

# **CS 319 - Object-Oriented Software Engineering**

# **Deliverable 2**

Spring 2025

# **Team 12**

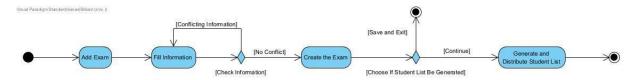
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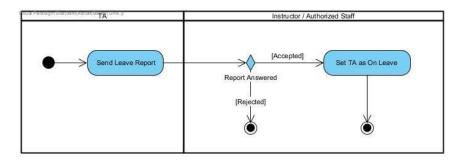
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### 1. ACTIVITY DIAGRAMS

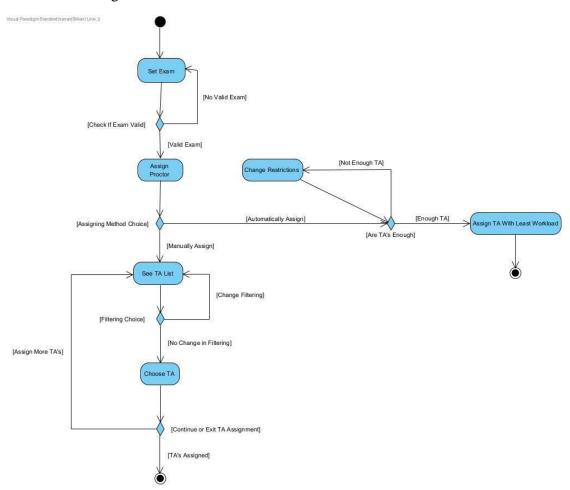
# 1.1 Exam Management



## 1.2 TA Leave Form

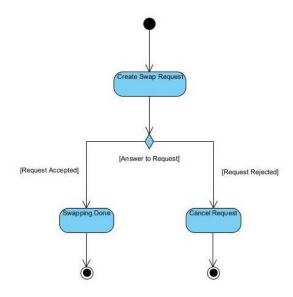


# 1.3 Proctor Assignment

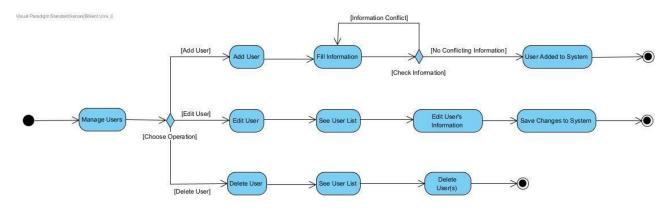


# 1.4 Proctor Swapping by Instructor Choose TA to Be Replaced Find Available TA [Choose TA Automatic] [Automatic or Manual Swapping] [Swapping is Not Possible for Chosen TA's] [Choose TA Manually] See TA List [No TAs Found] [Is TA Found] [If Swapping Possible] [Change Filtering Options] [Change Filtering] [TA Found] No TA to Select [Filtering Options Choice] [No Change In Filtering]

