



CS 319  
Object Oriented Software Engineering

Analysis Report  
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# 1-Introduction

Quaso Internship Program is a desktop program intended to be used by Bilkent University engineering students. The program aims to reduce the difficulties that the currently implemented multi-platform system can cause by lowering the control, evaluation, and approval of reports mechanism of students' internship reports to be simpler for each user by reducing the system to a single platform.

In the currently used system, report approval, evaluation, revision request if necessary, and control of companies are carried out through 4 different platforms: Mfstaj, Moodle, Google Drive, and email. This multi-platform system makes the use of both evaluators and students complex, and sometimes it can cause confusions in terms of controlling and tracking documents. Considering all this, the primary purpose of our program is to create a more practical, effective, and efficient system for each user by minimizing these complications.

Four types of users are targeted to use the program: Assistants, students, super-admins, and evaluators. Each user aims to log in to the program using the specially designed login page and work on the assigned job through a functional and aesthetic interface in which the user is in control, consistent, with low cognitive load.

Thanks to this program being developed, students will be able to upload and follow their internship reports more easily, view the acceptance status of the company they are doing their internship with, view their feedback and check their deadlines. At the same time, assistants and evaluators will be able to follow up the students assigned to them more easily, view all the information of the uploaded and pre-loaded internship reports on a single page, check the forms submitted by the companies and, if necessary, upload their feedback via the application and request revisions.

## 2. Current System

The process for adding a new company to the mfstaj system database for summer internship consist of the following steps:

**2.1.** Create a new entry in the mfstaj database: You must create a new entry in the mfstaj database and add all the required information about the company. Ensure that there is no duplicate entry. If the company is approved for another department, you do not need to make a new entry.

**2.2.** Submit information to the ST coordinators: You must submit the information to the ST coordinators via email(staj[at]cs.bilkent.edu.tr). The coordinators will review the information and decide to approve or disapprove the proposed mfstaj entry. They may require additional information.

**2.3.** Required information: The following information must be submitted to the ST coordinators:

- Company name, phone number, postal address, and web address
- Is the company doing computer engineering work? Explain.
- Will your supervisor be a person with a computer engineering degree? Explain.
- Will the tasks assigned to you satisfy the Performance Criteria listed in the guidelines document? Explain

**2.4.** Provide a detailed explanation: The word “Explain” in any question above means that you are really required to explain. For example, simply writing “The tasks will satisfy the Performance Criteria” will not be accepted as an answer. You need to talk to the company and get information about how the internship they are planning will satisfy these criteria.

**2.5.** Approval process: Once the company is approved in the system, the rest of the process will be handled by the Dean’s Office. Therefore, if you have any questions about the remaining procedure, you should contact the Dean’s Office directly.

**2.6. Deadlines:** Note that the approval for the company and the application to the Dean's office must be done before you start any internship. There are no exceptions for internships that were arranged for past dates. Ensure that you are aware of the deadlines announced by the Dean's Office.

## **3. Proposed System**

### **3.1 Non-Functional Requirements**

#### **1. Performance**

The application must be able to handle a large number of users simultaneously without any lag or delay in response time. The response time of the application should be less than 3 seconds on average.

#### **2. Security**

The application should ensure the security and privacy of user data, including personal information and documents. The system should encrypt all sensitive data and ensure that only authorized users can access it. The applicant should also have password protection.

#### **3. Compatibility**



The application should be compatible with all popular web browsers(Chrome, Firefox, Safari and Edge) and operating systems(Windows, MacOS, and Linux).

#### **4. Scalability**

The application should be able to scale up easily as the number of users and data increases. It should be able to handle a growing amount of data without any issues and should be easily expandable in terms of infrastructure.

#### **5. Usability**

The application should be user-friendly and easy to use for all types of users, including students, instructors, coordinators and company owners. The application should have clear instructions and provide useful feedback to users.

#### **6. Implementation**

The application will be implemented by using JavaScript/CSS/HTML for front-end and SQL/PHP for back-end.

#### **7. Maintainability**

The application should be designed with maintainability in mind, ensuring that it is easy to modify or update in the future. The code should be well-structured, modular, and easily understandable by other developers.

## 3.2 Functional Requirements

### 3.2.4 Profile Details

Users (students, teaching assistants, evaluators, super user admins, coordinators) are able to edit their profile details such as email information, id, name-surname, password and courses.

### 3.2.5 Student Page Details

Students log in with their Bilkent ID and their STARS password. When they log in, they are met with a home page curated for students. There is a bar on top that shows Display Mode, FAQ, Log Out, and Language specification buttons. These options are available and the same to all users.

- **Student Home Page**

There is a menu that shows site contents. Students can reach the home page which is where they are when they first enter, company information, reports, grades, announcements, course descriptions, summer training coordinator information and other contents. Home page shows general information that could be seen in the internship website currently available.

- **Company Information Page**

Students are able enter company information such as email, company name, and responsible people on the company webpage.

They can see the company information once they enter it.

- **Reports Page**

In the reports section, students are able to see the reports they have entered thus far and deadlines, grades, revisions requests, revision deadlines alongside that. There is a limitation on revision submission numbers. Students are also able to download the reports they have uploaded.

- **Grades Page**

In the grades part of the page, students can see the grades of the documents evaluators entered. They can see a process bar that shows the status of the whole class requirements. This bar will be linear and will be divided to required actions that need to be taken.

- **Announcements Page**

Announcements will be shown on this page.

- **Course Descriptions Page**

Course descriptions that are available at the website currently up will be shown here.

- **Summer Training Coordinators Page**

Summer training coordinators, their contact information and their personal websites will be shown here.

- **Others Page**

Necessary documents are shown here. Students are only able to reach some of the documents as it is in the current live website.

- **Notifications Page**

Evaluators are able to send iteration requests. When a paper is graded, or an evaluator sends an iteration request, or when there has been another update related to progress, the user receives a notification and it is shown in this page.

### 3.2.6 General Menu

Users enter their ID and SRS password. The system matches them with the current database and directs them to corresponding user page determining what type of user they are. Users can attain some of the contents without logging in.

These contents include: announcements, FAQ, contact and language specifications.

### 3.2.7 Evaluators

- **Evaluator Main Page**

This page will be shown when a user logs in as an evaluator. It will consist of all the required items to give basic functionality to the user such as logging out or seeing a global menu that every user is able to see.

However, the different thing on this page will be that it will also consist of a secondary menu guiding the user to the following pages:

1. Students and Reports
2. Approved Company list
3. TA/Student Contact Info
4. Announcements

- **Evaluator Students and Reports Page:**

This page will consist of all the important details regarding a student and their report submissions. The page will be in a tabular arrangement with each column labeled as needed to guide the user better. This table will provide the user with the following functionality:

1. View the student name
2. View the student id
3. View the date of report submission

4. View the report submission status (where does the report stand in terms of being revised or complete etc.)
5. View the grading status which will show the grade when a student has been graded otherwise shows ungraded.
6. View the submitted form from the student internship company if it is available otherwise send a request to the company to submit relevant documents.
7. View the Student Report itself
8. At the end of each student row will be the following buttons
9. A button to grade the student which goes to the grading form page
10. A button to submit feedback to the student and ask for a revision.

- **Evaluator Provide Feedback Page:**

This page will allow the evaluator to provide feedback to the student after their report has been submitted and ask for a revision. The page will have the following functionalities:

1. The evaluator can type the feedback in a given input field
2. The evaluator can also click on a button to view the submitted report while typing feedback so that the feedback is as efficient as possible.
3. There will also be an option to cancel a given feedback that is in process and go back to the students page.

- **Evaluator Grade Student Page:**

This page will provide the evaluator the ability to grade the student in a streamlined way. The page will have several input fields depending on the amount of grading criterias to take into account when grading a student. The page will also provide the ability to view both, the student submitted report and the report submitted by the company. At the end, there will be an input field to write a final grade for the student. At the bottom of the page, there will be buttons allowing the user to either save the form for later editing or submit the grade or cancel the grading process and clear the form.

- **Evaluator Notification System:**

This system will allow the user to receive relevant notifications regarding activity and deadlines for them or their students. It will notify the user when a student has submitted a form, or if the grading final date is getting close, if the company has submitted a form, has the student sent a revised report and so on.

### 3.2.8 Coordinators

- **Coordinator Main Page**

Coordinators will be directed to this page on login. Here they will be able to logout, interact with the top navigation bar, and select one of four options to be directed to another page. Once they select one of these options they will navigate through the app with the use of the left navigation bar. These four options are:

1. Students and Reports
2. Approved Company list
3. TA/Student Contact Info
4. Announcements

- **Coordinator Students and Reports Page:**

This page is identical to the “evaluator students and reports” page. It provides a list of students with their identifying information and submitted documents. It lets the coordinator view these documents, submit feedback, and grade students.

- **Coordinator Provide Feedback Page:**

This page is identical to the “evaluator provide feedback” page. Here coordinators can submit feedback for a students’ report. This feedback is written in a text field that the page contains.

- **Coordinator Grade Student Page:**



This page is identical to the “evaluator provide feedback” page. Coordinators can utilize this page to grade students. These grades are submitted under subcategories that represent different stages of the internship process.

- **Coordinators Notification System:**

The notification system informs coordinators regarding the progress of students that are assigned to them. The notifications appear when a deadline is approaching, if a company submits a form, and when a student submits a document. Coordinators have the additional ability to create global notifications that all users receive.

- **Coordinators Administrative System:**

The administrative system lets coordinators view any user’s information, and manipulate assignments. Once a coordinator enters the system they will be able to enter the ID of a user into their specified field. For example, if the user to be examined is a TA, the coordinator must enter the ID on the TA text field. After the user is found these informations will be displayed:

1. User name
2. User ID
3. User’s enrolled courses
4. Assigned evaluator (if the user is a student)
5. Assigned TA (if the user is a student).

