**COMSATS University Islamabad, Abbottabad Campus**

**Department of Computer Science**

**Project Proposal:**

**Admission System**

**CSC392 Object Oriented Software Engineering**

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# CHAPTER 1 PROJECT PROPOSAL

## Introduction

**Project Overview:**

The admission system is a software project aimed at streamlining and simplifying the process of admissions in educational institutions. The project will involve developing a web-based application that will automate the process of student enrollment and admission by providing an efficient, user-friendly, and secure platform for both the students and the institution.

**Problem Statement:**

The current admission process in many educational institutions is often manual, paper-based, and time-consuming, which can lead to errors, delays, and inconsistencies. The process involves filling out various forms, submitting documents, and waiting for approval, which can be frustrating for students and staff alike. Additionally, the manual process can be vulnerable to data loss or theft, which poses a security risk.

**Objectives:**

The main objective of the admission system project is to develop a web-based application that will automate the admission process, thus simplifying and streamlining the entire process. The system aims to provide an efficient, user-friendly, and secure platform for both the students and the institution. The objectives of the project include:

* Developing an easy-to-use interface for students to submit their application and relevant documents online.
* Providing real-time updates to students about their admission status.
* Automating the approval process, reducing processing time and errors.
* Enhancing security by implementing data encryption and access controls.
* Providing administrative tools for staff to manage the admission process efficiently.
* Creating a scalable system that can accommodate a growing number of students and institutions.

## Vision and Business Case:

**The vision for the Admission System project is to create a streamlined, user-friendly platform that simplifies the admission process for students and reduces the administrative burden on the university. The system will automate many of the manual processes involved in admission, enabling faster processing of applications and reducing errors and delays.**

**The high-level goals for the Admission System project include:**

**Creating an efficient, user-friendly platform for students to apply for admission**

**Streamlining the admission process for the university and reducing administrative burden**

**Improving the accuracy and speed of application processing**

**Enhancing the overall experience for students and improving their satisfaction with the admission process**

**In addition to these goals, the project also faces some constraints and challenges. These include:**

**Ensuring data security and privacy for student information**

**Meeting legal and regulatory requirements for admission processes**

**Integrating with existing university systems and processes**

**Providing a platform that is accessible and user-friendly for all students, regardless of their technical ability**

**The business case for the Admission System project is strong. By automating many of the manual processes involved in admission, the system will reduce the workload on university staff and enable faster processing of applications. This will ultimately lead to a better experience for students and a more efficient process for the university. The improved efficiency of the system will also enable the university to process a larger number of applications, potentially leading to increased revenue.**

**Executive summary, the Admission System project aims to create a user-friendly, efficient platform that streamlines the admission process for students and reduces administrative burden for the university. The project faces some challenges and constraints, but the business case for the project is strong, with potential benefits including improved student satisfaction, increased efficiency, and increased revenue for the university.**

## Use-Case Model

**Use-Case Model for Admission System:**

**1. Student Use Cases:**

* Register: Allows the student to enter educational and personal details to create a new account.
* Login: Allows the student to log in to their account and access their profile.
* Apply for Admission: Allows the student to apply for admission by submitting required documents and paying fees.
* Print Fee Challan: Allows the student to generate a challan for paying fees.
* View Fee Structure: Allows the student to view the fee structure for admission and related services.
* Submit Test Fee Receipt: Allows the student to submit the receipt for the test fee paid.
* Submit Admission Fee Receipt: Allows the student to submit the receipt for the admission fee paid.
* Update Profile: Allows the student to update their profile information, which needs to be verified by the admin.

**2. Admin Use Cases:**

* Announce Admission: Allows the admin to announce the admission process and set criteria for admission.
* Verify Student: Allows the admin to verify the student's information and documents submitted during the admission process.
* Set Fee Structure: Allows the admin to set the fee structure for admission and related services.
* Generate Fee Structure: Allows the admin to generate the fee structure for students.
* Set Discipline: Allows the admin to set the rules and regulations for the students.
* Generate Merit List: Allows the admin to generate the merit list of the selected students based on their academic and other criteria.
* Enter Test Marks: Allows the admin to enter the marks obtained by the students in the admission test.
* Generate Waiting List: Allows the admin to generate a waiting list of the students who have not been selected in the merit list.
* Generate Admission Challan: Allows the admin to generate a challan for the admission fee paid by the students.
* Set Welcome Schedule: Allows the admin to set the schedule for welcoming the new students to the institute.
* Note: During the inception phase, use case names will be identified, and some use cases will be analyzed in detail to determine their functional requirements.

## Supplementary Specification

The supplementary specification for the Admission System project describes other requirements, mostly non-functional, that are not covered in the use case model. During inception, it is useful to have some idea of the key non-functional requirements that will have a major impact on the architecture. The non-functional requirements for the Admission System project are as follows:

**Performance:**

The system shall be able to handle a large volume of users and transactions without any significant decrease in performance.

The system shall provide responses to user requests within 2 seconds.

**Reliability:**

The system shall have a minimum uptime of 99.9%.

The system shall be able to recover from hardware and software failures within 2 hours.

**Security:**

The system shall ensure the privacy and security of student information.

The system shall provide authentication and authorization mechanisms to ensure that only authorized users can access the system.

**Usability:**

The system shall have a user-friendly interface that is easy to navigate.

The system shall provide clear and concise error messages to users.

**Accessibility:**

The system shall be accessible to all users, including those with disabilities.

The system shall support multiple languages to cater to international students.

**Scalability:**

The system shall be able to handle an increasing number of users and transactions without any significant decrease in performance.

The above non-functional requirements will have a major impact on the architecture of the Admission System project.

## Glossary

The glossary for the Admission System project includes key domain terminology and a data dictionary for the system.

**Key Domain Terminology:**

**Admission:** The process of applying and being accepted to a university or college.

**Student**: A person who applies for admission to a university or college.

**Fee Challan:** A document that provides details of the fee payment for a test or examination.

**Educational Documents:** The data elements that capture the educational details of a student, including their academic records and certificates.

**Discipline:** The data elements that capture the eligibility criteria and requirements for each program.

## Risk List & Risk Management Plan

The Risk List for the Admission System project describes the potential risks, including business, technical, resource, and schedule risks, and ideas for their mitigation or response. The Risk Management Plan outlines how the project team will manage these risks to minimize their impact on the project.

**Risk List:**

**Business Risk**: Competition from other universities or colleges offering similar programs may result in a decrease in student enrollment. Mitigation: The Admission System will provide a user-friendly and efficient admission process that will attract more students.

**Technical Risk:** The Admission System may face technical difficulties during the development process, leading to delays and increased costs. Mitigation: The project team will ensure that they have the necessary technical expertise and resources to address any technical challenges that may arise during the project.

**Resource Risk:** The project team may face resource constraints, including a lack of skilled personnel or limited budget, which may impact the project timeline and quality. Mitigation: The project team will ensure that they have the necessary resources, including skilled personnel and adequate budget, to complete the project successfully.

**Schedule Risk:** The project may face delays due to unforeseen circumstances, such as changes in project scope, unavailability of resources, or technical issues. Mitigation: The project team will develop a detailed project schedule with clear milestones and deadlines and will monitor progress regularly to identify any potential delays and take corrective action.

**Risk Management Plan:**

The Risk Management Plan for the Admission System project outlines how the project team will manage the identified risks to minimize their impact on the project. The plan includes the following steps:

**Risk Identification**: The project team will identify potential risks and document them in the Risk List.

**Risk Assessment:** The project team will assess the potential impact and likelihood of each identified risk.

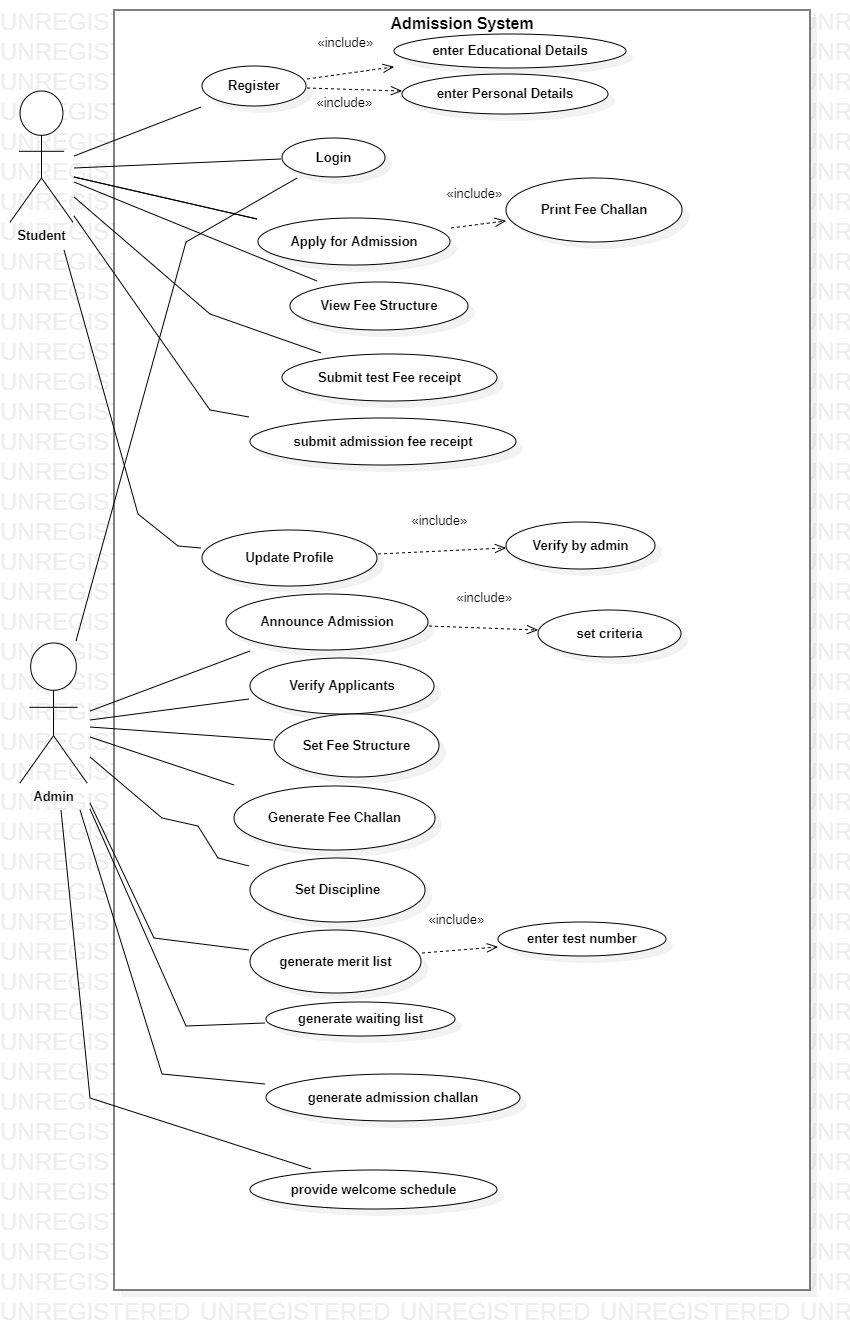
**Risk Response Planning:** The project team will develop a plan to mitigate or respond to each identified risk.