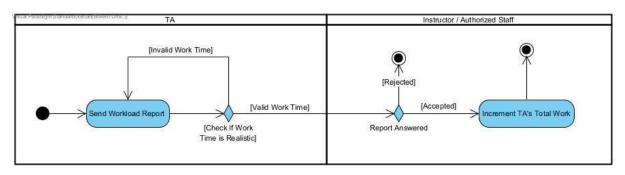
# 1.5 Proctor Swapping by Proctors



# 1.6 User Management

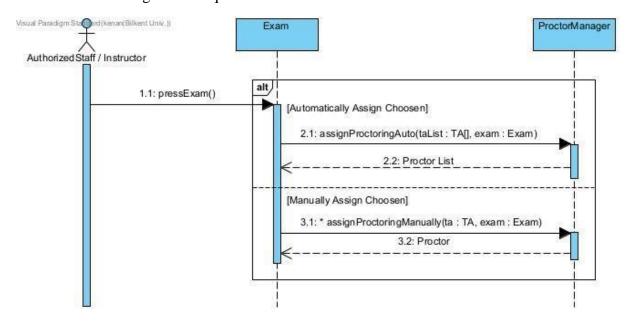


# 1.7 Workload Report Form

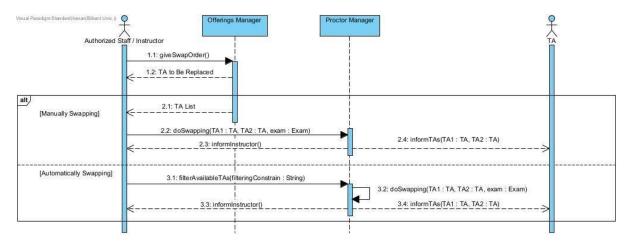


## 2. SEQUENCE DIAGRAMS

# 2.1 Proctor Assignment Sequence

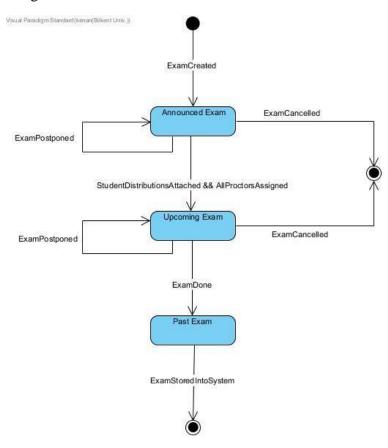


# 2.2 Proctor Swapping Sequence

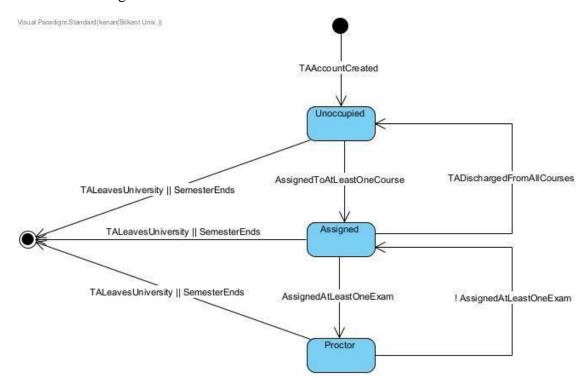


## 3. STATE DIAGRAMS

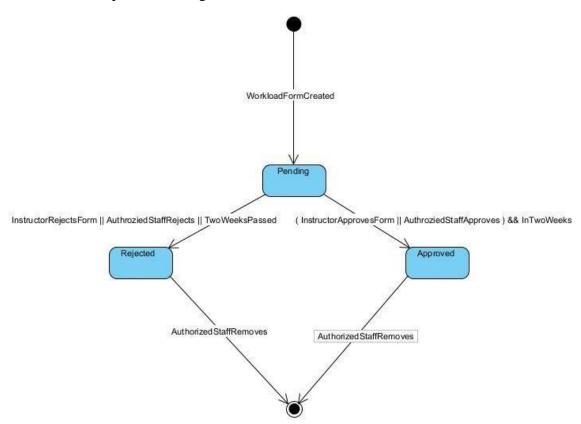
# 3.1 Exam State Diagram



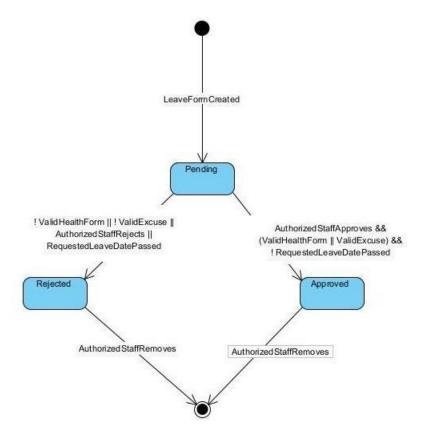
# 3.2 TA State Diagram



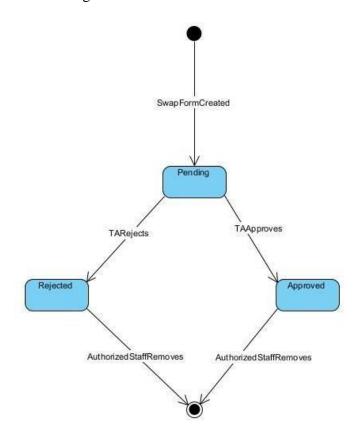
# 3.3 Workload Report State Diagram



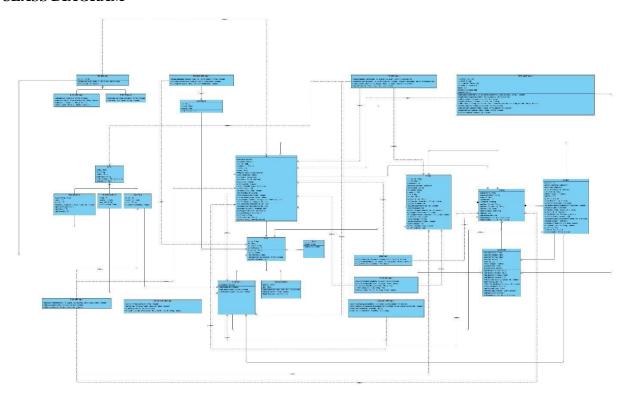
# 3.4 Leave Form State Diagram



# 3.5 Swapping Form State Diagram



# 4. CLASS DIAGRAM



#### 5. NON-FUNCTIONAL REQUIREMENTS

#### **Quality Requirements:**

#### **Usability:**

- •The system should provide a **clear and structured UI**, allowing users to **navigate easily** (i.e., complete key tasks in under 3 interactions) between functionalities such as "Workload," "Notifications," and "Settings."
- •Key actions (logging workload, requesting leave, checking assignments) should be accessible within 3 clicks from the main dashboard, ensuring a smooth user experience.
- •The **menu layout should be responsive**, ensuring that options like "Proctoring" and "Course Assisting" are easily clickable across **different screen sizes**, including:
  - Desktop (1280x720+)
  - Tablet (600x800+)
  - Mobile (320x480+)

#### Reliability:

- •The system should store TA workload, assignments, and notifications reliably, by:
- Performing automatic daily backups
- •Using transactional database operations
- •Implementing redundancy in data storage
- •Ensuring recovery is possible within 30 minutes in case of failure
- •Session management: Users should be automatically logged out after 15 minutes of inactivity for security purposes.
- •A graceful error handling mechanism should notify users of any issues (e.g., failed workload entry, network errors) with clear, actionable messages, such as "Check your internet connection and try again."

#### **Performance:**

- •The backend system should efficiently handle 100+ concurrent requests from users including TAs, instructors, and administrative staff, ensuring responsiveness even during peak activity periods such as course assignment deadlines or exam weeks.
- •The system should support scalable performance, making it usable not only for a small group but for all teaching assistants and academic personnel across the entire engineering faculty, regardless of department or course load.
- •Actions such as logging a workload entry, submitting a leave request, or updating assignment status should receive confirmation within **under 2 seconds** under normal operating conditions.
- •The infrastructure should be designed to **scale horizontally**, so that future expansions (e.g., integrating other faculties or departments) can be achieved without a major system overhaul.
- •This level of performance ensures that **every engineer in our school**—from first-year course assistants to graduate-level TAs—can actively track, manage, and optimize their workload, helping both academic efficiency and personal time management.

#### **Constraints or Pseudo Requirements:**

#### **Implementation:**

- •The system must be **compatible with modern web browsers**, including:
  - Chrome (117.0+)
  - Firefox (122+)
  - Safari (15+)
  - Microsoft Edge (latest versions)
- •The design should be fully responsive, adapting to:
  - Desktop (1280x720+)
  - Tablets (600x800+)
  - Mobile (320x480+)
- •Frontend: React.js for a dynamic UI.
- •Backend: Django (Python) for handling authentication, workload processing, and notifications.
- •Database: MySQL for storing TA workload, course assignments, and logs.
- •Web Server: Apache2 on Linux (Ubuntu).

