and submits the form.

5.2.3. The system checks if the submitted form is well formatted and proper.

5.2.4. If errors exist, the system provides an error report which shows where the error occurs in the file.

5.3. If the user selects the “Upload File” option:
- **5.3.1.** The system displays a form requiring:
  - **5.3.1.1.** Classroom Name/ID
  - **5.3.1.2.** Building
  - **5.3.1.3.** Capacity
  - **5.3.1.4.** Exam Seating Capacity
- **5.3.2.** System checks if the entered data are well formatted and proper without conflict.
- **5.3.3.** If errors exist, the system provides an error report which shows where the error occurs in the file.

5.4. The system validates the provided data:
- **5.4.1.** Ensures the classroom ID is unique (extends "Already Exists" if found).
- **5.4.2.** Checks if the capacity is a valid number.

5.5. If the data is valid, the system adds the classroom to the database.

5.6. A confirmation message is displayed, and the classroom is available for scheduling.

Edit User

1. Name: Edit User

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition:
- **3.1.** User must be logged into the system and the user should navigate to the "Edit User" section.
- **3.2.** There should be at least one user before.

4. Exit Condition:
- **4.1.** The user details are successfully updated, and a confirmation message is displayed.
- **4.2.** Given details are not suitable, and prompts the user to enter different details.
- **4.3.** The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Edit User" option.

5.2. If the user selects the “Manual Entry” option:
- **5.2.1.** User searches for an existing user by name, email, or ID.
- **5.2.2.** The system retrieves and displays the user’s current information in an editable form if the user exists.
- **5.2.3.** The user modifies the details.
- **5.2.4.** The system checks if the submitted form is well formatted and valid.

5.3. If the user selects the “Upload File” option:
- **5.3.1.** User uploads an Excel/CSV file containing user updates.
- **5.3.2.** The system retrieves and checks if all required data is available, and also checks if the file contains valid formating.

5.4. The system validates the changes:
- **5.4.1.** Ensures the email or ID remains unique if modified.
- **5.4.2.** Prevents changing a role that violates system policies.

5.5. If the validation is successful, the system updates the user's information.

5.6. A confirmation message is displayed, and the changes are reflected in the system.

Edit Student

1. Name: Edit Student
2. Participating Actors: Admin and Authorized Staff
3. Entry Condition:
   - **3.1.** User must be logged into the system and the user should navigate to the "Edit Student" section.
   - **3.2.** There should be at least student user before.
4. Exit Condition:
   - **4.1.** The student details are successfully updated, and a confirmation message is displayed.
   - **4.2.** Given details are not suitable, and prompts the user to enter different details.
   - **4.3.** The user cancels the process, and no changes are made.
5. Flow of Events:
   - **5.1.** The user selects the "Edit Student" option.
   - **5.2.** If the user selects the "Manual Entry" option:
     - **5.2.1.** User searches for an existing student by name, email, or ID.
     - **5.2.2.** The system retrieves and displays the student's current information in an editable form if the student exists.
     - **5.2.3.** The user modifies the details.
     - **5.2.4.** The system checks if the submitted form is well formatted and valid.
   - **5.3.** If the user selects the "Upload File" option:
     - **5.3.1.** User uploads an Excel/CSV file containing student updates.
     - **5.3.2.** The system retrieves and checks if all required data is available, and also checks if the file contains valid formating.
   - **5.4.** The system validates the changes:
     - **5.4.1.** Ensures the email or ID remains unique if modified.
   - **5.5.** If the validation is successful, the system updates the student's information.
   - **5.6.** A confirmation message is displayed, and the changes are reflected in the system.

Edit Offerings

1. Name: Edit Offerings
2. Participating Actors: Admin and Authorized Staff
3. Entry Condition:
   - **3.1.** User must be logged into the system and the user should navigate to the "Edit Offerings" section.
   - **3.2.** There should be at least one offerings before.
4. Exit Condition:
   - **4.1.** The offerings details are successfully updated, and a confirmation message is displayed.
   - **4.2.** Given details are not suitable, and prompts the user to enter different details.
   - **4.3.** The user cancels the process, and no changes are made.
5. Flow of Events:
   - **5.1.** The user selects the "Edit Offerings" option.
   - **5.2.** If the user selects the “Manual Entry” option:
     - **5.2.1.** User searches for an existing offering by class name and section name.
     - **5.2.2.** The user modifies the details.
     - **5.2.3.** The system checks if the submitted form is well formatted and valid.
   - **5.3.** If the user selects the “Upload File” option:
     - **5.3.1.** User uploads an Excel/CSV file containing offerings updates.
     - **5.3.2.** The system retrieves and checks if all required data is available, and also checks if the file contains valid formating.
   - **5.4.** The system ensures the offerings remain unique if modified.
   - **5.5.** If the validation is successful, the system updates the offerings' information.
   - **5.6.** A confirmation message is displayed, and the changes are reflected in the system.

Edit Course

1. Name: Edit Course
2. Participating Actors: Admin and Authorized Staff
3. Entry Condition:
   - **3.1.** User must be logged into the system and the user should navigate to the "Edit Course" section.
   - **3.2.** There should be at least one course before.
4. Exit Condition:
   - **4.1.** The course details are successfully updated, and a confirmation message is displayed.