Coordinator can check this information and click the “view profile” button to perform the following operations on their account. They can view their identifying information, they can issue assignments or they can remove assignments. A coordinator can assign TAs and evaluators to a student, or they can assign a student to a TA or an evaluator. A coordinator can remove the assignment of TAs and evaluators from a student, or they can remove the assignment of a student from a TA or an evaluator.

### 3.2.9 TAs

- **TA Main Page**

TAs will be able to view this page on login. Here they will be able to logout, interact with the top navigation bar, and select one of four options to be directed to another page. Once they select one of these options they will navigate through the app with the use of the left navigation bar. These four options are:

1. Students and Reports
2. Approved Company list
3. TA/Student Contact Info
4. Announcements

- **TA Students and Reports Page:**

This page is identical to the “evaluator students and reports” page except for a single difference. TAs do not have the permission to grade students. So the grade student column is removed for TAs. Regardless, the page provides TAs a list of students with their identifying information and submitted documents. It lets them view these documents, and submit feedback.

- **TA Provide Feedback Page:**

This page is identical to the “evaluator provide feedback” page. Here TAs can submit feedback for a students’ report. This feedback is written in a text field that the page contains.

- **TA Notification System:**

The notification system informs TAs regarding the progress of students that are assigned to them. The notifications appear when a deadline is approaching, if a company submits a form, and when a student submits a document.

### **3.2.10 Super Users / Administrators**

- **Administrator Main Page**

On login, the administrator is directed to a homepage which includes a top navigation bar, a logout button, and a search field. The top navigation bar can be used to view settings, to view coordinator contact information, to view notifications, and to be directed to the FAQ page. The search field is divided into four parts:

1. Search student
2. Search evaluator
3. Search TA
4. Search coordinator

The administrator can enter the ID of the user that they wish to view. The ID has to be put in the right field or an error will occur. Once the correct information is entered, the name, the id, and the enrolled course of the user is displayed (if the user is a student assigned evaluator and assigned TA is also displayed). The administrator can examine the displayed information, and if they wish to view the account on display, they can press the “view profile button. They will be directed to a profile editor page.

- **Administrator Profile Editor**

This page contains information, and the choice to change the information regarding the user in review. The information fields on display are:

1. User ID
2. User name
3. User’s enrolled courses
4. User’s assignments

The administrator can change any of this information. To change user name, ID, or enrolled courses they need to click on the “edit” button near the field and enter the new information. Additionally, assignments can be changed by administrators.

Changing assignments can be categorized into two:

1. Removing assigned users: Every user is assigned some other users. For example, a student is assigned evaluators or TAs while TAs are assigned students. Once the administrator views the user’s page they can view these assignments.

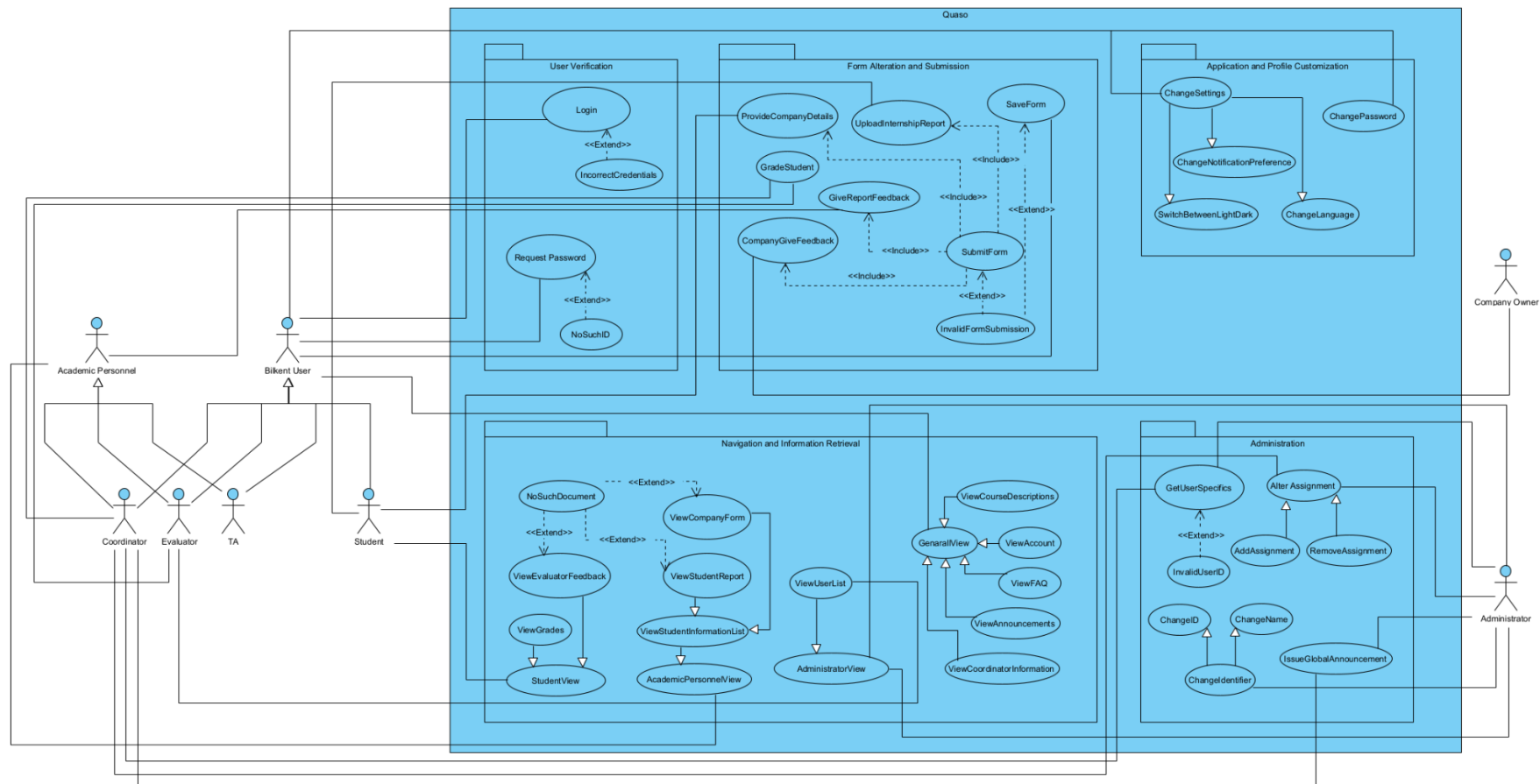
Clicking the removal button near the assignment will remove the relation.

2. Assigning new users: In order to assign a new user, the administrator needs to enter the ID of the user that they would like to assign to the related field. For example, if a TA is being assigned to a student, the ID must be entered under the “search TA” category. After the correct information is provided, the profile of the user to be assigned can be viewed.

The administrator can review this information and click the assign button to complete the operation.

## 3.3. System models

### 3.3.1. Use Case Model



### 3.3.2. Use Case Model Textual Descriptions

#### 3.3.2.1. User Verification Package

**Use case name:** Login

**Participating actors:** Initiated by a student, an evaluator, a coordinator, a TA, or an administrator

**Flow of events:**

1. The user enters an id and password.
2. The user clicks the login button.
3. If login is successful, the user is directed to the student main menu; otherwise an error message pops up.

**Exit conditions:**

- The user successfully logins, OR
- The login process is terminated.

---

**Use case name:** IncorrectCredentials

**Participating actors:** Communicates with a student, an evaluator, a coordinator, a TA or an administrator

**Flow of events:**

1. The user enters incorrect information in the login page.
2. System issues a warning message.

**Entry conditions:**

- This use case **extends** Login. The system initiates this case when a user fails to login.

**Exit conditions:**

- The user closes the error message tab.

-----

**Use case name:** RequestPassword

**Participating actors:** Initiated by a student, an evaluator, a coordinator, or a TA

**Flow of events:**

1. The user clicks on the “forgot your password” button.
2. The user enters their email address to the form and submits the information.

**Exit conditions:**

- The user submits the form, OR
  - The user cancels the form subscription.
- 

**Use case name:** NoSuchID

**Participating actors:** Communicates with a student, an evaluator, a coordinator, or a TA

**Flow of events:**

1. The user enters an email address that does not exist in the system in the request password page.
2. System issues a warning message.

**Entry conditions:**



- This use case **extends** RequestPassword. The system initiates this case when a user fails to provide an appropriate email address.

**Exit conditions:**

- The user closes the error message tab.
- 

### 3.3.2.2. Navigation and Information Retrieval Package

#### 3.3.2.2.1 Navigation Initialization

**Use case name:** StudentView

**Participating actors:** Initiated by the student

**Flow of events:**

1. The homepage consists of an introductory list of options, after an option is selected, the user is directed to that page. After this initialization, every page contains a navigation bar that is located at the left side of a page. It be used to visit other pages. The only instances in which the navigation bar is inaccessible are:
  - a) An error message is displayed and requires dismissal.
  - b) The user is yet to log in.
2. A list of buttons that leads to information relating to the student's progression throughout the course is displayed in the navigation bar. These buttons lead to pages that include reports, grades, and general tabs.
3. The student clicks on the relevant buttons to be directed to their desired operation.

**Entry conditions:**

- The student is logged in to the system, OR
- The user clicked on any option on the introductory page.

**Exit conditions:**

- The student logs out of the system via the logout button, AND
- The student proceeds to operations listed on the menu.