**Risk Monitoring and Control:** The project team will monitor the identified risks throughout the project and take corrective action as necessary.

**Risk Reporting:** The project team will report on the status of the identified risks and any actions taken to manage them to the project stakeholders.

# CHAPTER 2: USE CASES

## Use Case Diagram



## Use Cases Distribution

|  |  |  |
| --- | --- | --- |
| S#. | Group Member | Assigned Use Cases |
| 1 | Abdullah  FA21-BSE-004 | UC 1: Register  UC 2: Login  UC 3: Apply for Admission  UC 4: Generate Admission Challan |
| 2 | Waqas  FA21-BSE-040 | UC 5: View fee structure  UC 6: Print fee structure  UC 7: Submit fee challan.  US 8: submit admission fee challan |
| 3 | Ahtisham ul haq  FA21-BSE-072 | UC 9: update profile  UC 10: announce admission.  UC 11: verify student.  UC 12: set fee structure |
| 4 | Ibrahim  FA21-BSE-186 | UC 13: Generate merit list.  UC 14: generate waiting list.  UC 15: set discipline  UC 16: provide welcome schedule |

## Brief Level Use Cases

**AHTISHAM UL HAQ (FA21-BSE-072):**

**Use case: update profile:**

The update profile use case involves the student wanting to modify their personal information in the system. The student starts by navigating to their profile page and selecting the edit option. The system then displays the current profile information and allows the user to update any relevant fields, such as name, address, or phone number. Once the user has made the necessary changes, they submit the updated information to the system. The admin validates the information and updates the user's profile, confirming the successful update to the student.

**Use case: announce admission:**

The Admin announces admission by setting the admission criteria, including minimum qualifications and required documents. They then publish the announcement on the admission portal or website for students to view. This allows students to prepare their application materials accordingly and apply for admission within the specified time frame.

**Use case: Verify Student/Student:**

The Verify Student/Student use case involves the admin verifying the student's information in the system. The admin starts by navigating to the student's profile page and selecting the verify option. The system then displays the student's personal information and educational details. The admin checks the authenticity of the information provided by the student and validates it. Once the admin is satisfied with the information, they mark the student as verified in the system. The system sends a notification to the student about the successful verification.

**Use case: Set Fee Structure:**

The set fee structure use case involves the admin setting the fees for different programs and categories. The admin navigates to the fee structure management page and selects the set fee option. The system then displays a form where the admin can enter the program name, category, and the corresponding fees. Once the admin enters the fees, they submit the form to the system. The system verifies the fees and updates the fee structure accordingly. The admin receives a confirmation message of the successful update of the fee structure.

## Fully Dressed Use Cases

## Ahtisham ul haq (FA21-BSE-072-4A)

**Use case: update profile:**

**Scope:** admission system.

**Level:** User goal

**Primary Actor:** Student

**Stakeholders and Interests:**

Student wantsto update their personal information in the admission system.

Admission System: Needs to ensure that the updated information is accurate and secure.

**Preconditions:**

The student must have an existing account in the admission system.

The student must be logged in to their account.

**Success Guarantee (or Post-conditions):**

The updated personal information is saved in the admission system.

**Main Success Scenario (or Basic Flow):**

* The student navigates to the "Update Profile" section of the admission system.
* The system displays the current personal information of the student.
* The student updates the necessary fields of their personal information.
* The system validates the updated information.
* The system saves the updated personal information of the student.
* The system displays a message confirming the successful update of personal information.

**Extensions (or Alternative Flows):**

If the student provides invalid information, the system displays an error message and prompts the student to correct the information.

If the student navigates away from the "Update Profile" section without saving their changes, the system prompts the student to confirm if they want to discard the changes or save them.

If there is a technical issue preventing the system from saving the updated information, the system displays an error message and prompts the student to try again later.

**Special Requirements:**

The system should ensure the security of the updated personal information and protect it from unauthorized access.

**Technology and Data Variations List:**

The admission system must be accessible through a web browser or mobile application.

The personal information fields may vary depending on the admission system's requirements.

**Open Issues:**

None.

**Exceptions:**

If there is a technical issue with the system, preventing the announcement from being published, the system will display an error message and notify the administrator of the issue.

If the administrator does not have the necessary permissions to publish an announcement, the system will display an error message and prevent the announcement from being published.

**Use Case Name: Announce Admission:**

**Scope:** Admission System

**Level:** User-goal

**Primary Actor:** admin

**Stakeholders and Interests:**

Prospective students: interested in knowing the admission status and dates.

**Preconditions**:

The admission offers have been finalized and approved by the admission committee.

The Admin has the authority to announce the admission.

**Success Guarantee (or Post conditions):**

The announcement is successfully posted on the admission system.

The prospective students, current students, faculty members, and staff members can access the announcement.

**Main Success Scenario (or Basic Flow):**

* The Admin navigates to the announcement section of the admission system.
* The Admin creates a new announcement.
* The Admin provides the following information in the announcement:
* Title of the announcement
* Brief description of the announcement
* Date and time of the announcement
* Target audience (e.g., prospective students, current students, faculty members, staff members, etc.)
* The Admin previews the announcement to ensure accuracy and completeness.
* The Admin publishes the announcement.
* The system displays the announcement to the targeted audience.
* The targeted audience receives a notification about the announcement.

**Extensions (or Alternative Flows):**

If the Admin needs to edit the announcement after publishing, the Admin can select the announcement and edit the information.

If the Admin needs to delete the announcement, the Admin can select the announcement and delete it.

If the announcement needs to be published at a future date and time, the Admin can schedule the announcement for a later date and time.

**Special Requirements:**

The announcement section of the admission system should be accessible to the Admin.

The announcement section of the admission system should be accessible to the targeted audience.

The announcement section of the admission system should have the ability to notify the targeted audience.

**Technology and Data Variations List:**

The admission system should be accessible via web browsers on desktops, laptops, and mobile devices.

The announcement section of the admission system should support text, images, and videos.

**Open Issues:**

None.

**Exceptions:**

If there is a technical issue with the system, preventing the announcement from being published, the system will display an error message and notify the administrator of the issue.

If the administrator does not have the necessary permissions to publish an announcement, the system will display an error message and prevent the announcement from being published.

If there is missing or invalid information in the announcement, the system will prompt the administrator to correct the information before publishing the announcement.

**Use Case Name: Verify Student:**

**Scope:** Admission system

**Level:** User goal

**Primary Actor:** Admin

**Stakeholders and Interests:**

Admin: Wants to verify a student's information to ensure accuracy and authenticity.

Student wantstheir information to be accurately represented in the admission system.

**Preconditions:**

The student has submitted an application to the admission system.

The student's information is recorded in the admission system.

**Success Guarantee (or Post-conditions):**

The Admins verifies the student's information.

The student's information is marked as verified in the admission system.

**Main Success Scenario (or Basic Flow):**

* The Admins logs into the admission system.
* The Admins selects the "Verify Student" option.
* The system displays a list of unverified students.
* The Admins selects a student to verify.
* The system displays the student's application and information.
* The Admins verifies the student's information.
* The Admins marks the student's information as verified in the system.
* The system updates the student's record with the verification status.

**Extensions (or Alternative Flows):**

If the Admins finds incorrect or missing information, they can update it in the system.

If the Admins is unable to verify the student's information, they can mark it as unverified and request additional documentation from the student.

If the student has already been verified, the system will display a message indicating that the verification has already been completed.

**Special Requirements:**

The system must be able to store and display student information and application data.

The system must have the ability to mark student information as verified.

**Technology and Data Variations List:**

The admission system must be compatible with standard web browsers.

The student information must be stored securely and in compliance with privacy laws.

**Open Issues:**

How will the system handle cases where the student has submitted multiple applications with conflicting information?