4.2. Given details are not suitable, and prompts the user to enter different details.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Edit Course" option.

5.2. If the user selects the “Manual Entry” option:

5.2.1. User searches for an existing course by department name, and course ID.

5.2.2. The user modifies the details.

5.2.3. The system checks if the submitted form is well formatted and valid.

5.3. If the user selects the “Upload File” option:

5.3.1. User uploads an Excel/CSV file containing course updates.

5.3.2. The system retrieves and checks if all required data is available, and also checks if the file contains valid formating.

5.4. The system ensures the course department and course ID remains unique if modified.

5.5. If the validation is successful, the system updates the courses’’ information.

5.6. A confirmation message is displayed, and the changes are reflected in the system.

Edit Classroom

1. Name: Edit Classroom

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition:

3.1. User must be logged into the system and the user should navigate to the "Edit Classroom" section.

3.2. There should be at least one classroom before.

4. Exit Condition:

4.1. The classroom details are successfully updated, and a confirmation message is displayed.

4.2. Given details are not suitable, and prompts the user to enter different details.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Edit Classroom" option.

5.2. If the user selects the “Manual Entry” option:

5.2.1. User searches for an existing classroom by building name and classroom ID.

5.2.2. The system retrieves and displays the classroom’s current information in an editable form if the classroom exists.

5.2.3. The user modifies the details.

5.2.4. The system checks if the submitted form is well formatted and valid.

5.3. If the user selects the “Upload File” option:

5.3.1. User uploads an Excel/CSV file containing user updates.

5.3.2. The system retrieves and checks if all required data is available, and also checks if the file contains valid formating.

5.4. The system ensures the building name and classroom ID remains unique if modified.

5.5. If the validation is successful, the system updates the user’s information.

5.6. A confirmation message is displayed, and the changes are reflected in the system.

Delete User

1. Name: Delete User

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition:

3.1. User must be logged into the system and the user should navigate to the "Delete User" section.

3.2. There should be at least one user before.

4. Exit Condition:

4.1. The user is successfully deleted, and a confirmation message is displayed.

4.2. The system prevents deletion if the user has active roles, assignments, or dependencies.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Delete User" option.

5.2. If the user selects the “Manual Entry” option:

5.2.1. User searches for an existing user by name, email, or ID.

5.2.2. The system retrieves and displays the user’s current information if available.

5.3. If the user selects the “Upload File” option:

5.3.1. User uploads an Excel/CSV file containing deleting user.

5.3.2. The system retrieves and checks if all required data is available.

5.3.3. The system displays the user’s current information if available.

5.4. The system checks for dependencies, including:

5.4.1. If the user is an instructor assigned to active courses, deletion is restricted.

5.4.2. If the user is a TA assigned to ongoing exams, deletion is restricted.

5.4.3. If the user has admin privileges, deletion is restricted unless reassigned.

5.5. If the user has dependencies, the system displays the appropriate error message.

5.6. If there are no dependencies, the system displays a confirmation prompt to ensure the user wants to delete.

5.7. The system deletes the user.

Delete Student

1. Name: Delete Student
2. Participating Actors: Admin and Authorized Staff
3. Entry Condition:
   - **3.1.** User must be logged into the system and the user should navigate to the "Delete Student" section.
   - **3.2.** There should be at least one student before.
4. Exit Condition:
   - **4.1.** The student is successfully deleted, and a confirmation message is displayed.
   - **4.2.** The user cancels the process, and no changes are made.
5. Flow of Events:
   - **5.1.** The user selects the "Delete Student" option.
   - **5.2.** If the user selects the “Manual Entry” option:
     - **5.2.1.** User searches for an existing student by name, email, or ID.
     - **5.2.2.** The system retrieves and displays the student’s current information if available.
   - **5.3.** If the user selects the “Upload File” option:
     - **5.3.1.** User uploads an Excel/CSV file containing deleting students.
     - **5.3.2.** The system retrieves and checks if all required data is available.
     - **5.3.3.** The system displays the students’ current information if available.
   - **5.4.** System displays a confirmation prompt to ensure the user wants to delete.
   - **5.5.** The system deletes the user.

Delete Offerings

1. Name: Delete Offerings
2. Participating Actors: Admin and Authorized Staff
3. Entry Condition:
   - **3.1.** User must be logged into the system and the user should navigate to the "Delete Offerings" section.

3.2. There should be at least one offering before.

4. Exit Condition:

4.1. The offerings are successfully deleted, and a confirmation message is displayed.

4.2. The system prevents deletion if students are enrolled or exams are scheduled.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Delete Offerings" option.