#### **Security & Compliance:**

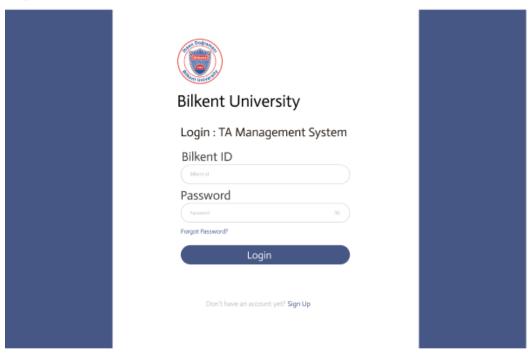
- •Role-Based Access Control (RBAC): Ensure that only authorized users (TAs, instructors, admins) can access specific functionalities.
- •Data Privacy & GDPR Compliance: Users must be able to:
  - •View a cookie consent banner before non-essential cookies are stored.
- •Data Encryption: Store sensitive information (TA contact details, login credentials) using industry-standard encryption.

#### **Enhancements Based on Wireframe:**

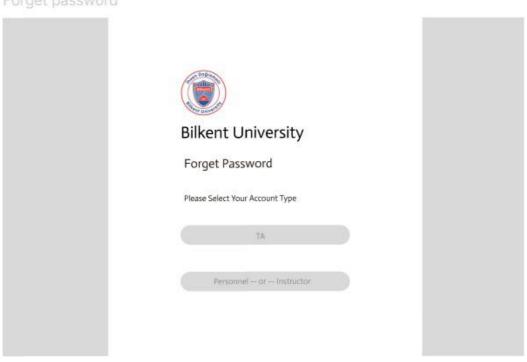
- •Left Sidebar: Ensure that the sidebar (profile details, settings, logout) is accessible on all screens without excessive scrolling.
- •Top Navigation Buttons: Ensure buttons like "Home," "Workload," and "Notifications" are prominently visible and Clickable.