**Use case name: set fee structure:**

**Scope**: Admission System

**Level:** User goal

**Primary Actor:** Admin

**Stakeholders and Interests:**

Admin: Wants to set the fee structure for the academic year.

Students: Want to know the fee structure for the academic year.

**Preconditions:**

The admin is logged in to the admission system.

The academic year for which the fee structure is to be set has been defined.

The admin has appropriate permissions to set the fee structure.

**Success Guarantee (or Post conditions):**

The fee structure for the academic year has been set.

Students, faculty, and staff can access the fee structure information.

**Main Success Scenario (or Basic Flow):**

* The admin navigates to the "Fee Structure" section of the admission system.
* The system displays a form to set the fee structure for the academic year.
* The admin sets the fees for various programs, courses, and categories of students.
* The admin saves the fee structure.
* The system displays a confirmation message that the fee structure has been set successfully.
* The system updates the fee structure information for the academic year.
* Students can access the fee structure information on the admission system.

**Extensions (or Alternative Flows):**

If the administrator wants to edit the fee structure after it has been set, they can navigate to the "Fee Structure" section and edit the fees.

If the administrator wants to discard the changes made to the fee structure, they can click on the "Cancel" button on the form.

If the administrator wants to set different fees for specific categories of students, such as international students, they can select the appropriate options on the form and set the fees accordingly.

**Special Requirements:**

The system should validate that the fees set by the administrator are reasonable and consistent with the policies of the institution.

The system should allow the administrator to set the fee structure for different semesters or terms, if applicable.

**Technology and Data Variations List:**

The fee structure form should be accessible on desktop and mobile devices.

The fee structure information should be stored in a database and accessed securely by the admission system.

**Open Issues:**

It may be necessary to communicate the fee structure information to students and other stakeholders through email or other channels

**Brief Level Use Cases:**

**Abdullah (FA21-BSE-004):**

**Use case: Register:**

When a student wants to apply in the university The Registration is the first and the most important step of this system to collect the personal and previous educational detail of the student. the registration feature will use to gather information about students such as their name, contact information, login Information (For this System), academic history and personal details.

**Use case: Login:**

The Login use case involves both for admin and student. When the user wants to enter in the system they must fill their login detail (User ID, Password) which they register in their Login Information in registration Phase. This feature ensure only authorized users can login to the System.

**Use case: Apply for Admission:**

The “apply for admission” use case involves the student. The students are allowing to apply for admission respective field according previous educational structure. This feature provides a mechanism for students to pay the application fee online or by getting the print of fee challan.

**Use case: Generate Admission Fee Challan:**

The Generate Admission Fee Challan use case involves the admin to generate the fee challan for those students who passed their assessment, and listed up in the merit list

## Abdullah (FA21-BSE-004-4A)

**Use case: Register:**

**Scope:** admission system.

**Level:** User goal

**Primary Actor:** Student

**Stakeholders and Interests:**

Student wantsto add their personal information and educational in the admission system.

Admission System: Needs to ensure that the updated information is accurate and secure.

**Preconditions:**

Internet, Laptop and some documents required for admission.

The student must be logged in to their account.

**Success Guarantee (or Post-conditions):**

The added educational and personal information is saved in the admission system. Login Id is also created through this information.

**Main Success Scenario (or Basic Flow):**

* The student navigates to the "Registration Starts" section of the admission system.
* The user will get the form in which personal, academic history, login detail will required
* The system will create new account on given information
* System send the confirmation link to the accounts details.
* The system will show the login page at the end of the process.

**Extensions (or Alternative Flows):**

If the student provides invalid information, the system displays an error message and prompts the student to correct the information.

If the student navigates away from the “Register" section without saving their changes, the system prompts the student to confirm if they want to discard the changes or save them.

If there is a technical issue preventing the system from saving the added information, the system displays an error message and prompts the student to try again later.

**Special Requirements:**

The system should ensure the security of the added personal information and protect it from unauthorized access.

**Technology and Data Variations List:**

The admission system must be accessible through a web browser or mobile application.

The personal information fields may vary depending on the admission system's requirements.

**Open Issues:**

None.

**Exceptions:**

If there is a technical issue with the system, preventing the announcement from being published, the system will display an error message and notify the administrator of the issue.

If the administrator does not have the necessary permissions to publish an announcement, the system will display an error message and prevent the announcement from being published.

**Use Case Name: Login:**

**Scope:** Admission System

**Level:** User-goal

**Primary Actor:** Admin, Student

**Stakeholders and Interests:**

Prospective students: interested in knowing the admission status and dates.

**Preconditions**:

Must be register in the system before login.

User can login by the valid user name, and password. Which is given in registration phase.

**Success Guarantee (or Post conditions):**

User can only login with the correct user name and password.

The use is granted access to the system and is able to access their personalized dashboard or home page.

**Main Success Scenario (or Basic Flow):**

* The main success scenario for the "Login" use case in an admission management system typically involves the following steps:
* The user navigates to the login page and enters their username and password.
* The system validates the user's credentials and checks if they are authorized to access the system.
* If the credentials are valid and the user is authorized, the system grants access to the user and displays their personalized dashboard or home page.
* The user can then access the features and functionality available to them based on their role within the system, such as applying for admission, checking their application status, or accessing administrative features.
* The system tracks the user's activity within the system, which can be used for reporting and analysis purposes.

**Special Requirements:**

* **Security:** The login process must be secure to prevent unauthorized access to the system. This can include features such as password encryption, two-factor authentication, and session timeouts to protect user accounts.
* **Role-based access control:** The system must have role-based access control to ensure that users are only able to access features and functionality that are relevant to their role within the system.
* **Integration with user management systems:** The system should be able to integrate with user management systems, such as LDAP or Active Directory, to simplify user authentication and management.
* **Password recovery:** The system should provide a password recovery mechanism to allow users to reset their passwords if they forget them.
* **User feedback**: The system should provide feedback to the user during the login process, such as error messages for invalid login credentials or notifications for expired passwords.

**Technology and Data Variations List:**

The admission system should be accessible via web browsers on desktops, laptops, and mobile devices.

The announcement section of the admission system should support text, images, and videos.

**Exceptions:**

**Invalid username or password:** The system may detect that the username or password entered by the user is incorrect. In this case, the system should display an error message informing the user that their login attempt was unsuccessful and prompting them to re-enter their login credentials.

**Use Case Name: Apply for Admission:**

**Scope:** Admission system

**Level:** User goal

**Primary Actor:** Student

**Stakeholders and Interests:**

Admin: verify a student's information to ensure accuracy and authenticity.

Student: information to be accurately represented in the admission system.

**Preconditions:**

The user has already registered and has a valid account in the admission management system.

The user has reviewed the admission requirements and has determined that they are eligible to apply.

The user has gathered all necessary information and documents required for the application, such as academic transcripts, personal statements, test scores, and letters of recommendation.

**Success Guarantee (or Post-conditions):**

The Admins verifies the student's information.

The user has accessed the "Apply for admission" feature within the system, either through their personalized dashboard or by navigating to the appropriate page within the system.

The student's information is marked as verified in the admission system.

**Main Success Scenario (or Basic Flow):**

* The user selects the appropriate program, degree, or course of study for which they wish to apply.
* The system prompts the user to enter their personal and academic information, including their name, contact information, educational background, test scores, and any other relevant information.
* The user uploads all necessary documents required for the application, such as academic transcripts, personal statements, test scores, and letters of recommendation.
* The system verifies that all required information and documents have been submitted and that the user has met all necessary eligibility requirements for the program or course of study.
* The user confirms that all information and documents are accurate and submits the application.
* The system generates a confirmation message or receipt indicating that the application has been successfully submitted.
* The user can view the status of their application and any updates or notifications related to the application process through their personalized dashboard or by logging into the system

**Extensions (or Alternative Flows):**

If the Admins finds incorrect or missing information, they can update it in the system.

The system may require additional information or documents from the user beyond what is initially requested during the application process. In this case, the user will need to provide the additional information or documents before their application can be considered complete.

**Special Requirements:**

Eligible Students can apply in the specific fields.

**Technology and Data Variations List:**

The user may choose to pay their application fee using different payment methods, such as credit card, PayPal, or bank transfer. The system should be able to handle multiple payment methods and provide a secure and reliable payment

The student information must be stored securely and in compliance with privacy laws.

**Use case name: Generate Admission Fee Challan:**

**Scope**: Admission System

**Level:** User goal

**Primary Actor:** Admin

**Stakeholders and Interests:**

Admin: Wants to set the fee structure for the academic year.

Students: Want to know the fee structure for the academic year.

**Preconditions:**

The admin is logged in to the admission system.

The academic year for which the fee structure is to be set has been defined.

The admin has appropriate permissions to set the fee structure.

**Success Guarantee (or Post conditions):**

The fee structure for the academic year has been set.

Students, faculty, and staff can access the fee structure information.

**Main Success Scenario (or Basic Flow):**

* The student logs in to the admission management system using their credentials.
* The student selects the "Generate Admission Fee Challan" option from the menu or dashboard.
* The system retrieves the student's admission details and calculates the admission fees based on the program or course of study selected.
* The system generates a fee challan or invoice with the necessary details, including the student's name, admission details, due date, and total amount due.
* The system displays the fee challan or invoice on the screen and allows the student to download or print a copy for their records.
* The student pays the admission fees using the payment options provided, such as credit card or bank transfer.
* The system verifies the payment and updates the student's admission status accordingly.
* The system sends a confirmation message to the student to confirm their payment and admission status.