5.2. If the user selects the “Manual Entry” option:

5.2.1. User searches for existing offerings.

5.2.2. The system retrieves and displays the offerings information if available.

5.3. If the user selects the “Upload File” option:

5.3.1. User uploads an Excel/CSV file containing deleting .

5.3.2. The system retrieves and checks if all required data is available.

5.3.3. The system displays the offerings’ current information if available.

5.4. The system checks for dependencies, including:

5.4.1. If students are enrolled, deletion is restricted.

5.4.2. If exams are scheduled, deletion is restricted.

5.5. If the offering has dependencies, the system displays the appropriate error message.

5.6. If there are no dependencies, the system displays a confirmation prompt to ensure the user wants to delete.

5.7. The system deletes the offering.

Delete Course

1. Name: Delete Course

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition:

3.1. User must be logged into the system and the user should navigate to the "Delete Course" section.

3.2. There should be at least one course before.

4. Exit Condition:

4.1. The course is successfully deleted, and a confirmation message is displayed.

4.2. The system prevents deletion if active offerings or students are enrolled in the course.

4.3. The user cancels the process, and no changes are made.

5. Flow of Events:

5.1. The user selects the "Delete Course" option.

5.2. If the user selects the “Manual Entry” option:
- **5.2.1.** User searches for existing courses.
- **5.2.2.** The system retrieves and displays the course informations if available.

5.3. If the user selects the “Upload File” option:
- **5.3.1.** User uploads an Excel/CSV file containing deleting .
- **5.3.2.** The system retrieves and checks if all required data is available.
- **5.3.3.** The system displays the courses’ current information if available.

5.4. The system checks for dependencies, including:
- **5.4.1.** If active offerings exist, deletion is restricted.
- **5.4.2.** If students are enrolled, deletion is restricted.

5.5. If the course has dependencies, the system displays the appropriate error message.

5.6. If there are no dependencies, the system displays a confirmation prompt to ensure the user wants to delete.

5.7. The system deletes the course.

Delete Classroom

1. Name: Delete Classroom

2. Participating Actors: Admin and Authorized Staff

3. Entry Condition:
- **3.1.** User must be logged into the system and the user should navigate to the "Delete Classroom" section.
- **3.2.** There should be at least one classroom before.

4. Exit Condition:
- **4.1.** The classroom is successfully deleted, and a confirmation message is displayed.
- **4.2.** The system prevents deletion if the classroom is assigned to active courses or exams.
- **4.3.** The user cancels the process, and no changes are made.

5. Flow of Events:
- **5.1.** The user selects the "Delete Classroom" option.
- **5.2.** If the user selects the “Manual Entry” option:
  - **5.2.1.** User searches for existing classrooms.
  - **5.2.2.** The system retrieves and displays the classroom information if available.
- **5.3.** If the user selects the “Upload File” option:
  - **5.3.1.** User uploads an Excel/CSV file containing deleting .
  - **5.3.2.** The system retrieves and checks if all required data is available.
  - **5.3.3.** The system displays the classroom’ current information if available.

5.4. The system checks for dependencies, including:
    5.4.1. If the classroom is assigned to active courses or exams, deletion is restricted.
5.5. If the classroom has dependencies, the system displays the appropriate error message.
5.6. If there are no dependencies, the system displays a confirmation prompt to ensure the user wants to delete.
5.7. The system deletes the classroom.

Add Semester

1. Name: Add Semester
2. Participating Actors: Admin
3. Entry Condition: User must be logged into the system and user should navigate to the "Add a New Semester" section.
4. Exit Condition:
    4.1. A new semester is added successfully.
    4.2. The user cancels the operation, and no changes are made.
5. Flow of Events:
    5.1. The user enters the necessary data into form:
        5.1.1. New Semester Name
        5.1.2. Start date, and end date.
    5.2. The user imports a file including offerings data: class names, which classroom they are in, capacity for the classroom, how many sections available, who is the instructor etc.
    5.3. The system validates the semester details to ensure they do not overlap.
    5.4. If validation passes, the system creates the semester successfully.
    5.5. If validation fails, a message is displayed which describes the error.

View Past Semesters

1. Name: View Past Semesters
2. Participating Actors: Admin
3. Entry Condition: The user must be logged into the system and the user must navigate to the "View Past Semesters" section.
4. Exit Condition:
    4.1. The user successfully views the past semester records and navigates away.
    4.2. The user exits the section without making selections.
5. Flow of Events:
        5.1. User selects the “View past Semesters” button.

5.2. The system retrieves and displays a list of past semester reports, including:

5.2.1. Semester Name

5.2.2. Start and End Dates

5.2.3. Reports on Total Proctoring per Semester

5.2.4. Reports on Total TA Duty of a Course per Semester

5.3. The admin can export the semester details as a report.

3. Tech Stack:

We will use the following technologies:

1. Node.js
2. Express.js
3. React.js
4. MySQL

Node.js:

Node.js is a JavaScript runtime that allows executing code outside the browser. It is efficient for handling asynchronous operations and scalable server-side applications. We use Node.js to manage backend logic and real-time processing.

Express.js:

Express.js is a lightweight web framework for Node.js that simplifies API development by handling routing, middleware, and HTTP requests. We use it to create a backend for our system.

React.js:

React.js is a JavaScript library for building interactive user interfaces and dynamic web pages.

MySQL:

MySQL is a relational database management system that’s used to store and manage data. It allows us to handle data storage, integrity, and security.