-----

**Use case name:** AcademicPersonnelView

**Participating actors:** Initiated by an evaluator, a coordinator or a TA

**Flow of events:**

1. The homepage consists of an introductory list of options, after an option is selected, the user is directed to that page. After this initialization, every page contains a navigation bar that is located at the left side of a page. It can be used to visit other pages. The only instances in which the navigation bar is inaccessible are:
  - a) An error message is displayed and requires dismissal.
  - b) The user is yet to log in.
2. A list of buttons that leads to information relating to the course is displayed in the evaluator navigation bar. These buttons lead to pages that include students and reports, and general tabs.
3. The evaluator clicks on the relevant buttons to be directed to their desired operation.

**Entry conditions:**

- The evaluator is logged in to the system, AND
- The user clicked on any option on the introductory page.

**Exit conditions:**

- The evaluator logs out of the system via the log out button, OR

- The evaluator proceeds to operations listed in the menu.

---

**Use case name:** GeneralView

**Participating actors:** Initiated by a student, an evaluator, a coordinator, or a TA

**Flow of events:**

1. The users have access to two navigation bars. One is at the top of each page, and the other one is at the left of each page. The top bar is identical for any user; it can be used to access FAQ, options, announcements, contacts. The left bar changes but there are identical options for all users. These options are announcements, coordinator information, and course description.

**Entry conditions:**

- The user is logged in to the system, AND
- The user clicked on any option on the introductory page.

**Exit conditions:**

- The user logs out of the system via the log out button, OR
- The evaluator proceeds to operations listed in the menu.

---

**Use case name:** AdministratorView

**Participating actors:** Initiated by an administrator

**Flow of events:**

1. Administrators do not have a left navigation bar. They have a main page and a top navigation bar.
2. Top bar consists of FAQ, options, announcements, contacts.

**Entry conditions:**

- The administrator is logged in to the system.

**Exit conditions:**

- The administrator logs out of the system via the logout button, OR
- The administrator proceeds to manage a user.

-----

#### 3.3.2.2.2. Non-specific Navigation and Information Retrieval

**Use case name:** ViewCourseDescriptions

**Participating actors:** Initiated by a student, an evaluator, a coordinator, or a TA

**Flow of events:**

1. The user is shown a list of documents relating to the course.
2. The user can click on the document and view its contents.

**Entry conditions:**

- Conditions inherited from GeneralView.

**Exit conditions:**

- The user navigates to another page, or logs out.

-----

**Use case name:** ViewAnnouncements

**Participating actors:** Initiated by a student, an evaluator, a coordinator, or a TA

**Flow of events:**

1. The user is shown a list of announcements together with their dates.

**Entry conditions:**

- Conditions inherited from GeneralView.

**Exit conditions:**

- The user navigates to another page, or logs out.

---

**Use case name:** ViewCoordinatorInformation

**Participating actors:** Initiated by a student, an evaluator, a coordinator, or a TA

**Flow of events:**

1. The user is shown a list of coordinators with their contact information.

**Entry conditions:**

- Conditions inherited from GeneralView.

**Exit conditions:**

- The user navigates to another page, or logs out.

---

**Use case name:** View Account

**Participating actors:** Initiated by a student, an evaluator, a coordinator, or a TA

**Flow of events:**

1. The user is shown identifying information such as id, name, and email address.

2. The user is shown an option to change password.

**Entry conditions:**

- Conditions inherited from GeneralView.

**Exit conditions:**

- The user navigates to another page, or logs out.
- 

**Use case name:** ViewFAQ

**Participating actors:** Initiated by a student, an evaluator, or a coordinator

**Flow of events:**

1. The user is shown a list of frequently asked questions and their answers.

**Entry conditions:**

- Conditions inherited from GeneralView.

**Exit conditions:**

- The user navigates to another page, or logs out.
- 

### 3.3.2.2.3. User-specific Navigation and Information Retrieval

**Use case name:** ViewEvaluatorFeedback

**Participating actors:** Initiated by the student

**Flow of events:**

1. The student navigates to the “reports” page.
2. The student clicks on the “view evaluator review” button.
3. The student is shown the evaluator feedback.
4. The student closes the document.

**Entry conditions:**

- Conditions inherited from StudentView.

**Exit conditions:**

- The student logs out, OR
- The student clicks on another tab in the main menu.

-----  
**Use case name:** ViewStudentInformationList

**Participating actors:** Initiated by an evaluator, a TA, or a coordinator

**Flow of events:**

1. The evaluator clicks on “students and reports” tab.
2. A list of students is displayed to the user. The list identifiers consist of:
  - a) Student information including ID, name, report submission date, report submission status, grading status, company form, student report form.
  - b) Evaluator tasks including grade student, and request revision or give feedback. These tasks are not displayed to the coordinator.
3. The user can choose to interact with the page to view information or complete tasks.

**Entry conditions:**

- Conditions inherited from AcademicPersonnelView.

**Exit conditions:**

- The user logs out, OR
- The user clicks on another tab in the main menu.

-----

**Use case name:** ViewCompanyForm

**Participating actors:** Initiated by an evaluator, a TA, or a coordinator

**Flow of events:**

1. The user clicks on the “view” button of the corresponding student in the “company form” column.
2. The company form that was uploaded by the student is displayed to the user.

**Entry conditions:**

- Conditions inherited from ViewStudentInformationList.

**Exit conditions:**

- The user closes the document.

-----

**Use case name:** ViewStudentReport

**Participating actors:** Initiated by an evaluator, a TA, or an user

**Flow of events:**

1. The user clicks on the “view” button of the corresponding student in the “student report form” column.



2. The report that was uploaded by the student is displayed to the user.

**Entry conditions:**

- Conditions inherited from ViewStudentInformationList.

**Exit conditions:**

- The user closes the document.
- 

**Use case name:** NoSuchDocument

**Participating actors:** Communicates with the user

**Flow of events:**

1. A user requests to view a document. An example document can be a report review a student wants to access, or a company information an evaluator wants to review.
2. The requested document does not exist in the system.
3. System issues a warning message.

**Entry conditions:**

- This use case **extends** any case where a document is requested from the server. The system initiates this case when a requested document cannot be provided.

**Exit conditions:**

- The evaluator closes the error message tab.
-

### 3.3.2.3. Form Alteration and Submission Package

**Use case name:** ProvideCompanyDetails

**Participating actors:** Initiated by the student

**Flow of events:**

1. The student fills and submits a form to provide company information.
2. The system saves the information.
3. The system sends an approval request to the assigned evaluator.

**Entry conditions:**

- The student is logged in to the system, AND
- The student clicks on the “company info” button in the student main menu.

**Exit conditions:**

- The student chooses to cancel the submission, OR
- The student provides the information and submits the form.

**Quality Requirements:**

- This case can include the company availability checker use case that compares the name of the company with approved companies in the database. Then the user can be given a warning regarding the situation and be asked if they would like to continue with the submission.

-----  
**Use case name:** UploadInternshipReport

**Participating actors:** Initiated by the student

**Flow of events:**

1. The student clicks on the “upload internship report” or “update internship report” button depending on their progression.
2. The student enters requested information.
  - a. If a document is requested, the student pushes the “upload document button” and selects the related document on their device.
  - b. The uploaded document is shown to the student.
3. The student clicks the “submit” button.

**Entry conditions:**

- The student is logged in to the system, AND
- The student clicks on the “reports” button in the student main menu.

**Exit conditions:**

- The student chooses to cancel the submission, OR
- The student clicks the “upload” button.

-----  
**Use case name:** GradeStudent

**Participating actors:** Initiated by an evaluator, or a coordinator

**Flow of events:**

1. The evaluator clicks on the “grade student” button of the corresponding student.
2. The evaluator is shown a form. The form consists of:
  - a) Buttons that can be clicked to view information such as student reports, or company forms. The interactions with these buttons are identical to the use cases ViewCompanyForm and ViewStudentReport.
  - b) Text fields that correspond to grades. These grades correspond to different parts of the course and they can be entered separately.
  - c) Buttons that can be clicked to submit the grades, or to save current state for later.

3. The evaluator enters the grades and submits the form, or the evaluator enters grades and saves the form for later use, or the evaluator clicks the “cancel” button to terminate the operation.

**Entry conditions:**

- Conditions inherited from ViewStudentInformationList.

**Exit conditions:**

- The evaluator submits grades, saves form, cancels submission, clicks on another tab, or logs out.

-----  
**Use case name:** CompanyGiveFeedback

**Participating actors:** Initiated by the company owner

**Flow of events:**

1. The company owner fills in the form that is shown to them.
2. The company owner submits the form.
3. The company owner can choose to save the form to complete it later.

**Entry conditions:**

- The company owner entered the application by using a specified url that was provided to them.

**Exit conditions:**

- The company owner saves the form, submits the form, or closes the application.

-----  
**Use case name:** GiveReportFeedback

**Participating actors:** Initiated by an evaluator, a TA, or a coordinator

**Flow of events:**

1. The evaluator clicks on the “request revision and give feedback” button of the corresponding student.
2. The evaluator is shown a form. The form consists of:
  - a) A button that can be clicked to view previously submitted student report. The interaction with this button is identical to the use case ViewStudentReport.
  - b) A text fields that can be filled in by the evaluator to specify the request.
3. The evaluator fills in the text field and clicks the “send feedback and request revision” button, or terminates the operation by clicking “cancel” button.

**Entry conditions:**

- Conditions inherited from ViewStudentInformationList.

**Exit conditions:**

- The evaluator submits the request, cancels submission, clicks on a different tab, or logs out.