**Extensions (or Alternative Flows):**

If the administrator wants to edit the fee structure after it has been set, they can navigate to the "Fee Structure" section and edit the fees.

If the administrator wants to discard the changes made to the fee structure, they can click on the "Cancel" button on the form.

If the administrator wants to set different fees for specific categories of students, such as international students, they can select the appropriate options on the form and set the fees accordingly.

**Special Requirements:**

The system should validate that the fees set by the administrator are reasonable and consistent with the policies of the institution.

The system should allow the administrator to set the fee structure for different semesters or terms, if applicable.

**Technology and Data Variations List:**

The fee structure form should be accessible on desktop and mobile devices.

The fee structure information should be stored in a database and accessed securely by the admission system.

**Brief Level Use Cases:**

**WAQAS (FA21-BSE-040):**

**Use case: View fee structure:**

Prospective students and their families can view the fee structure to determine the cost of attendance and plan their finances accordingly. Admission staff can easily access the fee structure to answer questions from prospective students and provide accurate information about the cost of attendance. Overall, a clear and accessible fee structure can provide transparency and accountability tostakeholdersr and facilitate informed decision-making.

**Use case: print fee structure:**

Print fee structure option are given to student and student can easily clicked on this option and print their fee challan structure. Providing a hard copy of the fee structure to prospective students and their families who may not have access to the digital version. Providing a physical record of the fee structure for school administrators to review and analyze for budgeting and financial planning purposes. Facilitating the comparison of the fee structure with other schools' fee structures, which can help students and families make informed decisions about where to apply and attend.

**Use case: Submit fee receipt:**

Students can easily view the fee structure and getting a hardcopy of fee and easily submit in any bank. Enabling admission staff to verify payment for individual students and address any payment-related inquiries or issues. Providing a centralized location for payment records, making it easier for school administrators to review and analyze payment trends and revenue. Allowing students and families to view their payment history and remaining balances in the admission management system.

**Use case: Submit Admission Fee Receipt**

The Submit Admission Fee Receipt use case involves the student submitting proof of payment for their admission fee. The student starts by navigating to the fee submission page and selecting the option to submit the admission fee receipt. The system then prompts the student to upload a scanned copy or image of their admission fee receipt. Once the student uploads the receipt, the system validates it to ensure that the fee has been paid and the receipt is valid. The system then updates the student's fee payment status, confirming the successful submission of the admission fee receipt to the student.

## Waqas (FA21-BSE-040-4A)

**Use case: View fee structure:**

**Scope**: Admission System

**Title**: View Fee Structure

**Primary Actor**: Prospective Student

Goal in Context: The prospective student wants to view the fee structure in the admission management system to determine the cost of attendance and plan their finances accordingly.

**Preconditions:**

The prospective student has access to the admission management system.

The fee structure has been entered and updated in the system.

**Trigger:**

The prospective student clicks on the "View Fee Structure" button in the admission management system.

**Main Success Scenario:**

1. The system displays the fee structure for the academic year in a clear and organized manner.

2. The prospective student is able to view the tuition fees, other fees, and any available discounts or scholarships.

3. The prospective student is able to compare the fee structure with other schools' fee structures, if available.

4. The prospective student can click on a link or button to request more information or contact the admission office with questions.

Alternate Flow: 2a. If the fee structure has not been entered or updated in the system, the system displays an error message and prompts the admission staff to enter or update the fee structure.

**Post conditions:**

The prospective student has viewed the fee structure and has a better understanding of the cost of attendance and available funding options.

The admission staff has received a request for more information or questions about the fee structure.

**Exceptions:**

The admission management system is unavailable or inaccessible.

The system displays incorrect or outdated fee information, causing confusion or misinformation for the prospective student.

**Use case: Print fee challan:**

**Scope**: Admission System

**Title:** Print Fee Structure

**Primary Actor:** Student

Goal in Context: The student wants to print the fee structure in the admission management system to have a hard copy for their personal records or to share with their family or financial aid officers.

**Preconditions:**

The student has access to the admission management system.

The fee structure has been entered and updated in the system.

**Trigger:** The student clicks on the "Print Fee Structure" button in the admission management system.

**Main Success Scenario:**

1. The system generates a printable version of the fee structure for the academic year.

2. The student reviews the printed fee structure for accuracy and completeness.

3. The student can use the printed fee structure for personal reference or to share with their family or financial aid officers.4

4. The student can file a copy of the printed fee structure for their personal record-keeping purposes.

Alternate Flow: 2a. If the fee structure has not been entered or updated in the system, the system displays an error message and prompts the admission staff to enter or update the fee structure.

**Post conditions:**

The student has a printed copy of the fee structure for personal reference or to share with others.

The admission staff has not been directly involved in this use case.

**Exceptions:**

The admission management system is unavailable or inaccessible.

The system generates an incomplete or inaccurate printable version of the fee structure, causing confusion or misinformation for the student.

**Use case: Submit fee challan:**

**Scope**: Admission System

**Title:** View Fee Challan

**Primary Actor:** Student

Goal in Context: The student wants to view the fee challan in the admission management system to see the details of the fees they are required to pay for their admission.

**Preconditions:**

The student has access to the admission management system.

The admission staff has generated a fee challan for the students.

**Trigger:** The student clicks on the "View Fee Challan" button in the admission management system.

**Main Success Scenario:**

1. The system retrieves the fee challan from the admission management system for the student.

2. The system displays the fee challan to the student in a clear and easy-to-understand format, including details such as the amount due, payment due date, and payment methods accepted.

3. The student can review the fee challan to ensure that all information is correct and complete.

4. The student can use the information on the fee challan to make payment for their admission fees.

**Alternate Flow:** If a fee challan has not been generated for the student, the system displays an error message and prompts the admission staff to generate a fee challan for the student.

**Post conditions:**

The student has viewed the fee challan with accurate and complete information.

The student is informed about the amount due, payment due date, and payment methods accepted for their admission fees.

**Exceptions:**

The admission management system is unavailable or inaccessible.

The fee challan contains incomplete or inaccurate information, causing confusion or misinformation for the student.

**Use Case: Submit Admission Fee Receipt**

Scope: admission system

**Level:** User goal

Primary Actor: Student

Stakeholders and Interests:

Student: Wants to submit their admission fee receipt to the admission office to complete the admission process.

Admission Office: Wants to verify the authenticity of the fee receipt and maintain a record of the payment.

**Preconditions:**

The student has paid the admission fee and received a receipt.

The student has access to a device with an internet connection.

The admission system is operational.

Trigger: The student selects the option to submit their admission fee receipt.

**Success Guarantee (or Post-conditions):**

The admission fee receipt is successfully submitted.

The admission office confirms the receipt and updates the student's admission status accordingly.

**Main Success Scenario (or Basic Flow):**

The student navigates to the admission system's fee submission page.

The system prompts the student to upload a scanned copy or a clear photograph of their admission fee receipt.

The student selects the file to upload and confirms their submission.

The system displays a confirmation message indicating that the submission was successful.

The admission office receives the submission and verifies the authenticity of the receipt.

The admission office updates the student's admission status and notifies the student via email or the admission system.

**Extensions (or Alternative Flows):**

If the student encounters technical difficulties while uploading the receipt, the system displays an error message and prompts the student to try again.

If the admission office identifies any discrepancies or issues with the fee receipt, they may contact the student for clarification or further action.

**Special Requirements:**

The admission system must be able to handle file uploads and display confirmation messages.

The admission office must have the necessary resources and tools to verify the authenticity of the fee receipt.

**Technology and Data Variations List:**

The student can submit a scanned copy or clear photograph of their admission fee receipt in different file formats such as PDF, JPEG, or PNG.

The admission office must have access to the admission system and relevant software tools to verify the authenticity of the receipt.

**Open Issues:**

How will the admission office notify the student of their updated admission status?

What happens if the student is unable to submit their admission fee receipt online?

**Ibrahim Khan (FA21-BSE-186):**

**Use case: set discipline**

The set discipline use case involves an administrator or teacher setting a discipline record for a student who has violated the school's rules and regulations. The administrator or teacher navigates to the student's profile, selects the discipline option, and enters the details of the infraction, such as the date, time, location, and nature of the violation. The system then saves the discipline record to the student's profile and notifies the student and their parents/guardians of the disciplinary action taken

**Use case: generate merit list:**

The merit list generation feature in an admission management system is used to rank and determine the eligibility of students for admission. The admin can use various criteria such as academic performance and test scores to generate a merit list. The merit list generation feature simplifies the admission process by providing an organized and efficient way of evaluating and selecting the most qualified students. Overall, the merit list generation feature is an essential component of an admission management admin that streamlines the admission process and ensures that the most deserving students are selected for admission.

**Use case: generate waiting list:**

Waiting list generation helps in managing waitlists for students who did not make it to the merit list but still have a chance to be admitted if any seat becomes available. Admin ensures that all available seats are filled with qualified students, and it helps in managing admission-related changes. Overall, the waiting list generation feature is also an essential component of an admission management system that ensures that the admission process is fair, efficient, and well-managed.

**Use case: provide welcome schedule:**

The welcome schedule use case in an admission management system is used to help new students transition into their new academic environment. This use case can provide a comprehensive welcome schedule that includes important academic and social events such as orientation, departmental orientation , campus tours, and meet and greet sessions with faculty and staff. By providing a detailed welcome schedule, the system ensures that new students are aware of all the essential events and activities and feel welcomed into their new community. The welcome schedule feature is an essential component of an admission management system that helps in managing student transition and engagement more effectively, resulting in better academic performance and higher student satisfaction.