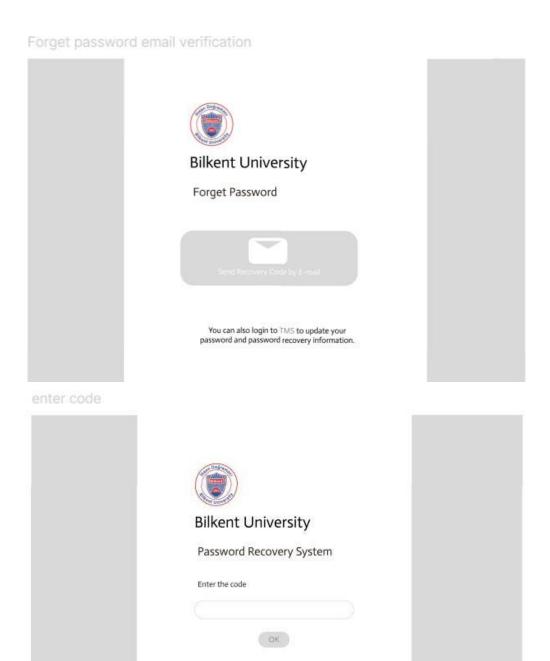
#### 6. MOCK-UP

### Login

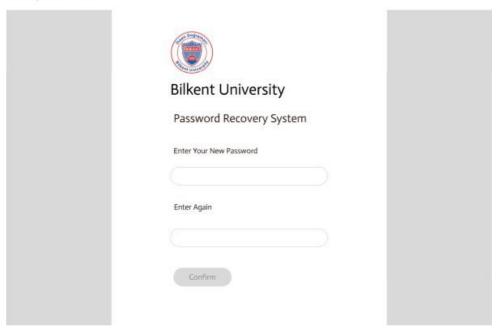


# Forget password





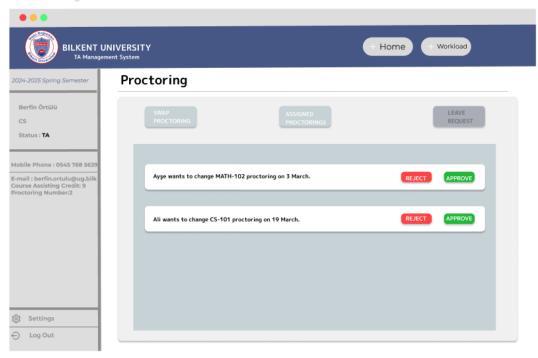
#### new password



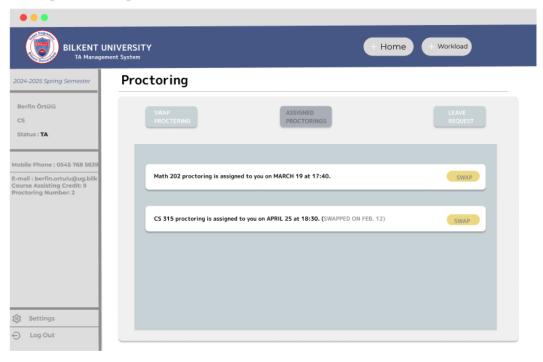
# TA MAIN PAGE



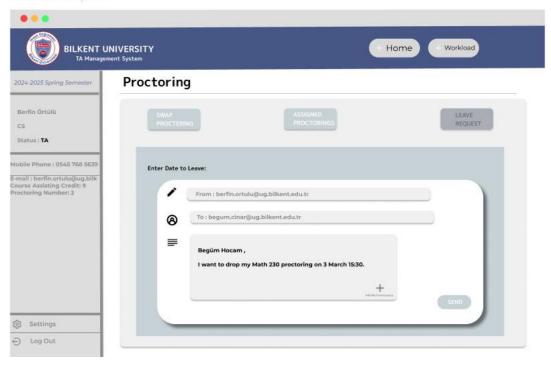
### TA Proctoring



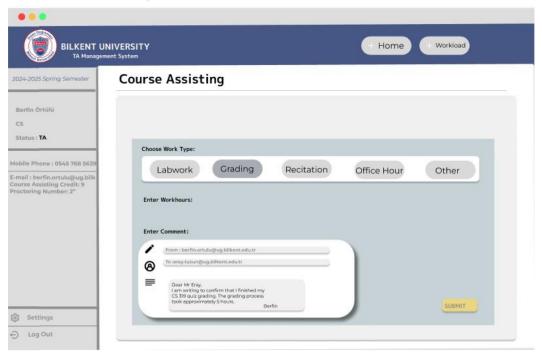
#### **TA Assigned Proctorings**



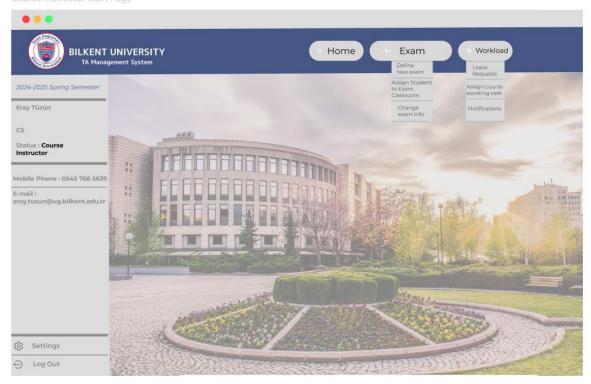
#### TA Leave Request



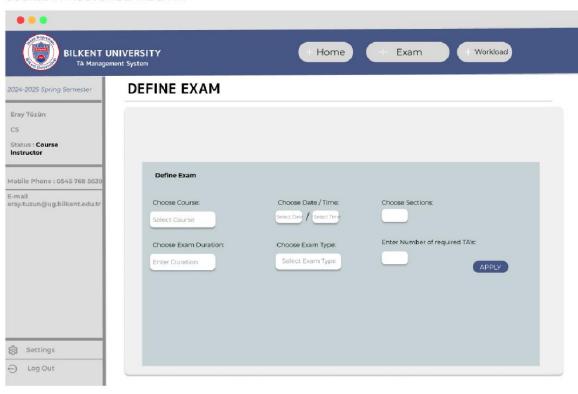
#### TA Submit Course Assisting Task



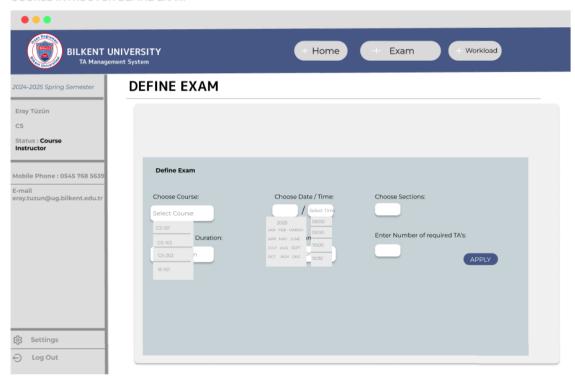
Course Instructor Main Page



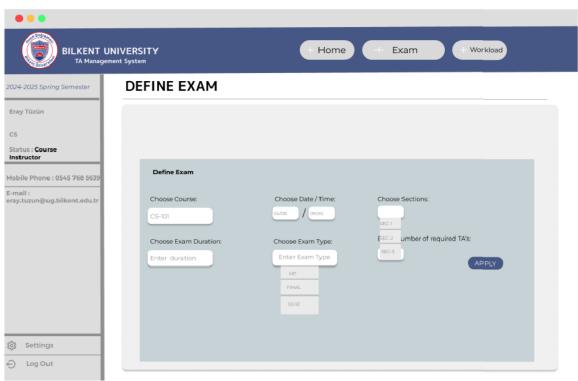
#### COURSE INTRUCTOR DEFINE EXAM



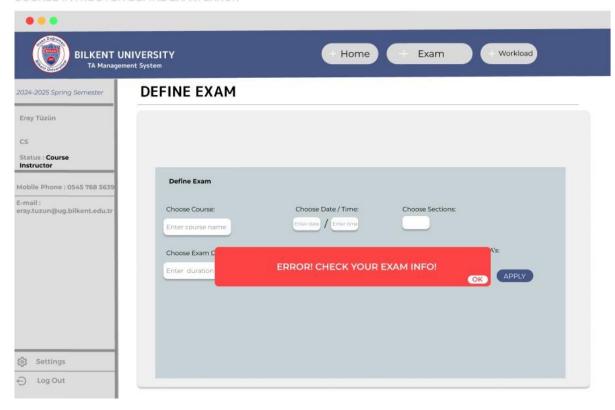
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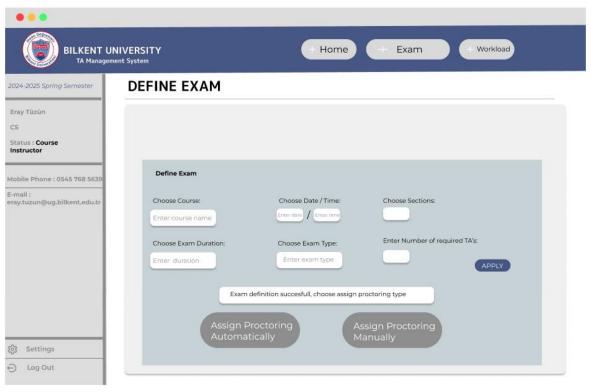
#### COURSE INTRUCTOR DEFINE EXAM