-----  
**Use case name:** InvalidFormSubmission

**Participating actors:** Communicates with a student, a company owner or an evaluator

**Flow of events:**

1. A condition of an invalid form submission is detected. These conditions can be listed as:
  - a) Entry in the text field consists of invalid characters.
  - b) A number entry is not in the valid interval if an interval is given.
  - c) A required field is empty (This condition only applies if the form is trying to be submitted. Users can leave fields empty when they want to save).
  - d) Submission deadline has passed.
2. Submit or save form button is clicked.

3. System issues a warning message according to the rule violation.

**Entry conditions:**

- This use case **extends** any use case that is listed in form alteration and submission package. The system initiates this case when an invalid entry is made to the submission page.

**Exit conditions:**

- The user closes the error message tab.
- 

#### 3.3.2.4. Administration Package

**Use case name:** GetUserSpecifics

**Participating actors:** Initiated by the administrator

**Flow of events:**

1. For any user two types of information is listed in a user specifics menu:
  - a) Identifiers: ID, name, and course enrollment status of the user.
  - b) Assignments: Every user is in relation to another user in discrete ways. For example, a student is assigned to an evaluator to be graded, or an evaluator is assigned to a student to grade them. These relations can be altered by manipulating assignments.
2. An administrator can choose to change this information.
3. An administrator can choose to navigate to a related user. If a student is assigned to an evaluator, for example, the administrator can navigate to that evaluator's profile via the student's profile.

**Entry conditions:**

- The administrator is logged in to the system, AND
- The administrator requested a user profile.

**Exit conditions:**

- The administrator logs out of the system via the logout button, OR
- The administrator proceeds to the administrative homepage.

---

**Use case name:** ChangeIdentifier

**Participating actors:** Initiated by the administrator

**Flow of events:**

1. An administrator can choose to edit a user's name or id. To do this they press the "edit" button near the attribute that they wish to change.
2. After the button is pressed a text field pops up.
3. The administrator enters the new information into the text field.
4. The administrator presses the "submit" button.
5. The administrator can choose to abort this process by closing the text field.

**Entry conditions:**

- Conditions inherited from GetUserSpecifics.

**Exit conditions:**

- The administrator logs out of the system via the logout button, OR
- The administrator proceeds to the administrative homepage.

---

**Use case name:** AddAssignment

**Participating actors:** Initiated by the administrator

**Flow of events:**

1. The administrator fills the text field with the id of the user that they would like to assign.
2. The administrator clicks on the “display profile” button.
3. The administrator is shown the specifics of the given user.
4. The administrator clicks the “assign” button to assign the user.

**Entry conditions:**

- Conditions inherited from GetUserSpecifics.

**Exit conditions:**

- The administrator logs out of the system via the logout button, OR
- The administrator proceeds to the administrative homepage.

-----  
**Use case name:** RemoveAssignment

**Participating actors:** Initiated by the administrator

**Flow of events:**

1. The administrator clicks on the “remove” button near the assignment that they would like to remove from the user.
2. The system issues a success message.

**Entry conditions:**

- Conditions inherited from GetUserSpecifics.



**Exit conditions:**

- The administrator logs out of the system via the logout button, OR
- The administrator proceeds to the administrative homepage.

-----

**Use case name:** InvalidUserID

**Participating actors:** Communicates with the administrator

**Flow of events:**

1. The administrator enters an unaccepted character, the user id does not exist in the system, or the user id does not correspond to the correct user type.
2. System issues a warning message.

**Entry conditions:**

- This use case **extends** ViewAdministrativeHomepage, and GetUserSpecifics. The system initiates this case when an administrator enters incorrect id information.

**Exit conditions:**

- The administrator closes the error message tab.

-----

**Use case name:** IssueGlobalAnnouncement

**Participating actors:** Initiated by a coordinator, or an administrator

**Flow of events:**

1. The user clicks on the “issue notification” button.
2. The user fills the text field to specify the message.
3. The user enters the issue date to specify a time slot for notification.
4. The notification is sent to all users.

**Entry conditions:**

- The user is logged in to the system.
- The user navigated to the announcements page.

**Exit conditions:**

- The user logs out of the system via the logout button, OR
  - The user navigates to a different page.
- 

### 3.3.2.5. Application and Profile Customization Package

**Use case name:** ChangeSettings

**Participating actors:** Initiated by any

**Flow of events:**

1. The user views application settings.

**Entry conditions:**

- This user is logged in to the system, AND
- The user clicked on the “settings” button on the top bar.

**Exit conditions:**

- The user logs out, OR
- The user navigates to a different page.

---

**Use case name:** ChangeLanguage

**Participating actors:** Initiated by any user

**Flow of events:**

1. The user clicks on the dropdown list labeled as the current language of the app.
2. The user selects the desired language.
3. The user clicks on the “apply” button.
4. Application language changes to desired language.

**Entry conditions:**

- Conditions inherited from ChangeSettings.

**Exit conditions:**

- The user clicked on apply, OR
- The user canceled the operation.

---

**Use case name:** ChangeNotificationPreference

**Participating actors:** Initiated by any user

**Flow of events:**

1. The user clicks on and approves notification types to change the type of notifications that they would like to receive. The types can be “system issued reminders”, “coordinator notifications”, and “administrator notifications”.

2. The user enters an email address to the text field to receive notifications outside of the app.
3. The user clicks on the “apply” button.

**Entry conditions:**

- Conditions inherited from ChangeSettings.

**Exit conditions:**

- The user clicked on apply, OR
- The user canceled the operation.

---

**Use case name:** SwitchBetweenLightDark

**Participating actors:** Initiated by any user

**Flow of events:**

1. The user clicks on the “change to dark mode”, or “change to light mode” button depending on the current settings.
2. The user clicks on the “apply” button.
3. Color palette of the app changes.

**Entry conditions:**

- Conditions inherited from ChangeSettings.

**Exit conditions:**

- The user clicked on apply, OR
  - The user canceled the operation.
-

**Use case name:** ChangePassword

**Participating actors:** Initiated by a student, an evaluator, or a coordinator

**Flow of events:**

1. The user clicks on the “change password” button.
2. The user enters a new password in the text field.
3. The user clicks on the “save password” button.

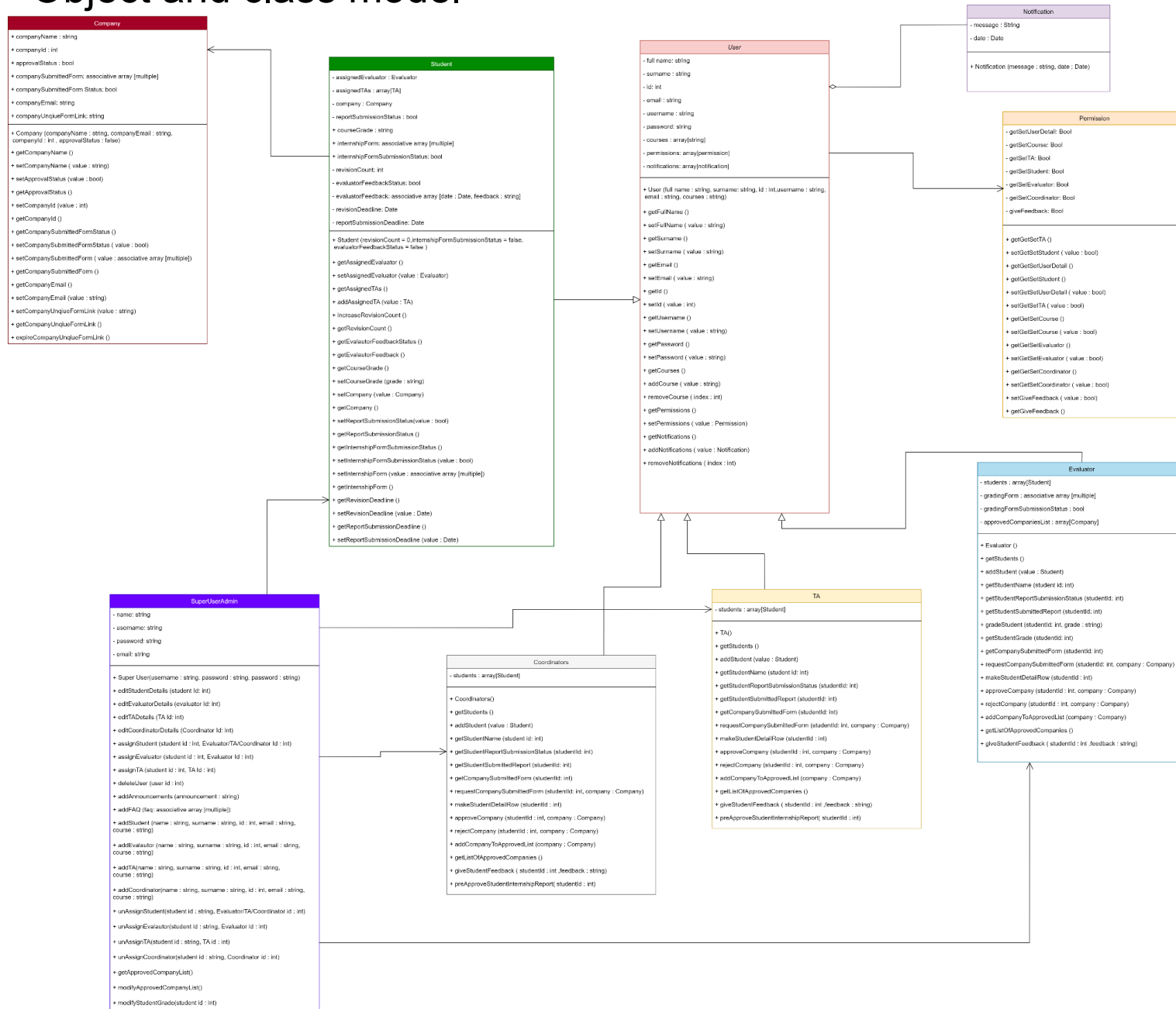
**Entry conditions:**

- Conditions inherited from ViewAccount.