## Ibrahim Khan (FA21-BSE-186-4A)

**Use case: generate merit list:**

**Scope:** admission system.

**Level:** User goal

**Primary Actor:** admin

**Stakeholders and Interests:**

Admin wants an automated and accurate process of generating merit list to simplify the selection process and save time.

Students want a fair selection process and a transparent display of their position in the merit list.

**Preconditions:**

The admin is identified and authenticated, and the list of eligible candidates is available.

Success Guarantee (or Post conditions):

**Success Guarantee (or Post-conditions):**

Merit List is generated and displayed accurately.

**Main Success Scenario (or Basic Flow):**

Admin initiates the process of generating the merit list.

The system retrieves the list of eligible candidates and their application details from the database.

The system applies the selection criteria and calculates the scores for each candidate.

The system generates the merit list based on the calculated scores and displays it to the Admi.

The admin reviews the merit list and confirms its accuracy.

The merit list is published and made available to the students.

**Extensions (or Alternative Flows):**

\*a. If there are ties in the scores:

The system applies the tie-breaking criteria to resolve the ties.

The system regenerates the merit list and displays it to the Admin.

**Special Requirements:**

The system must be able to handle many eligible candidates.

The selection criteria must be customizable .

The merit list must be displayed in a clear and concise format.

The merit list must be easily accessible and available to all stakeholders.

**Technology and Data Variations List:**

The system can retrieve the list of eligible candidates from different sources, such as online applications, paper applications, or direct entry.

The selection criteria and can be customized and configured based on the institution's admission policy.

**Open Issues:**

None.

**Use Case: Set Discipline**

**Scope:** admission system

Level: User-goal level.

**Primary Actor:** Admin

**Stakeholders and Interests:**

Admin: wants to set discipline records for students who have violated the rules and regulations.

Students: want to know their disciplinary records in the system.

Faculty: want to have access to student's disciplinary records to determine their suitability for certain opportunities, such as scholarships, internships, etc.

**Preconditions:**

The administrator is logged in to the admission system.

The administrator has the necessary privileges to set discipline records.

The student's record already exists in the system.

**Success Guarantee (or Post-conditions):** The student's discipline record is successfully set in the system, and the student is notified about it.

**Main Success Scenario (or Basic Flow):**

The administrator navigates to the discipline module of the admission system.

The administrator selects the option to set a new disciplinary record for a student.

The system displays a form to enter the details of the disciplinary record, such as the date of the incident, the nature of the violation, the action taken, etc.

The administrator fills in the details of the disciplinary record and submits the form.

The system verifies the information and sets the disciplinary record for the student.

The system notifies the student about the disciplinary record.

**Extensions (or Alternative Flows):**

If the student already has a disciplinary record, the system displays the existing record and prompts the administrator to update it instead of creating a new one.

If the administrator enters invalid or incomplete information, the system displays an error message and prompts the administrator to correct the information.

**Technology and Data Variations List:**

The discipline module should be integrated with the student's profile in the system.

The system should allow the administrator to search and filter the discipline records based on various parameters.

**Open Issues:**

The severity level of the violation and the corresponding action to be taken may vary, and there should be a system to define and manage such rules.

**Use Case Name: generate waiting list:**

**Scope:** Admission System

**Level:** User-goal

**Primary Actor:** admin

**Stakeholders and Interests:**

Admin wants to ensure that all qualified students are considered for admission, even if they cannot be immediately accepted.

Students want to know their status in the admission process, including whether they have been added to a waitlist.

**Preconditions**:

Admin has identified qualified students who cannot be immediately accepted.

There is a limited number of available seats in the program.

**Success Guarantee (or Post conditions):**

A waitlist is generated, and students are added in the order in which they qualify for the program.

Students are notified of their status and where they stand on the waitlist.

The Admin has an up-to-date and accurate list of all students and their status.

**Main Success Scenario (or Basic Flow):**

Admin identifies qualified students who cannot be immediately accepted.

Admin adds students to the waitlist in order of their qualifications, according to criteria.

Admin notifies each student of their status and where they stand on the waitlist.

If a seat becomes available, the Admin evaluates the students on the waitlist and offers the seat to the most qualified student who has not been previously offered admission.

If the student accepts the seat, they are removed from the waitlist and added to the program. If the student declines the seat, the next most qualified student on the waitlist is offered the seat.

**Extensions (or Alternative Flows):**

If a student on the waitlist withdraws their application, they are removed from the waitlist and their seat is offered to the next qualified student.

If a student on the waitlist is offered a seat and declines, but later changes their mind and wishes to accept the seat, they must reapply to the program and will be added to the bottom of the waitlist.

**Special Requirements:**

The waitlist must be generated and maintained in a secure and confidential manner to protect the privacy of students.

The Admin must have access to the most up-to-date and accurate information about the waitlist and the status of each student.

The system must be able to generate notifications to students in a timely and efficient manner.

**Technology and Data Variations List:**

The system may use various algorithms or criteria to determine the order in which students are added to the waitlist.

The system may use various communication methods (email, phone, text, etc.) to notify students of their status and where they stand on the waitlist.

**Open Issues:**

What criteria should be used to determine the order in which students are added to the waitlist?

How often should students on the waitlist be notified of their status and where they stand on the list?

Should the waitlist be made public, or should it be kept confidential?

**Exceptions:**

If there is a technical issue with the system, preventing the announcement from being published, the system will display an error message and notify the administrator of the issue.

If the administrator does not have the necessary permissions to publish an announcement, the system will display an error message and prevent the announcement from being published.

If there is missing or invalid information in the announcement, the system will prompt the administrator to correct the information before publishing the announcement.

**Use case name: provide welcome schedule:**

**Scope**: Admission System

**Level:** User goal

**Primary Actor:** Admin

**Stakeholders and Interests:**

Admissions Staff: Wants to provide a comprehensive welcome schedule to admitted students in a timely manner.

Admitted Students: Want to receive the welcome schedule as soon as possible to make travel arrangements and plan their arrival on campus.

Faculty and Staff: Want to be informed of the welcome schedule to ensure they are available for any events or activities they are expected to participate in.

University Administration: Wants to ensure that the welcome schedule is well-planned and provides a positive experience for admitted students, which can contribute to the overall reputation of the university.

Parents and Guardians: Want to be informed of the welcome schedule to assist their children with travel and preparation for their arrival on campus.

**Preconditions:**

Admissions staff have received confirmation of admission for the student.

Success Guarantee (or Postconditions): Admitted student receives welcome schedule.

**Success Guarantee (or Post conditions):**

The fee structure for the academic year has been set.

Students, faculty, and staff can access the fee structure information.

**Main Success Scenario (or Basic Flow):**

Admissions staff generates a welcome schedule for the admitted student, including details of events and activities planned for orientation week.

Admissions staff sends the welcome schedule to the admitted student via email or through an online portal.

Admitted students receive the welcome schedule and is able to review the details of events and activities planned for orientation week.

Admitted student plans travel and makes necessary arrangements to attend events and activities.

**Extensions (or Alternative Flows):**

Admissions staff identifies errors in the welcome schedule:

Admissions staff revises the welcome schedule.

Admissions staff sends the revised schedule to the admitted student.

**Special Requirements:**

The welcome schedule should be generated and sent to the admitted student as soon as possible after confirmation of admission.

The welcome schedule should be comprehensive and provide detailed information about all events and activities planned for orientation week.

The welcome schedule should be available in multiple formats, including email and online portal.

The welcome schedule should be customized to the needs of each admitted student, based on their program and area of study.

The welcome schedule should include information on accommodation and transportation options for admitted students.

**Technology and Data Variations List:**

The welcome schedule may be generated using a variety of tools and software programs, depending on the needs of the university.

The welcome schedule may be sent via email or through an online portal, depending on the preferences of the admitted student.

**Frequency of Occurrence:**

Admissions staff will generate and send welcome schedules for each admitted student on a regular basis, typically before the start of the academic year.

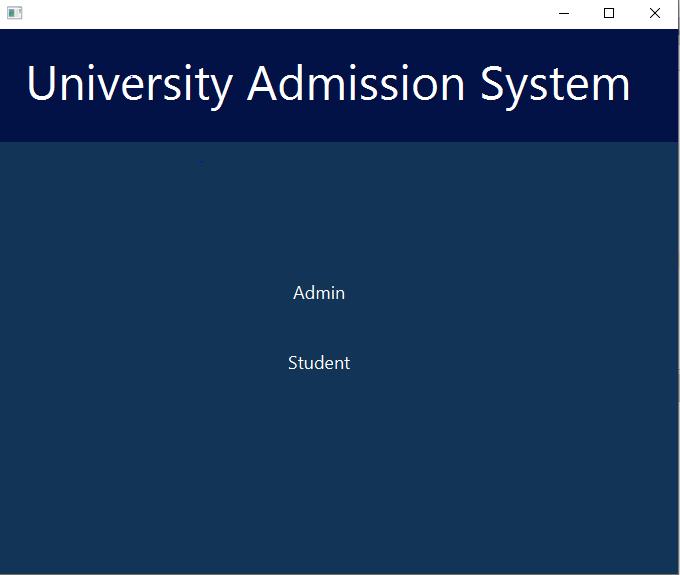
**Open issues**

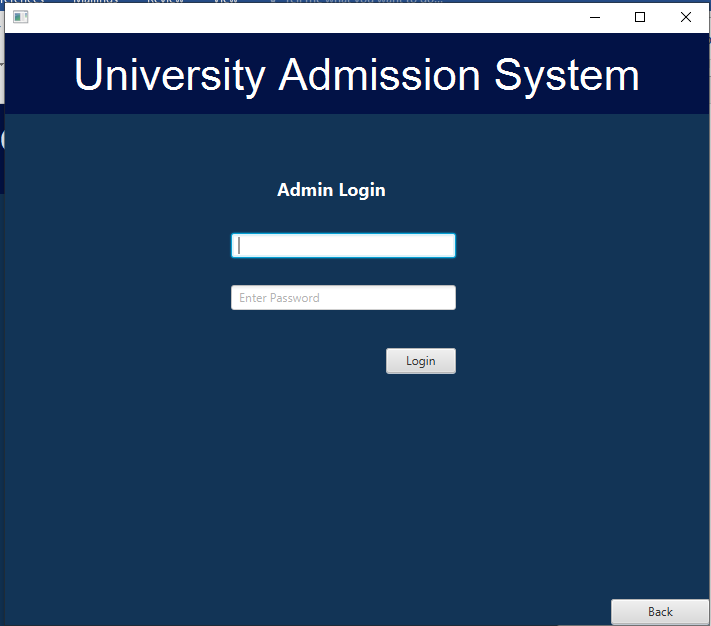
How can the welcome schedule be improved to provide a more positive experience for admitted students?