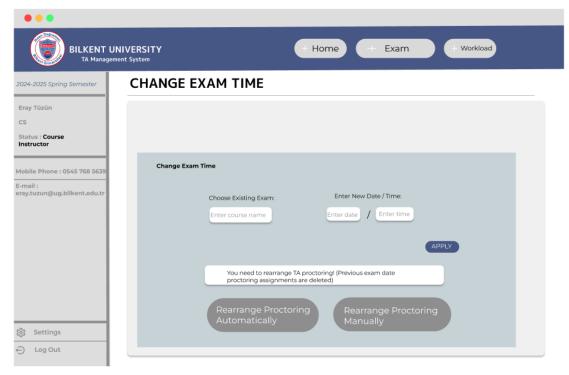
#### COURSE INTRUCTOR DEFINE EXAM ERROR



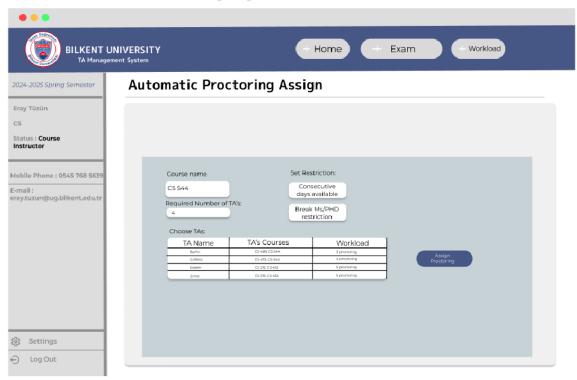
COURSE INTRUCTOR DEFINE EXAM/ ASSIGNING PROCTORING TYPE SELECT

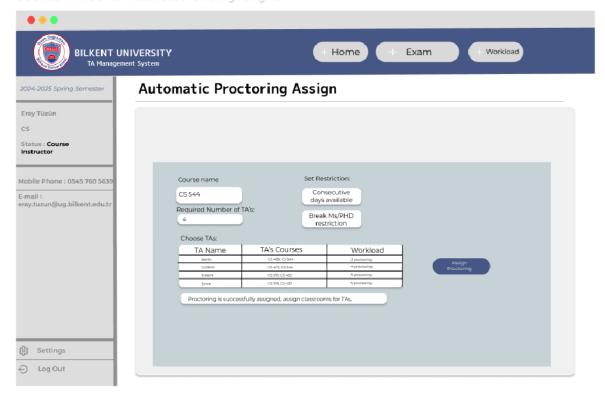


#### COURSE INTRUCTOR CHANGE EXAM DATE

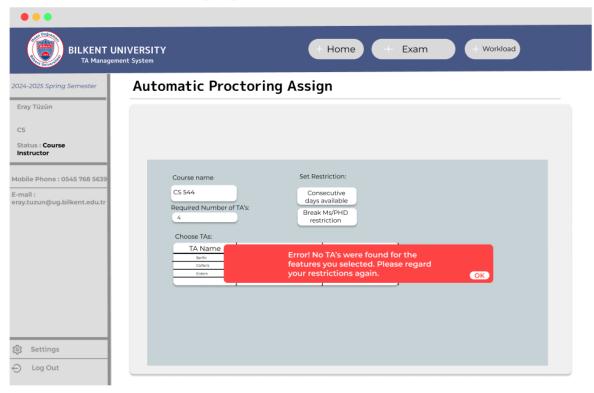


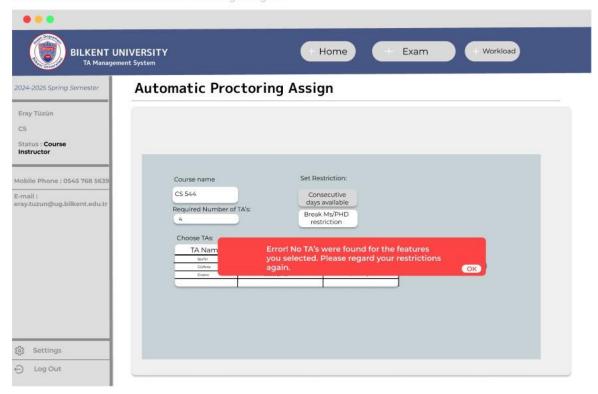
COURSE INTRUCTOR Automatic Proctoring Assign



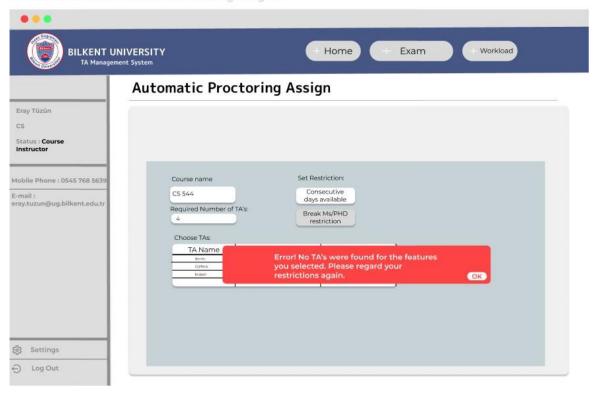


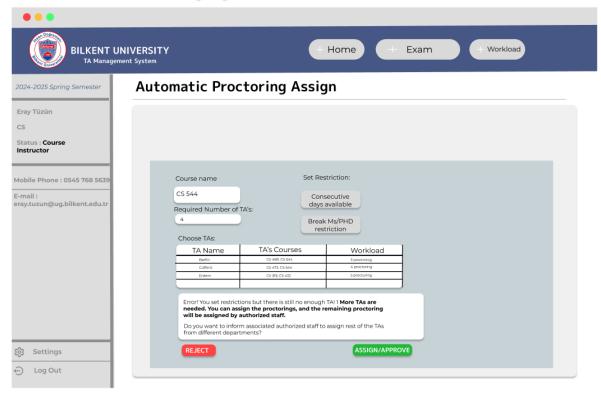
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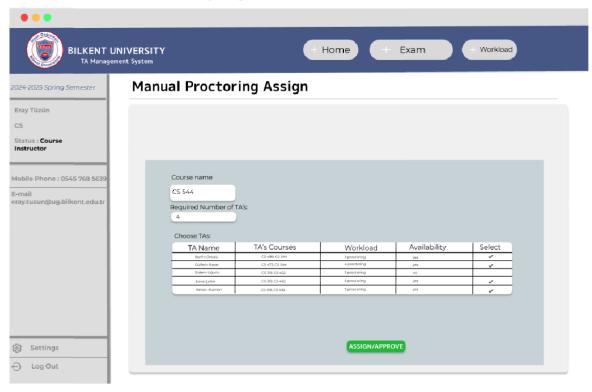