**Exit conditions:**

- Conditions inherited from ViewAccount.
-

### 3.3.3. Object and class model



### 3.3.3.1 User

User class holds name, surname, id, email, password, courses, permissions and notifications.

### 3.3.3.2 Company

Company class contains company information, contents of the form company filled and the link of the form to be sent to the company and approval status.

### 3.3.3.3 Student

Student class holds assigned evaluator and teaching assistants, company student chose, report status, grades, internship form contents and submission status, revision count, evaluator feedback and its status, revision deadline and report submission deadline. It is able to perform tasks related to these attributes such as increasing revision count, and standard get-set methods.

### 3.3.3.4 SuperUserAdmin

This class holds name, username, password and email. It is capable of editing other users' information. It is also capable of deleting and adding users. It can add announcements, frequently asked questions, modify approved company list, modify student grade, assign-unassign evaluator and teaching assistants.

### 3.3.3.5 Coordinators

This class only contains students as an array. It is directly associated with SuperUserAdmin class. It performs standard get-set methods related to students, company information status and feedbacks. It is capable of approving and rejecting companies, give feedback and pre-approve internship reports.

### 3.3.3.6 TA

TA class is also directly associated with SuperUserAdmin class and contains same functions as coordinators.

### 3.3.3.7 Notification

Notification class contains message and date to be displayed.

### 3.3.3.8 Permission

Permission class holds what each user can or cannot do. It holds attributes such as setting student, evaluator, course, user detail, TA, coordinator and feedback.

### 3.3.3.9 Evaluator

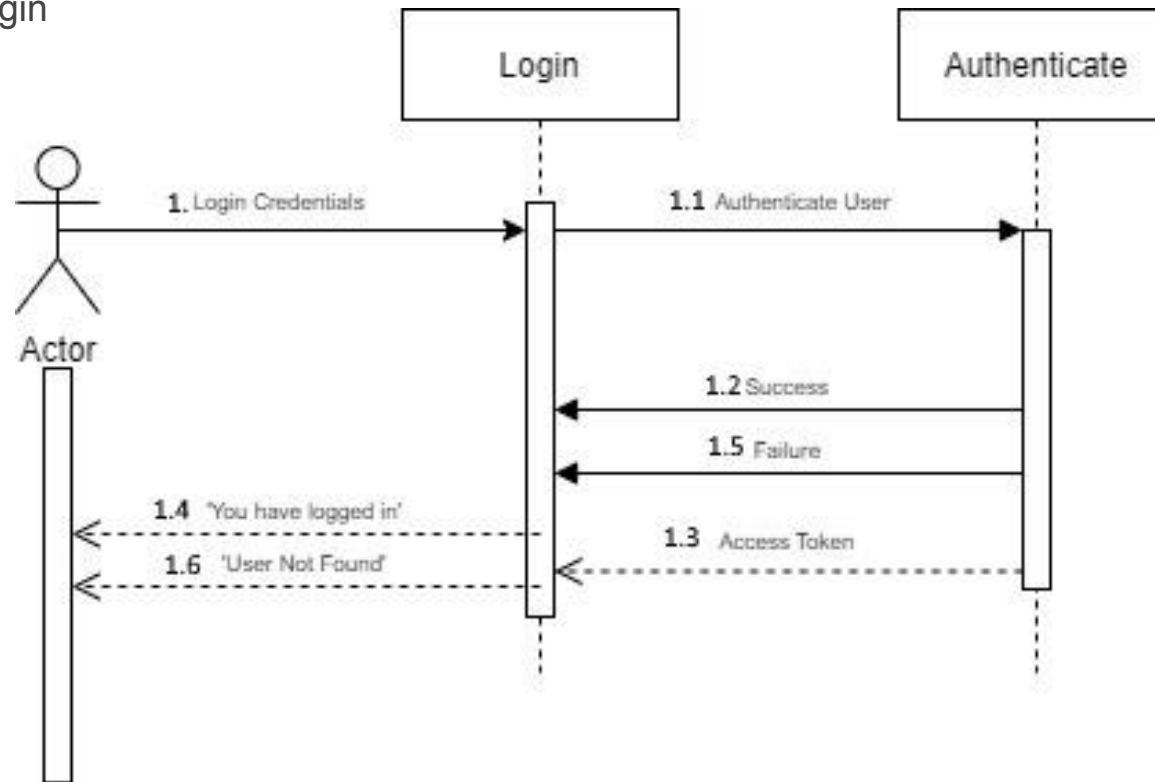
Evaluator class is able to perform evaluator capabilities. It holds student list, grading form, grading form submission status and approved company list. The class performs actions such as getting and setting grades, getting relevant documentaries, approve or reject company and giving feedback.