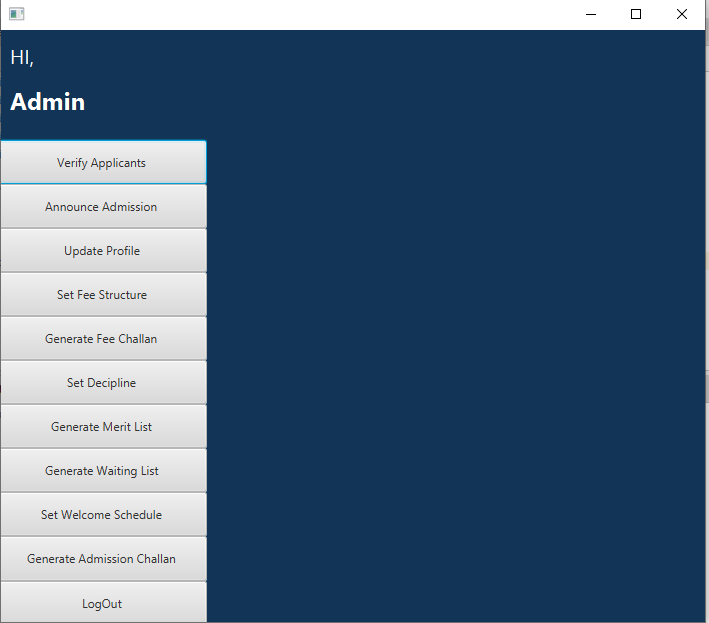
How can the welcome schedule be customized to the needs of each admitted student more effectively?