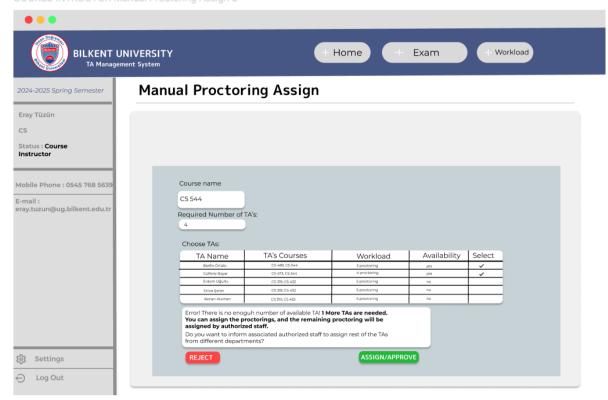
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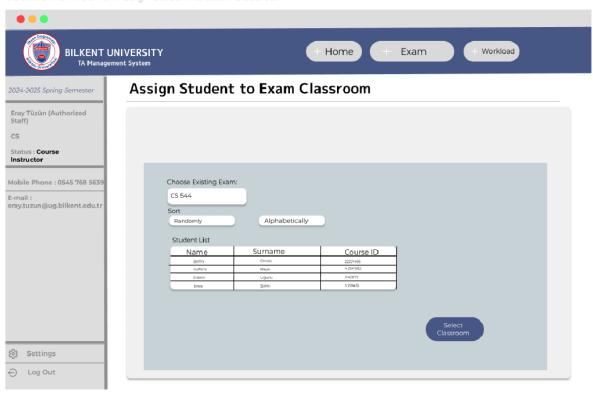


COURSE INTRUCTOR Manual Proctoring Assign

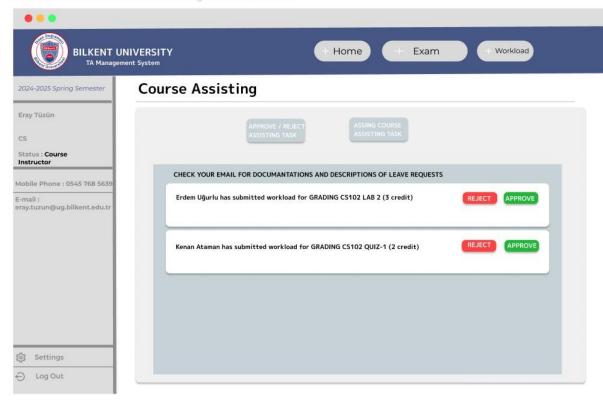




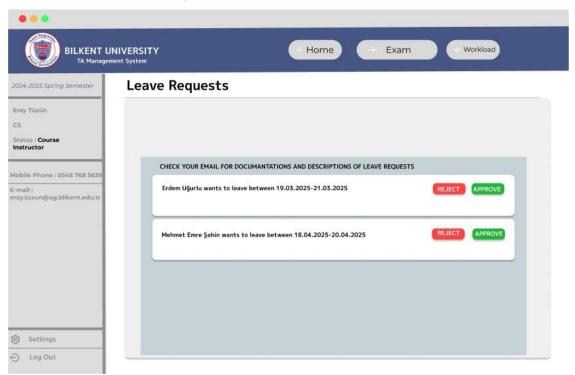
COURSE INSTRUCTOR Assign Student to Exam Classroom



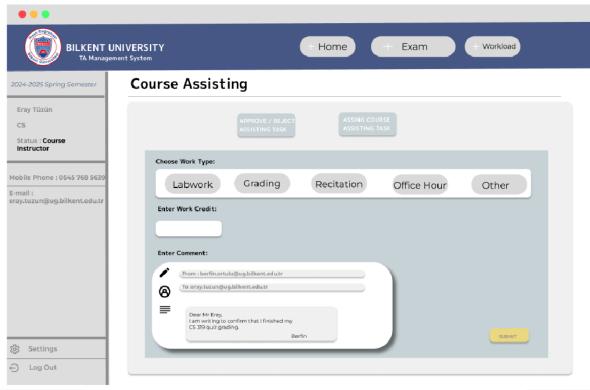
COURSE INSTRUCTOR Course Assisting APPROVE/REJECT



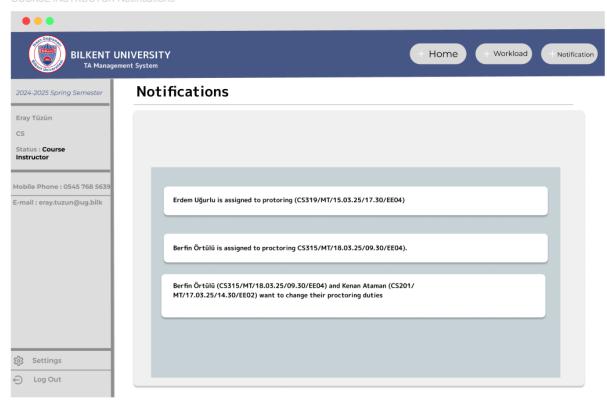
COURSE INSTRUCTOR Leave Requests APPROVE/REJECT