## 3.3.4 Dynamic Models

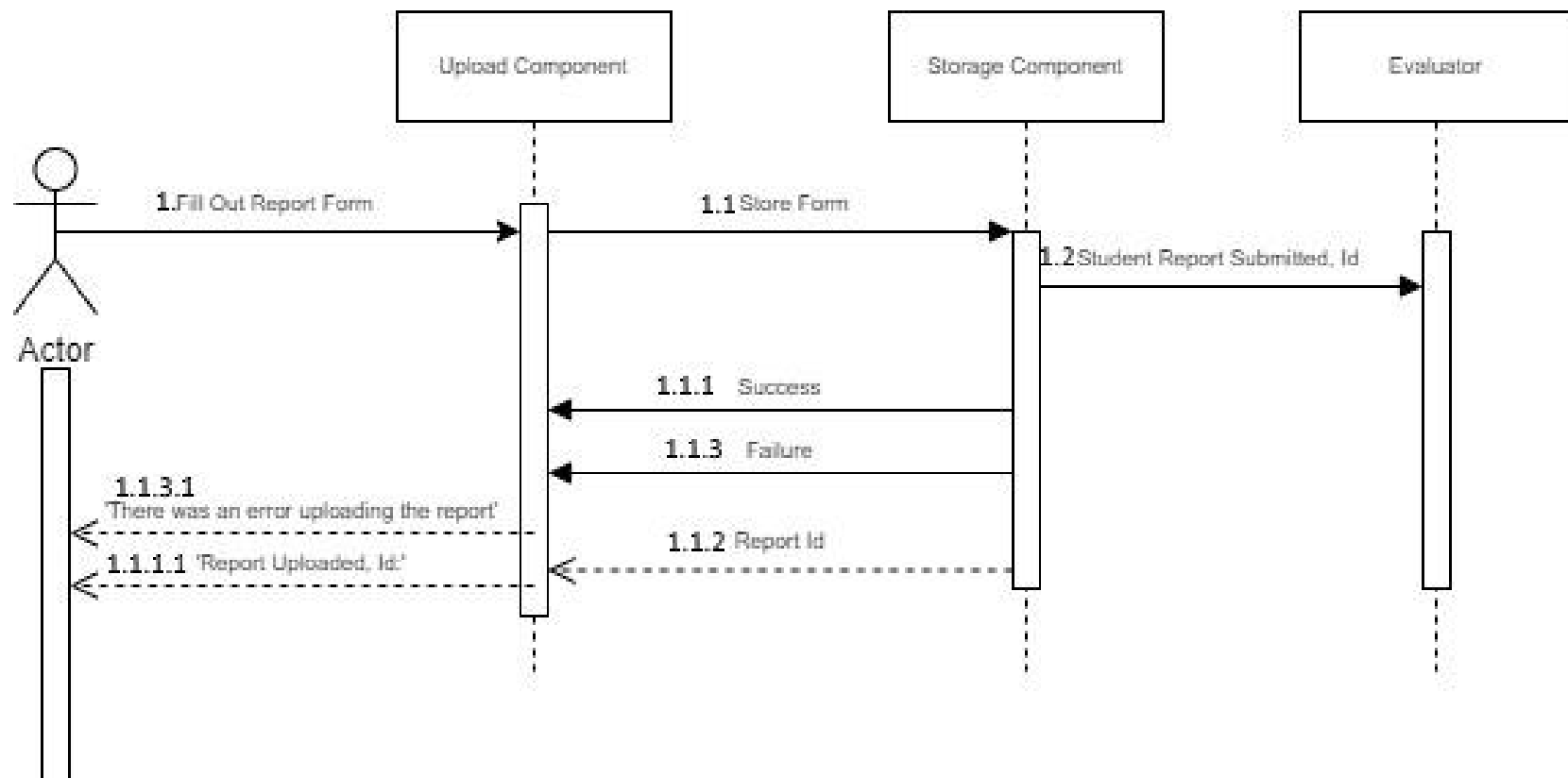
### 3.3.4.1 Sequence Diagrams

#### 3.3.4.1.1 Login



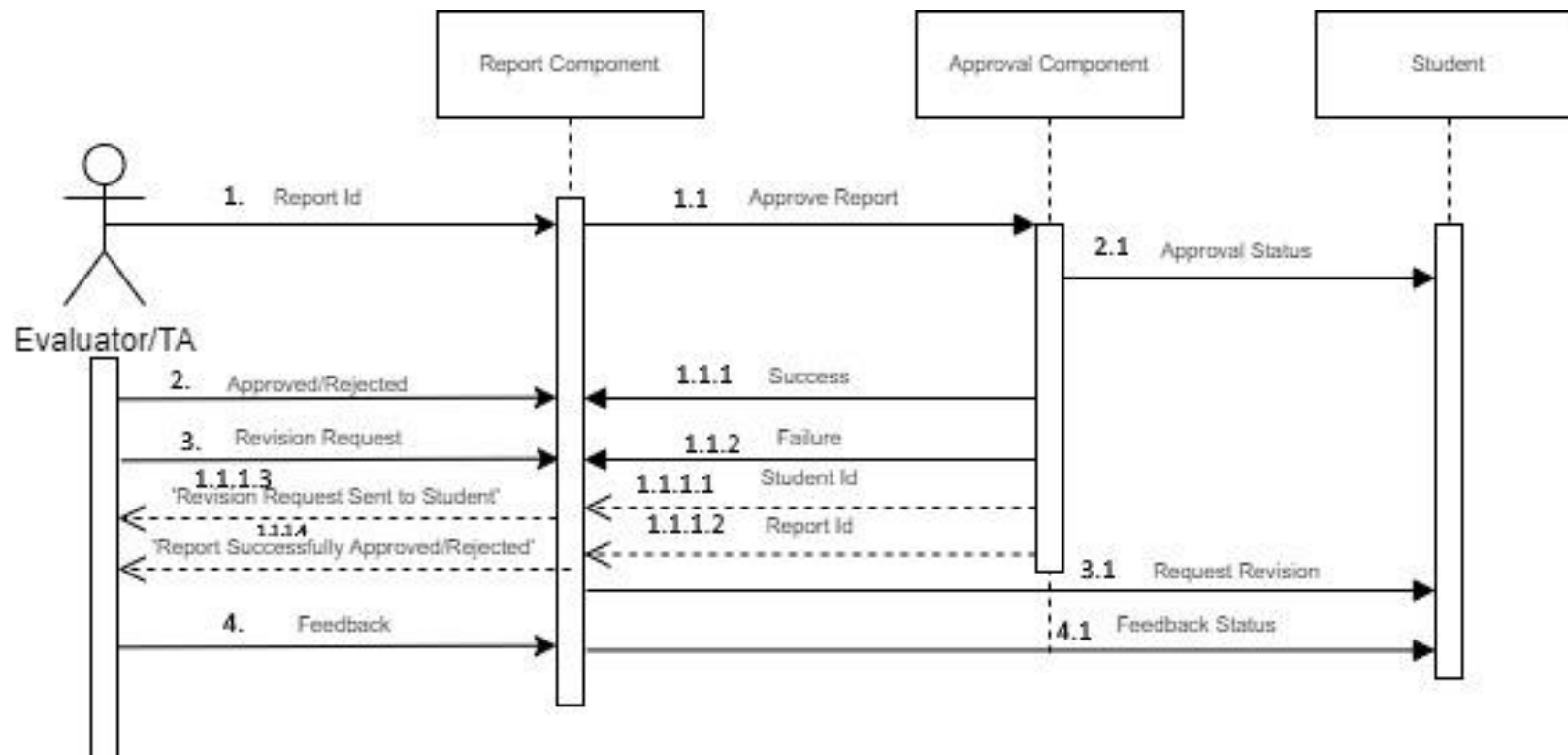
User enters his/hers login credentials. These credentials are sent to the server for authentication. If the login is successful, a message is shown to the user ‘You have logged in’ after which the user is taken to their home screen. An access token is set in the local storage of the browser for the current session. If the login was not successful, a ‘User Not Found’ error is shown to the user.

#### 3.3.4.1.1 Upload Report



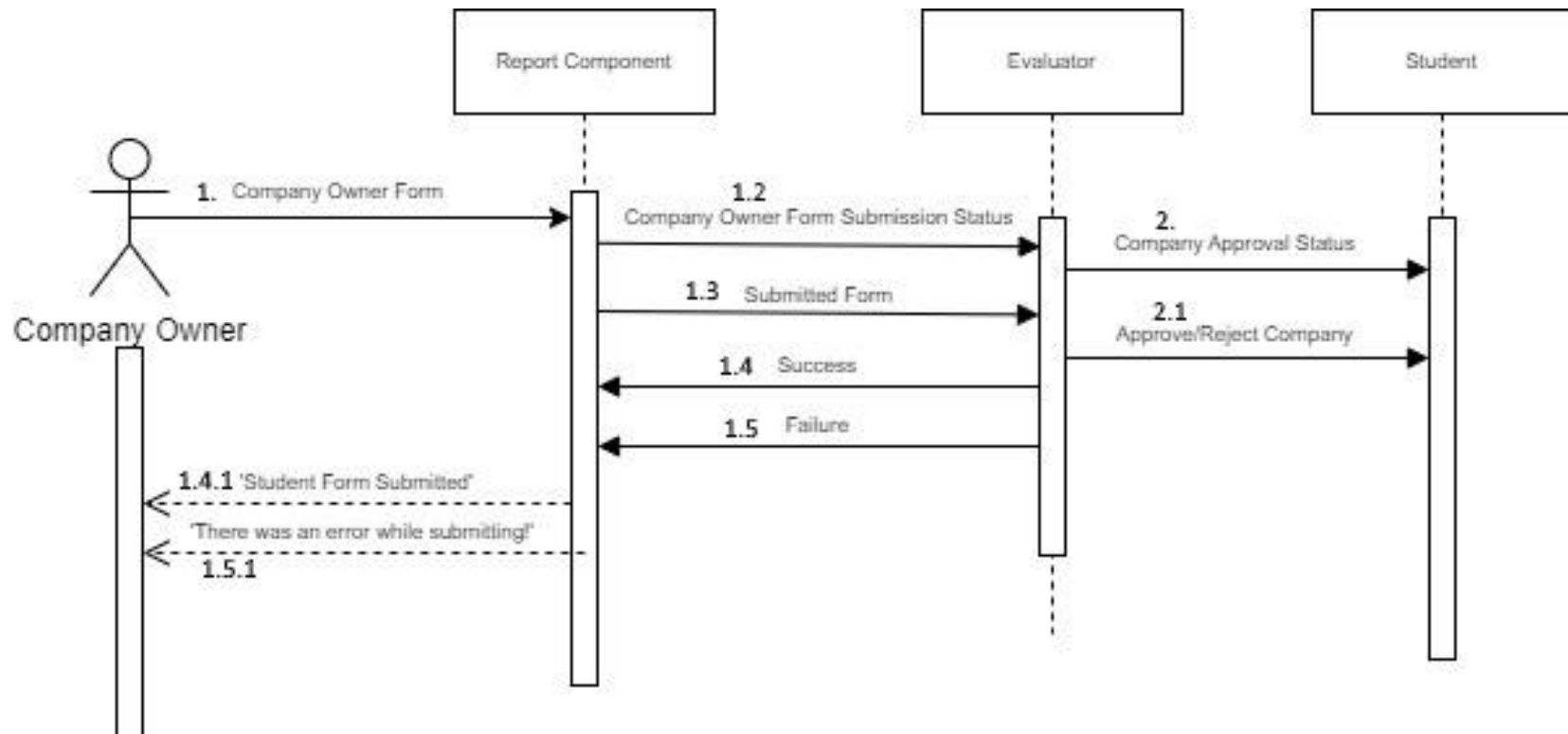
The student starts by filling out the internship report form. Upon submission, the form is then sent to the server for storage purposes. A relevant success/failure message is shown as a result to the Student. If it was successful, they are shown their report id that their report has been assigned, which will be the same in all places where the instance of that specific report exists. An accessible instance of the report will also be sent to the Evaluator for grading/viewing purposes.

#### 3.3.4.1.1 Approve Report



The Evaluator/TA starts here by selecting the report to view which is identified by the reportId in the system. This specific id is unique to each report which is then unique to each student. The user approves/rejects the report depending on the decision and this decision is sent as a status update to the student. The user can also give feedback or request a revision, and these 2 objects are sent together to the student. Moreover, upon each action, a success or failure message is sent back to the user as an update on the action being performed.

#### 3.3.4.1.1 Company Owner Form



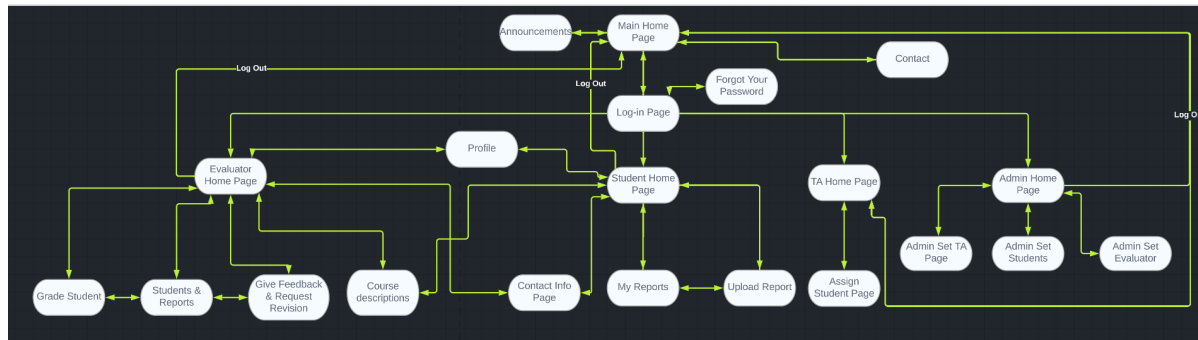
The company owner/representative opens the link sent to them in their submitted contact (preferably email). This link takes them to a unique form, specific to them and a student. One company can have several student links that allow them to fill a company report form for each of their students. Upon submission, an action update is sent to the user.

Upon submitting the form, it is sent to the storage component to be accessible by all involved parties. The evaluator can view the form and then approve/reject the company. This status is then also updated to inform the student if their company is approved/rejected.