## PROTOTYPES

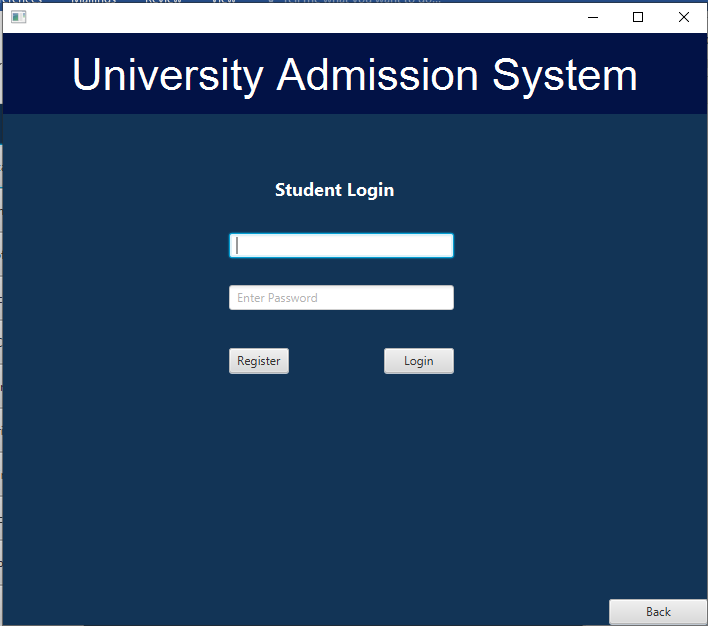
**Admin Interface:**

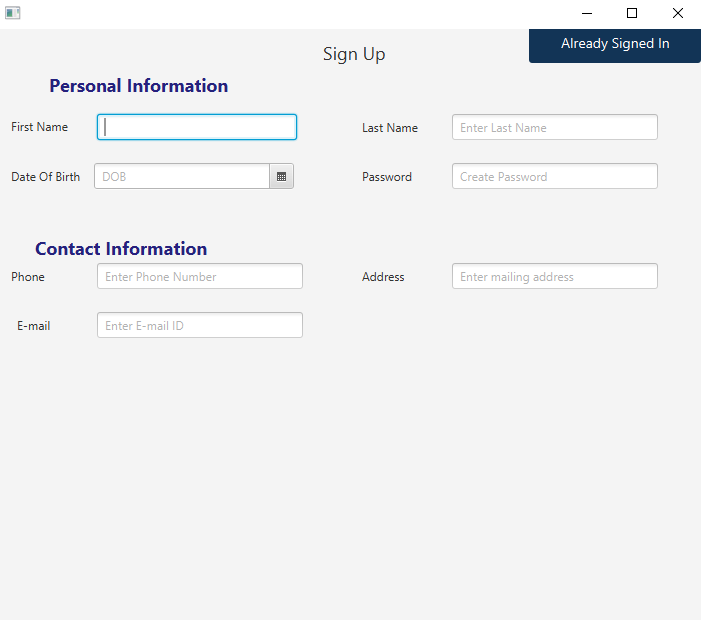


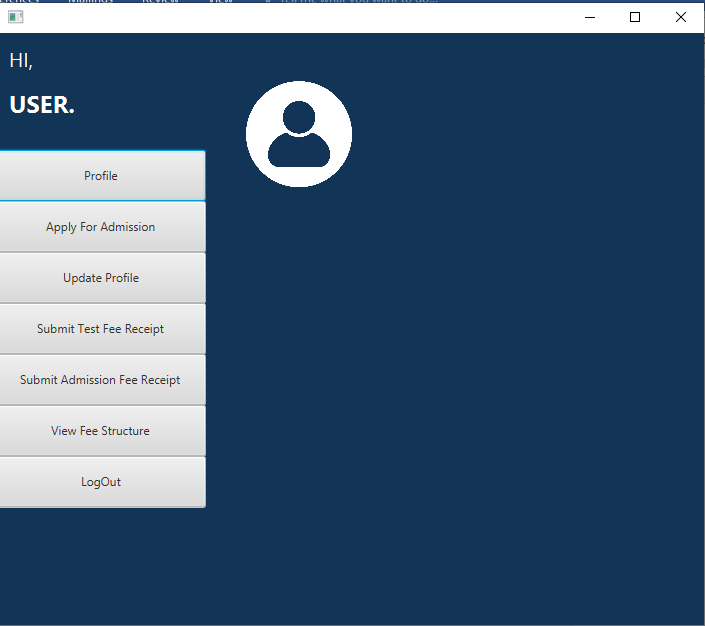




**Student Interface:**







# CHAPTER 3: DOMAIN MODEL

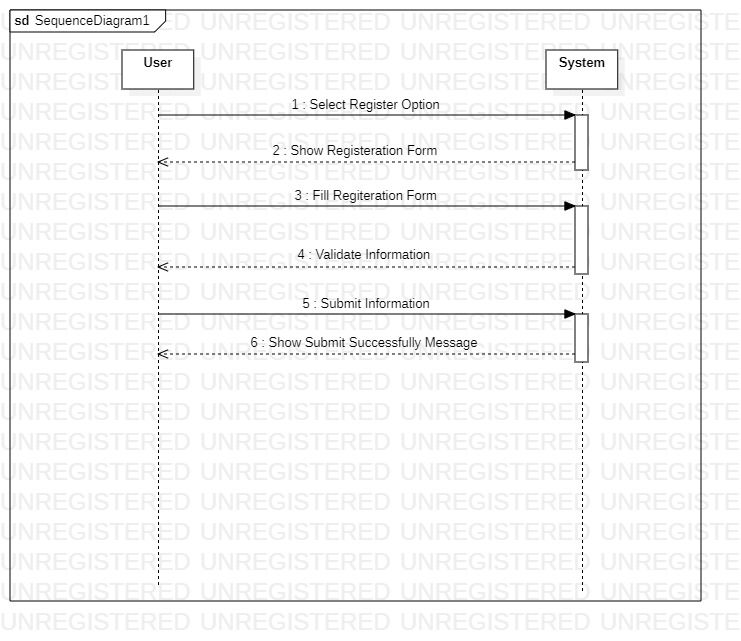
## Domain Model

# CHAPTER 4: SYSTEM SEQUENCE DIAGRAM (SSD)

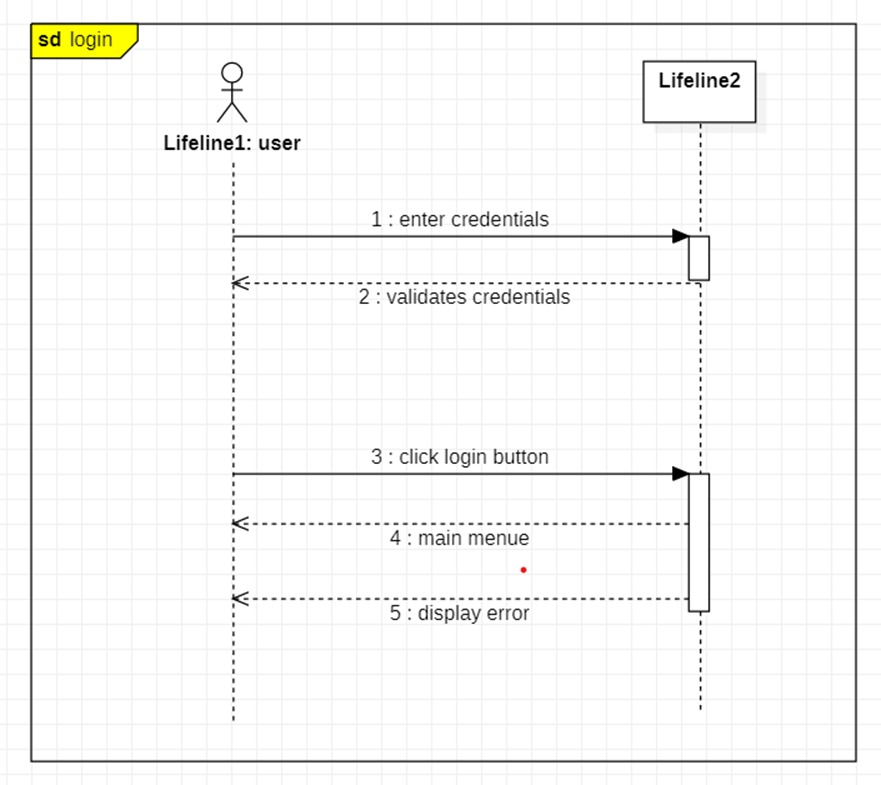
Abdullah(FA21-BSE-004)

### **Abdullah (FA21-BSE-004)**

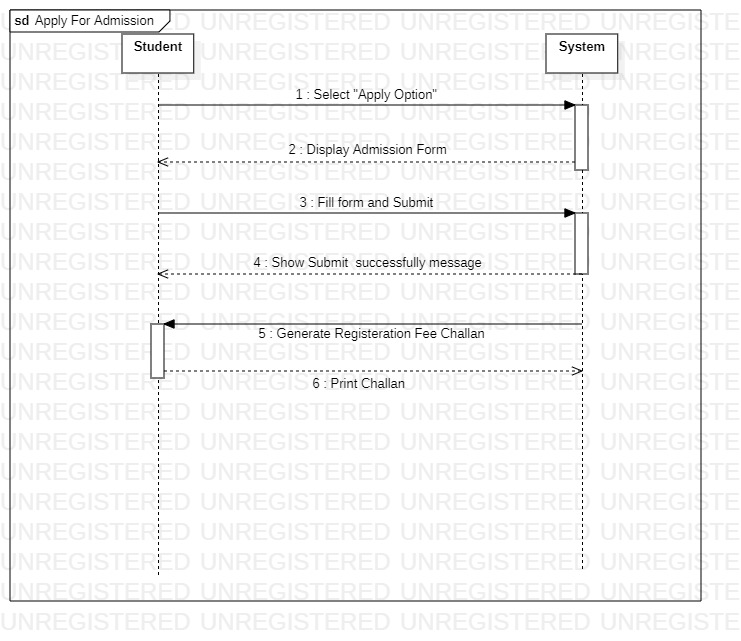
Use Case: Register.

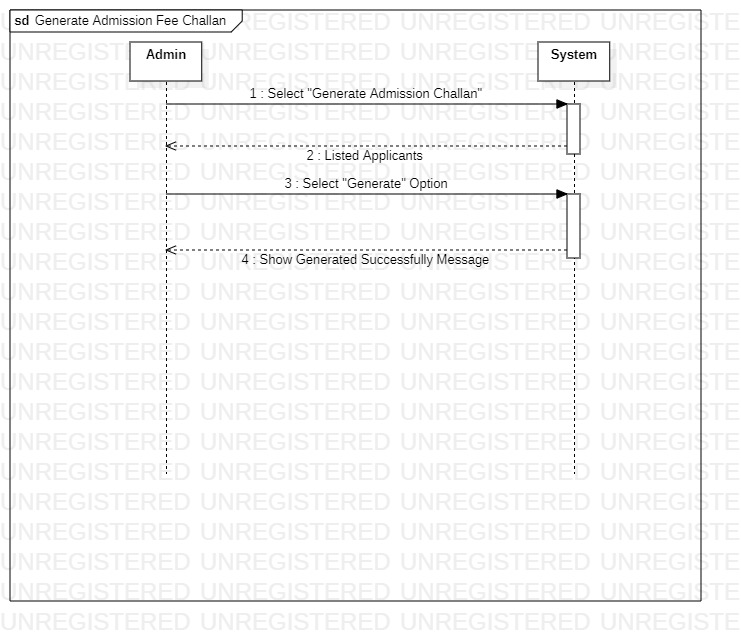


Use Case: Login.



Use Case: Apply for Admission.



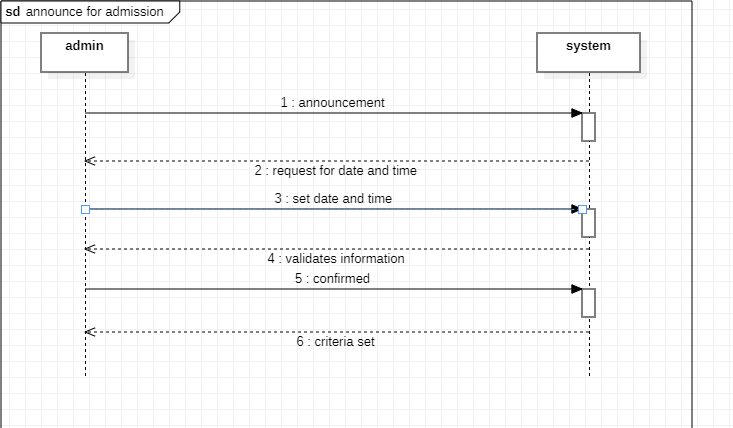
Use Case: Generate Admission Fee Challan:

### **Ahtisham ul haq (FA21-BSE-072)**

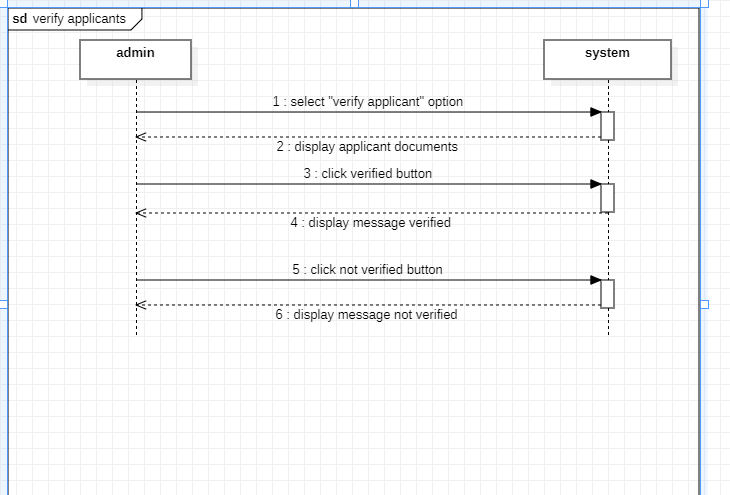
**Use case: update profile:**

****

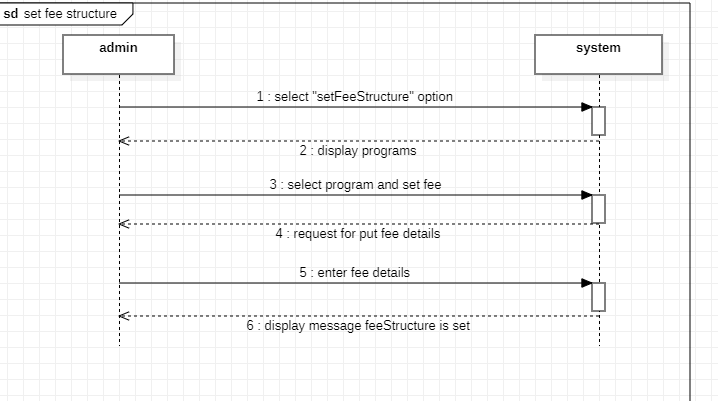
Use case: announce admission:



Use case: verify applicant:



Use case: set fee structure:



# CHAPTER 5: OPERATION CONTRACT

## Abdullah (FA21-BSE-004-4A)

**Login:**

|  |  |
| --- | --- |
| **Operation** | **Login** (Username, Password) |
| Cross-Reference | logging into the University Admission System |
| Pre-Conditions | 1. The user must have accessed the login page of the University Admission System.  2. The user must have a registered account on the University Admission System  3. The user must have entered valid credentials, including their username and password. |
| Post-Conditions | 1. The system will authenticate the user's credentials and verify that they are valid and registered on the system.  2. The system will grant the user access to their account dashboard on the University Admission System |