COURSE INSTRUCTOR ASSIGN A COURSE ASSISTING TASK



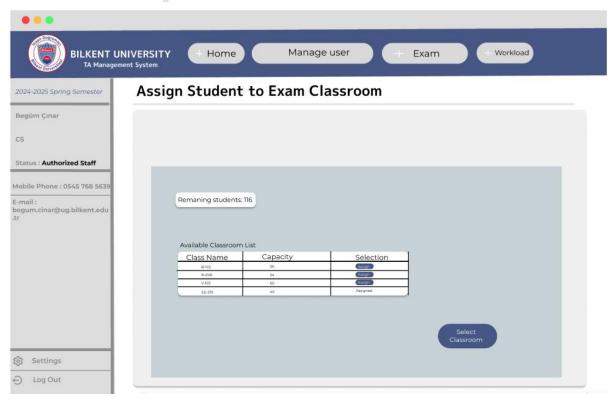
COLIRSE INSTRUCTOR Notifications



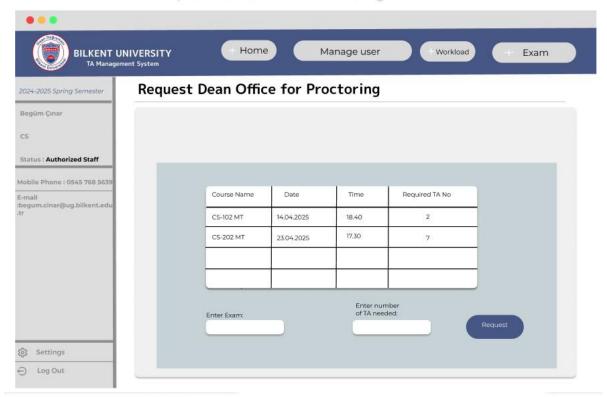
## AUTHORIZED STAFF MAIN PAGE



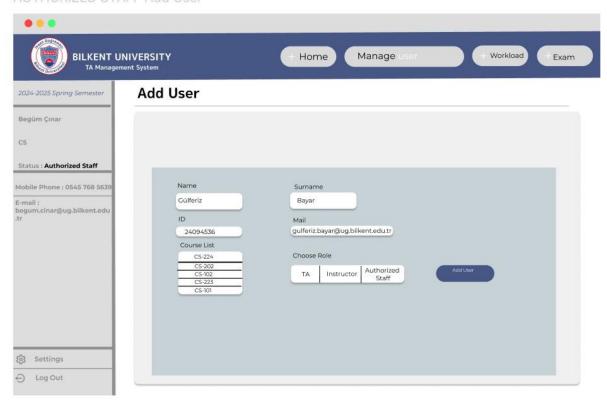
AUTHORIZED STAFF Assign Student to Exam Classroom



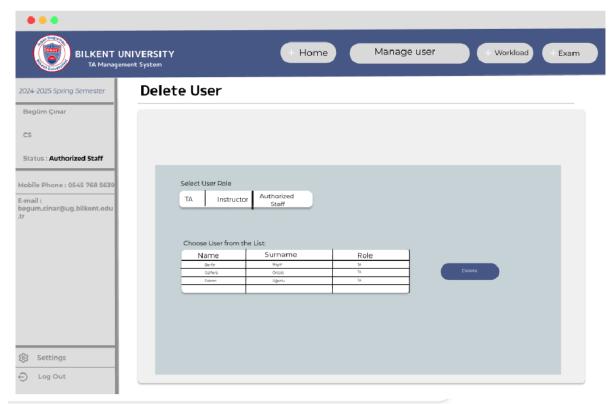
## AUTHORIZED STAFF Request Dean Office for Proctoring



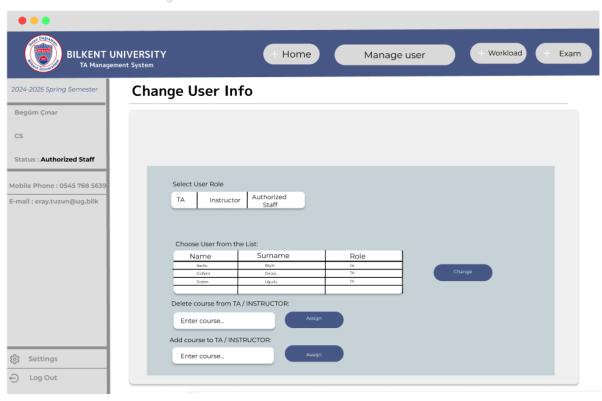
#### ALITHORIZED STAFF Add User



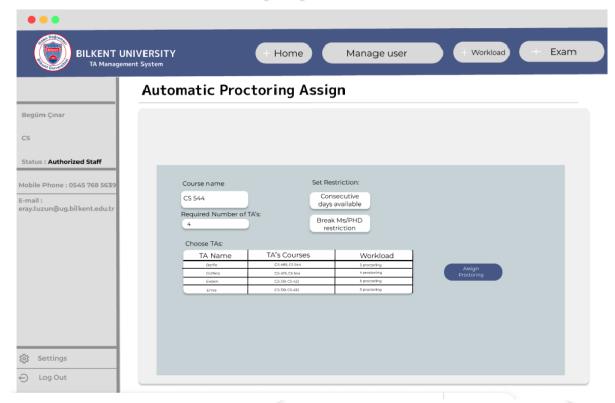
### **AUTHORIZED STAFF Delete User**



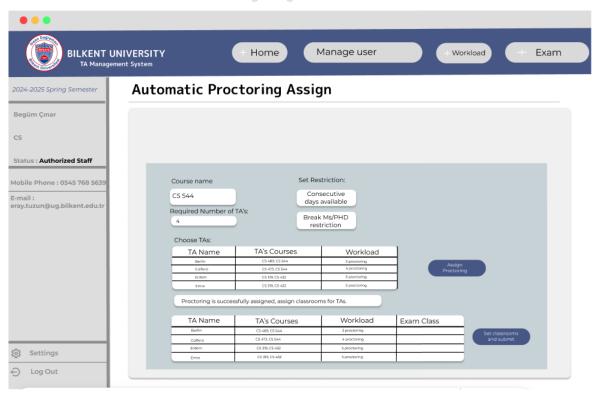
#### AUTHORIZED STAFF Change User Info



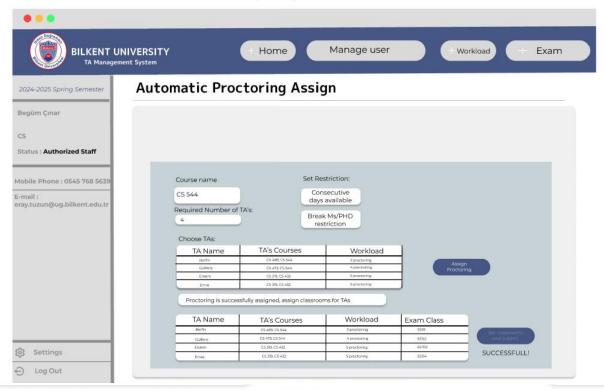
## **AUTHORIZED STAFF Automatic Proctoring Assign**