### 3.3.5 User Interface

#### 3.4.5.1 Navigational Paths

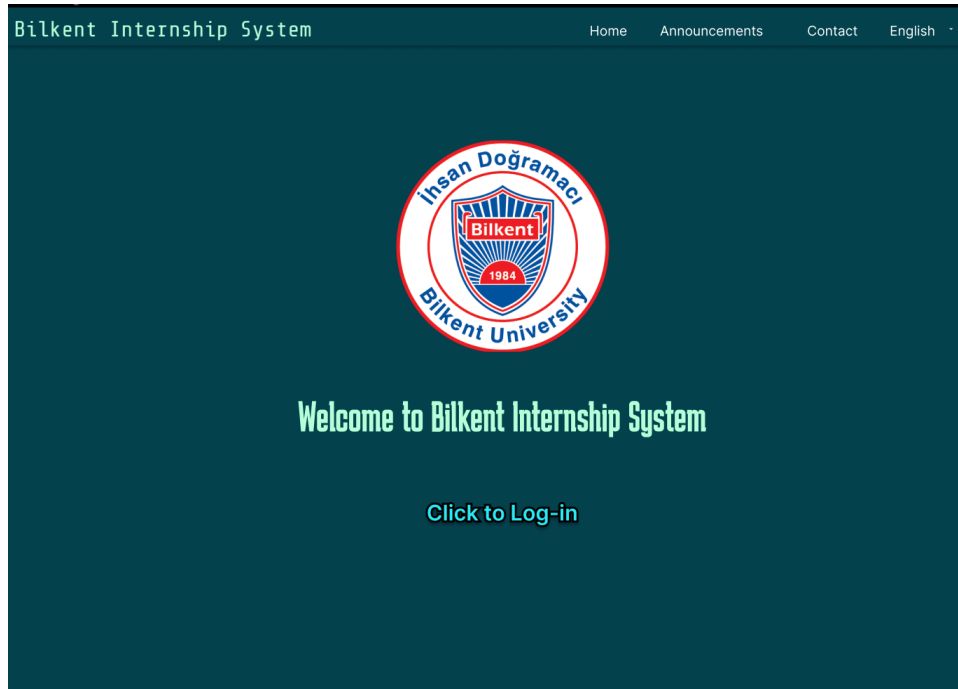
Users capability to navigate between the pages are shown below. The relation between the pages specified with the arrows.



### 3.4.5.2 Screen Mock-ups

In this section, the main features of the system and how these features will appear in front of the user are explained. Please note that these interpretations are not from the final version of the system and do not represent the entire operation of the system.

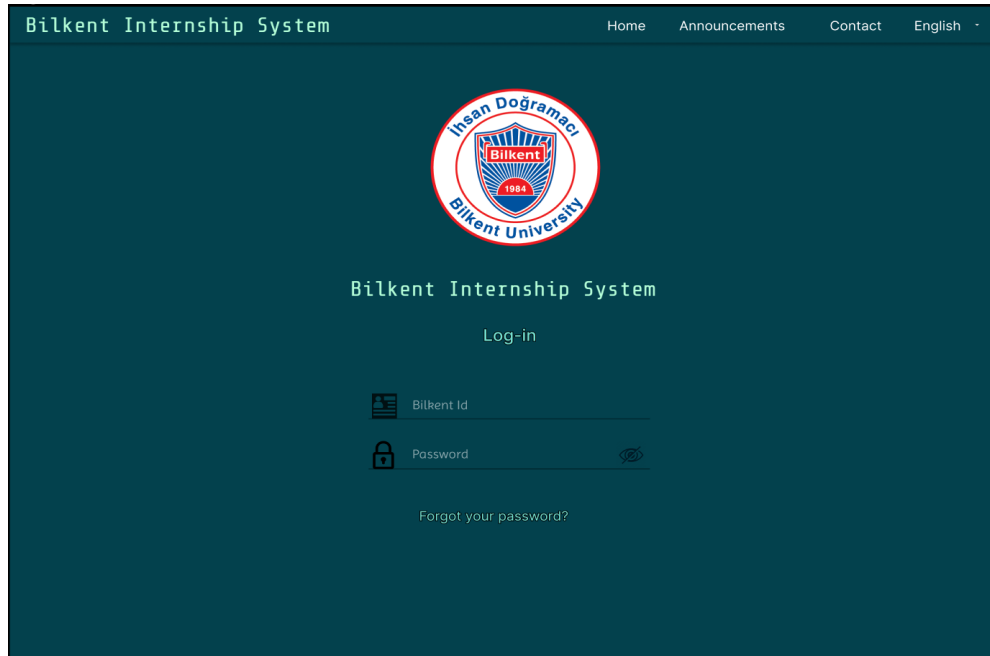
#### 3.4.5.2.1 Home Page



The home page is the first starting page of the Bilkent Internship System, and this page consists of the main upper bar and login option.

At the same time, the user, via the upper bar, can access the language setting, announcements, and contact sections without logging in. And if they want to return to the main page again, they can return to the main login page by using the home button on the top bar.

### 3.4.5.2 Log-in Page and Forgot Password




The login page accepts the username and password and creates a link to the home pages customized according to the user type. The Bilkent Internship System does not require registration because it works with each user type's currently used id and the stars system's password. In addition, the "forgot password" button takes you to the "Forgot password page" where you can get a password recovery email.



Bilkent Internship System

Home Announcements Contact English



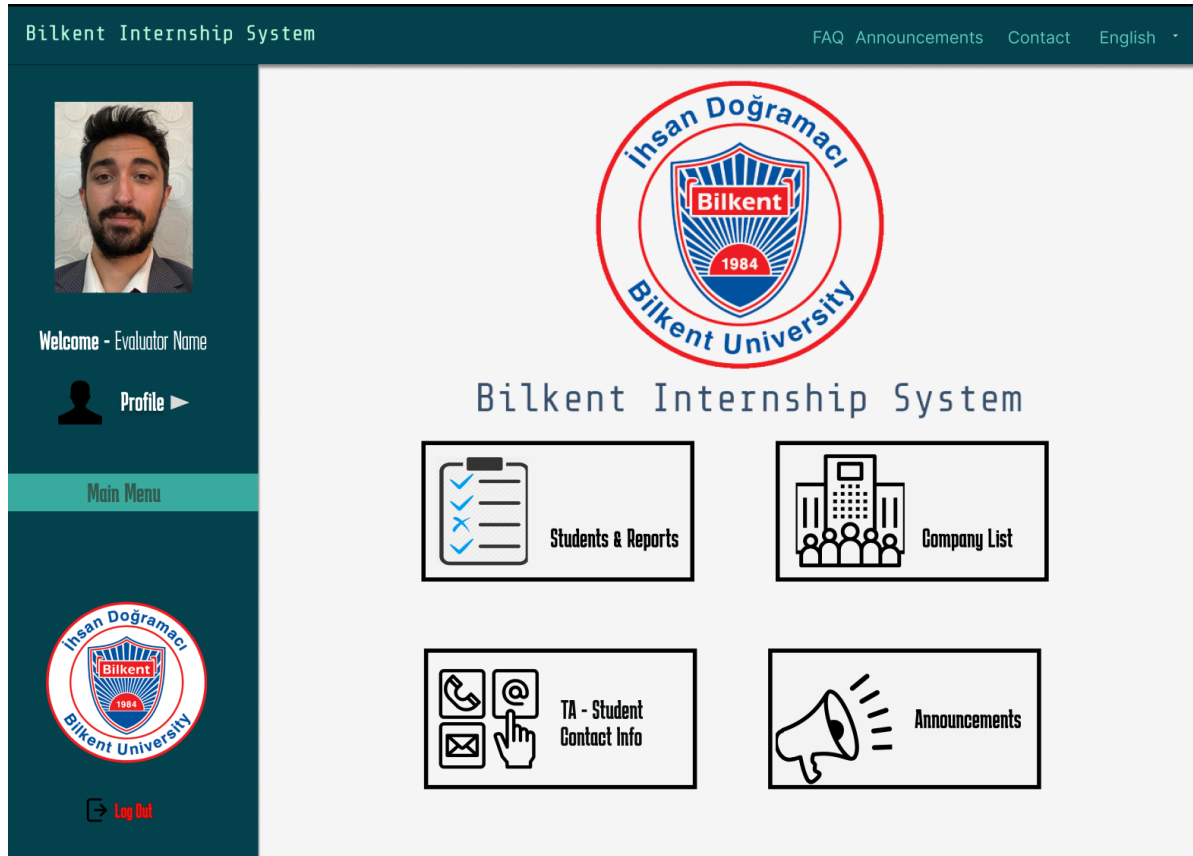
Bilkent Internship System

Forgot your password?

Send Recovery Mail

With the help of this page, users who forget their passwords can receive password recovery mail by entering their Bilkent id and e-mail address registered in the system.

### 3.4.5.2.3 Evaluator Main Page



After logging in as an evaluator, the system is directed to the home page specially designed for evaluators. On the left sidebar, there is a photo of the user from Bilkent's database, and below that, there is a welcome text with the user's name. The middle menu has four-page orientations; these are the Students & Reports page, Company List Page, TA-Student Contact Info page, and Announcements Page. Contact info and announcements page can also be accessed

from the upper bar for further convenience on the other pages. The upper bar contains an additional FAQ button and the FAQ button leads to the [FAQ page](#) on the internship website of Bilkent.