**Use case: Registration:**

|  |  |
| --- | --- |
| Operation | Registration (Login and Personal information) |
| Cross- | Registration in university admission system. |
| Pre-Conditions | The student must have logged in to their account on the University admission system  The registration form must be displayed on the screen. |
| Post-Conditions | The student's registration form will be filled out with the relevant details required for University System.  The student's registration form will be saved on the University Admission System for processing by the University system  The student will receive a confirmation of their registration, including Reference the details of their application and the status of their registration. |

**Use case: Apply for admission.**

|  |  |
| --- | --- |
| Operation | apply (Name, ID, Gender) |
| Cross-Reference | Apply for admission |
| Pre-Conditions | Must be login into the system  Registered to the system |
| Post-Conditions | Application will send toward the Admin to verify the applicant.  Fee challan will be generated. |

## Ahtisham ul haq (FA21-BSE-072-4A)

|  |  |
| --- | --- |
| **Operation** | **Verify applicant** |
| Cross-Reference | Announce admission |
| Pre-Conditions | The user must be logged into the system as an authorized employee.  The applicant's personal information and documents must have been submitted and recorded in the system |
| Post-Conditions | The admission announcement is made and available for public viewing.  Applicants are notified of their admission status through the system. |

|  |  |
| --- | --- |
| **Operation** | **Set fee structure** |
| Cross-Reference | Set fee structure |
| Pre-Conditions | The admin has administrative privileges.  The admin is authorized to set the fee structure.  The system is in a state where the fee structure can be modified. |
| Post-Conditions | The new fee structure is saved in the system.  Any existing student records are updated with the new fee structure.  The system generates a confirmation message indicating that the fee structure has been updated. |

|  |  |
| --- | --- |
| **Operation** | **Announce admission** |
| Cross-Reference | Announce admission |
| Pre-Conditions | The admin is logged into the system.  The admission list is finalized and ready to be announced.  The announcement date and time are set. |
| Post-Conditions | The admission announcement is made and available for public viewing.  Applicants are notified of their admission status through the system. |

## Ibrahim Khan (FA21-BSE-186-4A)

|  |  |
| --- | --- |
| **Operation** | **Generate Merit List** |
| Cross-Reference | This operation is part of the Admission Management System project. |
| Pre-Conditions | 1. Completion of the admission cycle. |
|  | 1. Availability of applicant data, including test scores and academic records. |
|  | Completion of the admission cycle. |
| Post-Conditions | 1. Calculation of merit scores based on predefined criteria. |
|  | 1. Sorting of applicants in descending order based on their merit scores. |
|  | 1. Generation of a merit list with selected applicants' names, scores, and relevant information. |
|  | 1. Saving the merit list for future reference and distribution. |

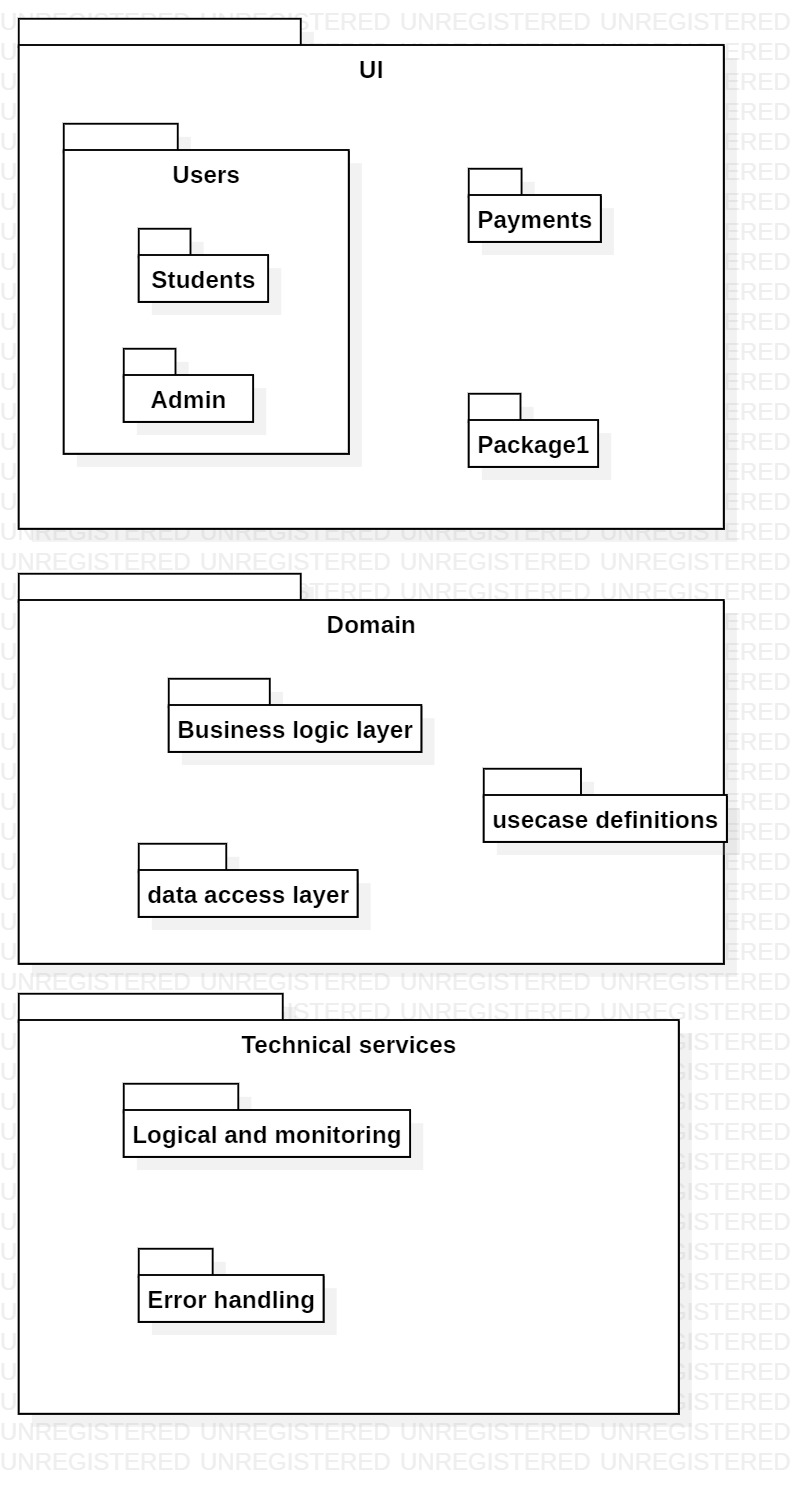
|  |  |
| --- | --- |
| **Operation** | **Generate Waiting List** |
| Cross-Reference | This operation is part of the Admission Management System project. |
| Pre-Conditions | 1.Completion of the admission cycle. |
|  | 2.Availability of applicant data, including test scores and academic records. |
|  | Completion of the admission cycle. |
| Post-Conditions | 1. Calculation of waitlist scores based on predefined criteria. |
|  | 1. Sorting of applicants in descending order based on their waitlist scores. |
|  | 1. Generation of a waiting list with waitlisted applicants' names, scores, and relevant information. |
|  | 1. Saving the waiting list for future reference and distribution. |
|  | 1. Viewing and downloading options for authorized users. |
|  | 1. Notifications sent to waitlisted applicants with their position on the waiting list and instructions for further steps. |
|  | 1. Updating applicant status to reflect their position on the waiting list. |
|  | 1. Potential updates to the waiting list based on changes in applicant availability or acceptance. |

|  |  |
| --- | --- |
| **Operation** | **Set Discipline** |
| Cross-Reference | This operation relates to implementing disciplinary actions or policies within a system or organization. |
| Pre-Conditions | 1.Established disciplinary guidelines or policies. |
|  | 2.Authorization for personnel to set discipline. |
| Post-Conditions | 1. Specification of disciplinary action or policy. |
|  | 1. Validation of alignment with established guidelines. |
|  | 1. Implementation and enforcement of the disciplinary action or policy. |
|  | 1. Notification to affected individuals with consequences. |
|  | 1. Recording and documentation of the disciplinary action or policy. |
|  | 1. Potential monitoring mechanisms for compliance. |
|  | 1. Option for appealing or challenging the discipline, if applicable. |
|  | 1. Regular reviews and updates for effectiveness and adjustments. |

|  |  |
| --- | --- |
| **Operation** | **Create Welcome Schedule** |
| Cross-Reference | This operation is related to creating a schedule of events or activities for welcoming new members or participants. |
| Pre-Conditions | 1. Availability of relevant information regarding the new members or participants. |
|  | 1. Access to the system or tools required to create and manage the welcome schedule. |
| Post-Conditions | 1. Gathering information about the new members or participants, including their names, contact details, and any specific requirements. |
|  | 1. Designing a schedule of events or activities for the welcome program, considering factors such as time, location, and duration. |
|  | 1. Assigning appropriate resources, such as staff members or volunteers, to facilitate each event or activity. |
|  | 1. Incorporating necessary breaks or intervals within the schedule to ensure a smooth and efficient welcome program. |
|  | 1. Reviewing the schedule for any conflicts or overlapping activities and resolving them to avoid scheduling issues. |
|  | 1. Communicating the finalized welcome schedule to the new members or participants, providing them with relevant details and instructions. |
|  | 1. Documenting the welcome schedule for reference and future planning purposes. |
|  | 1. Flexibility to adjust or updates to the schedule as needed, accommodating unforeseen circumstances or participant preferences. |

# CHAPTER 6: SOFTWARE ARCHITECTURE

## Package diagram :



# CHAPTER 7: INTERACTION DIAGRAM

## Communication diagram

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