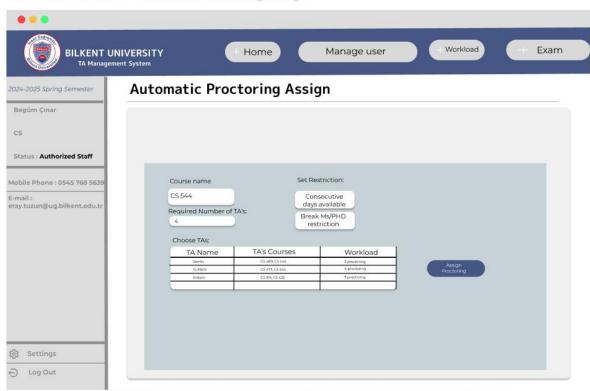
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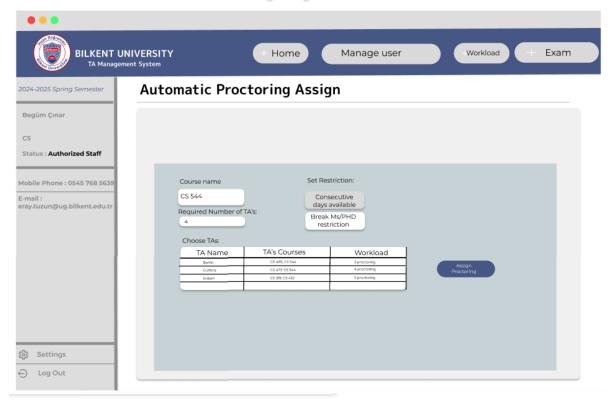
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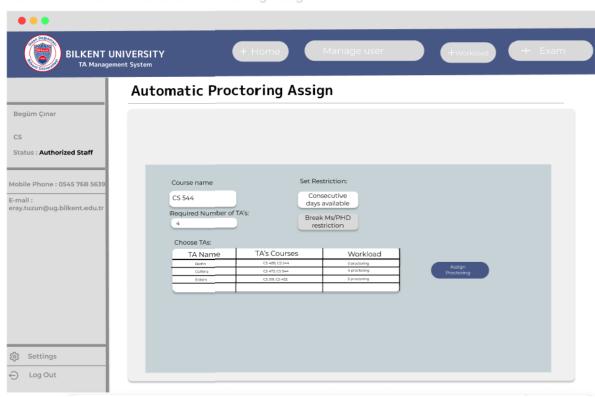
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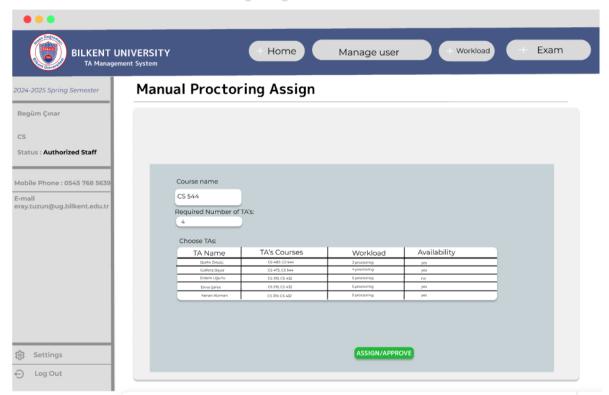
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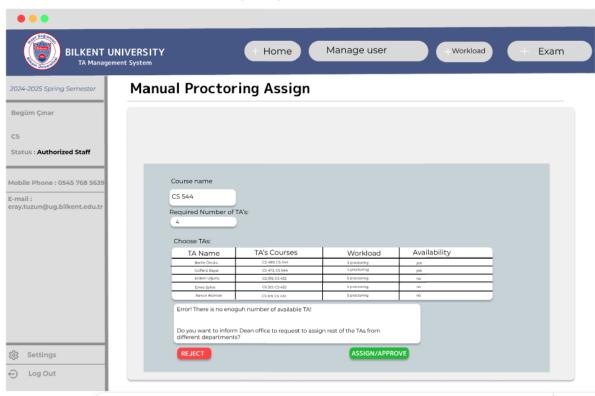
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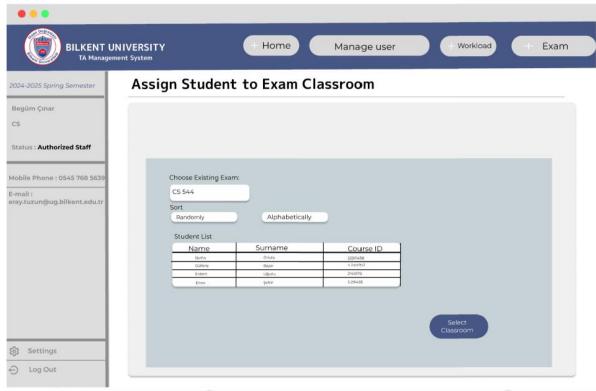
### AUTHORIZED STAFF Manual Proctoring Assign



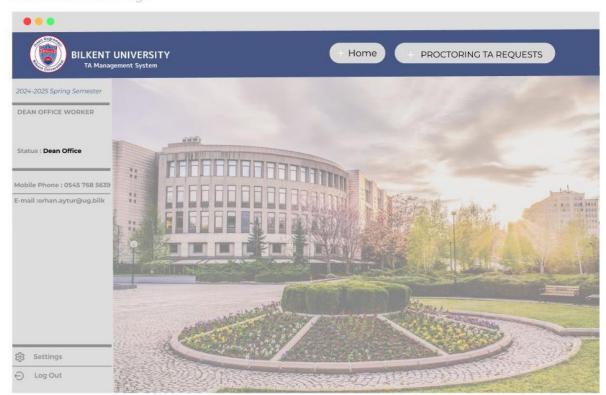
### AUTHORIZED STAFF Manual Proctoring Assign 2



#### AUTHORIZED STAFF Assign Student to Exam Classroom



#### Dean Office Main Page



Approve/Reject Leave Requests