### 3.4.5.2.4 Evaluator Students & Reports Page

Bilkent Internship System									
FAQ Announcements Contact English									
Main Menu									
Students									
Course Descriptions									
Courses									
Announcements									
Summer Training Coordinators									
Other									
XX 299/ XX 399									
Students & Reports									
Student ID	Student Name	Report Submission Date	Report Submission Status	Grading Status	Company Form	Student Report Form			
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	
				Show Grade / Ungraded	View	View	Grade Student	Request Revision and give feedback	

Students & Reports page allows evaluators to see and track their assigned students and the information on the reports uploaded by these students. The table on the page contains all the necessary information about the student and their reports, such as the upload date of the uploaded reports, whether the report was uploaded, grading status, and company form. The page orientation where students will be graded is placed at the end of the student information. Evaluator determines the future of the student's report by clicking on the grading page or the request revision page from the end of the students' row.

Also, the sidebar becomes one that contains the redirects of other pages to provide more practical use. Thanks to this sidebar, users can access the orientation of every page they can go to, including the home page.

### 3.4.5.2.5 Evaluator Request Revision and Give Feedback Page

Bilkent Internship System

FAQ Announcements Contact English

Main Menu

Students

Course Descriptions

Courses

Announcements

Summer Training Coordinators

Other

## Provide Feedback

Feedback for: Student Name & Student id

View Student Submitted Report

**B I** [List] [Link] [Unlink] [Image] [Video] [Text]

↓

You can drag and drop files here to add them.

Send Feedback and Request Revision

Cancel

On this page, Evaluators can give feedback to students they deem necessary. The submission box on the page will allow the evaluators to provide written feedback in text form and upload documents. The "View Students Submitted Report" button on the top left of the submission box will help the evaluator easily access the student report if necessary.

### 3.4.5.2.6 Evaluator Grade Student Page

Bilkent Internship System

FAQ Announcements Contact English

Main Menu

Students

Course Descriptions

Courses

Announcements

Summer Training Coordinators

Other

## Grade Student

Grading Student: Student Name & Student id

View Student Submitted Report View Student Company Report

Part A

Part B

Part C

Final Grade

Cancel

Save Form for later

Submit Grade

On this page, evaluators can grade according to the sections of the reports of the student they choose from the reports page. At the same time, if evaluators do not want to give the grade at a time and continue the evaluation process, they can save the grade as a draft and finish the grading when they are completed grading later.

### 3.4.5.2.7 Profile Page for Evaluators and Students

Bilkent Internship System

FAQ Announcements Contact English

Main Menu


Course Descriptions

Courses


Announcements

Summer Training Coordinators

Other



User Name

 Profile

User Information

Email address  
xxxx.xxxx@cs.bilkent.edu.tr

Bilkent ID  
2XXXXX

Bilkent Department  
XX

Reset Internship System Password

Old Password

New Password

New Password

Change

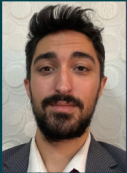
This section just changes your password on this system

The profile page allows users to see and control their information in the system and to change only their passwords that are valid in the internship system.


### 3.4.5.2.8 Student Home Page

Bilkent Internship System


FAQ Announcements Contact English





Welcome - Student Name

 Profile ▶


Main Menu




 Log Out




Bilkent Internship System




Upload Report



My Reports



TA - Student  
Contact Info & Summer  
Training Coordinators

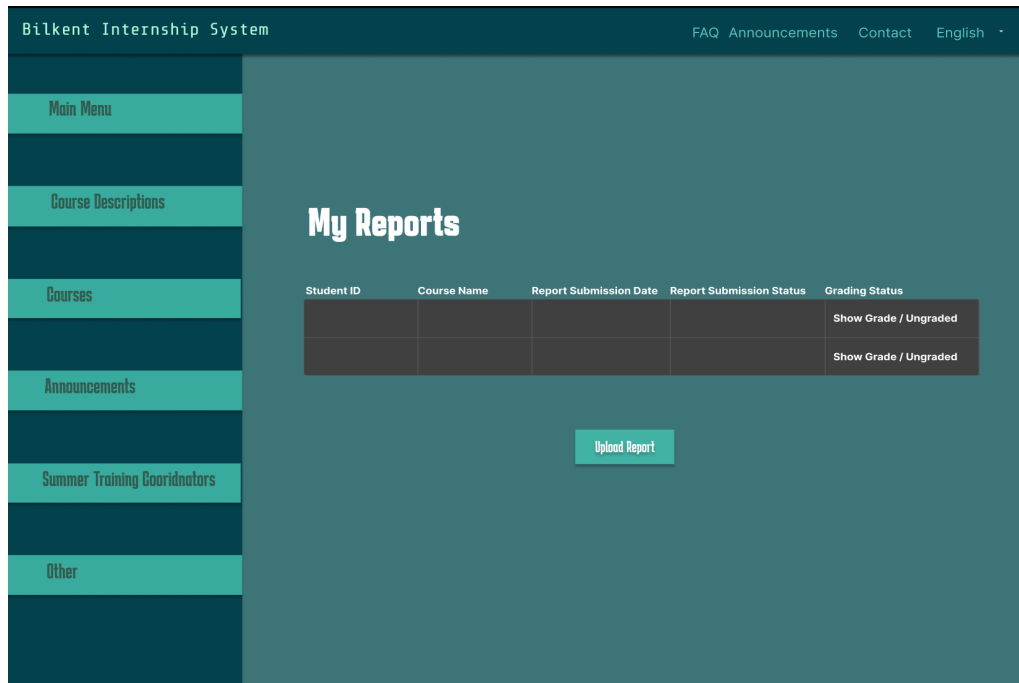


Course Descriptions



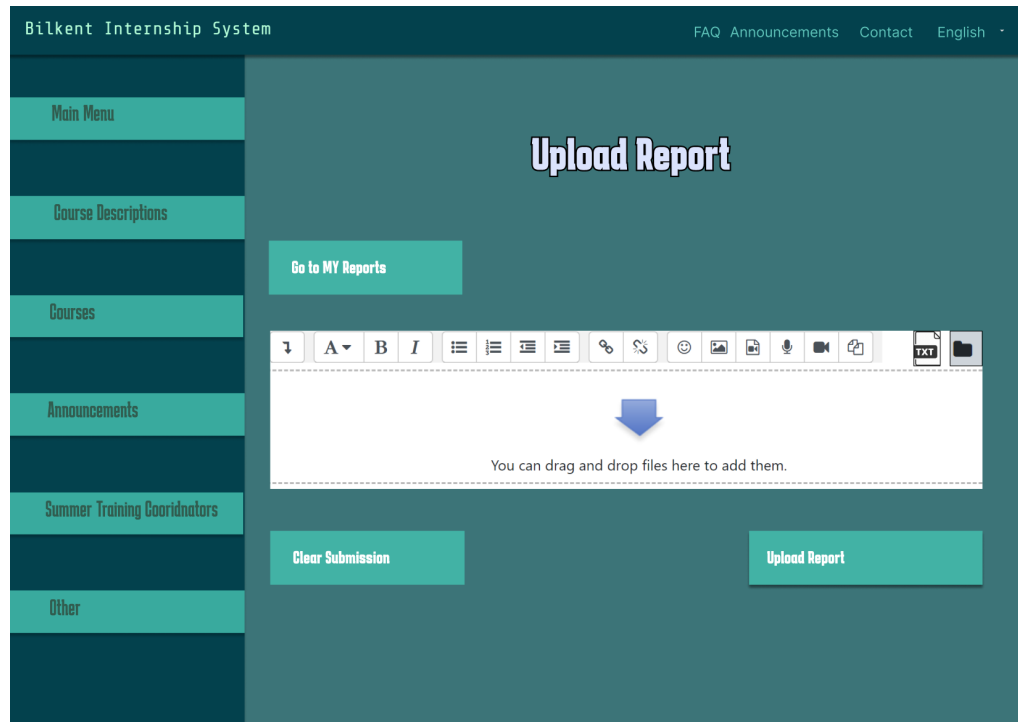
Student Home Page has a similar design to Evaluator Home Page. From this page, students can access the most necessary pages for them, such as Upload Report and My Reports, from the middle menu, and they will also be able to easily enter informational pages, such as announcements and frequently asked questions, with the help of the upper bar.

### 3.4.5.2.9 Student My Reports Page



My Reports Page allows students to keep track of the reports they have previously uploaded, if any. Users who wish can continue to the report upload page by clicking the "Upload Report" button at the bottom of this page.

### 3.4.5.2.10 Student Upload Report Page



On this page, students can upload their Reports in the format specified for them. As on the My Reports page, this page also has a button that allows them to return to the My Reports page for user convenience.

## 4. Conclusion

The Quaso Internship Program was created to not only make handling internship reports simpler, but also to improve the user experience for all parties involved. Users can easily navigate the program and complete their duties quickly thanks to its aesthetically pleasing and functional interface, which has a low cognitive load. To keep all users updated on the state of their reports, deadlines, and feedback, the application also offers real-time updates and notifications. Additionally, the user-friendly layout of the program and the centralization of documents and information lessen the possibility of mistakes and confusion, ensuring the efficiency of the internship administration process.

The Quaso Internship Program's capacity to improve the caliber of internship reports is a major additional benefit. Students can concentrate more on the content of their reports thanks to the system's streamlined and streamlined process, which frees them from having to worry about the administrative duties involved in the process. The system's centralized platform also enables better report tracking and management, making it simpler for evaluators to offer thorough criticism and development suggestions. This feature makes sure that students get insightful criticism and direction, which results in internship reports of better quality.

In conclusion, the engineering students and employees at Bilkent University can benefit greatly from the system. The system improves cooperation and communication between students, assistants, and evaluators, streamlines the management of internship reports, and raises the caliber of internship reports. A smooth and effective internship administration process is ensured by the program's user-friendly design, centralization of papers and information, and real-time updates. The Quaso Internship Program is anticipated to be an indispensable instrument for students and staff, simplifying their lives and raising the standard of the internship management process thanks to its many advantages.

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