

CSE 326 Report

Hall Management

System

Submitted by

Sub-section: B1

Group: 4

Group members:

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Abdullah Al Noman, 1705088

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25 February 2022

Introduction

The title of our project is - *Dormitory (hall) management system*. In this project, we tried to automate some of the typical tasks such as room allotment, dining management, service request etc. currently performed manually in the dormitories. We have followed the phases of software development sequentially. Initially, requirement analysis was performed. A BPMN diagram was prepared for this reason. The mock UI served the purpose of demonstrating how users may interact with our system. Then Class Diagram was implemented for giving a surface level overview of our system. To store information in a database, ERD was designed as well. Afterwards, sequence and collaboration diagrams were prepared to provide insight to the implementation details and logical flow of our system. Finally, we applied all of these concepts into programming and implemented the Room allotment module of our project.

Motivation

Lots of BUET students have to reside in dormitories during their undergraduate studies. Unfortunately, many frequently performed tasks are manual and inefficient. For example, if a student wants to change her allotted room, she has to write an application, go to the provost office during office hours and submit it. Then the staff and the provost have to go through several applications, determine which rooms have vacant seats, set priority of the students and finally assign them to a room. This wastes a lot of time.

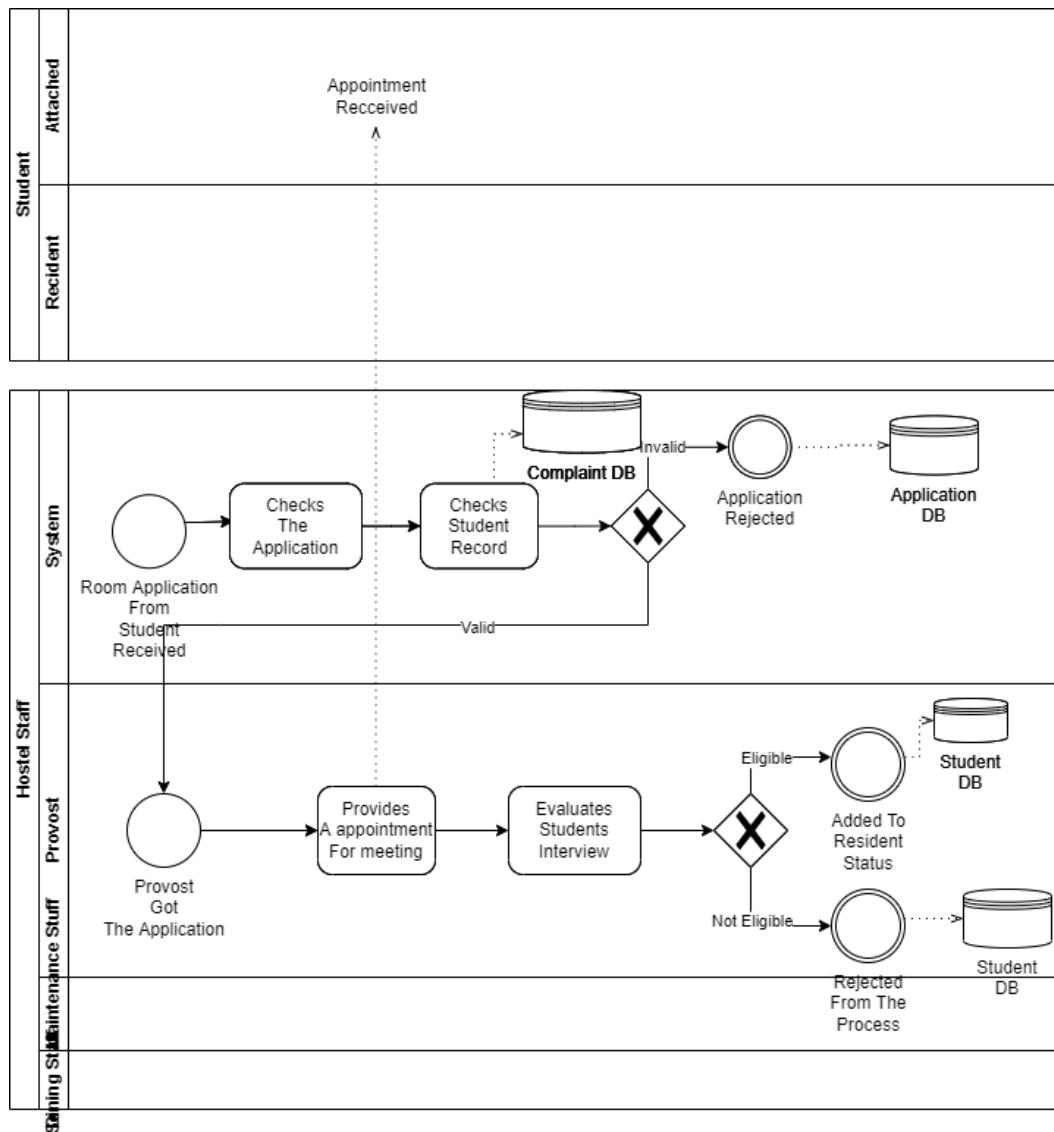
So we have made an attempt to apply the concept of *Information System Design* in this domain. This allowed us to address the problems we have faced in hall life and provide solutions in light of the information system.

Requirement Analysis using BPMN diagram

Business Process Modeling Notation (BPMN), also called Business Process Model and Notation, is **an open standard to diagram a business process**. Since requirement analysis the first and most important process in the software development cycle. So we use a standard graphical representation for representing the business process to all the pertinent stakeholders. Here, we indicate a start event by a circle and they trigger a process. Where we get a lot of activities that are represented by a rectangle. There are different splitter to represent or, and ,xor operations. At the end we use double circle to end a process.

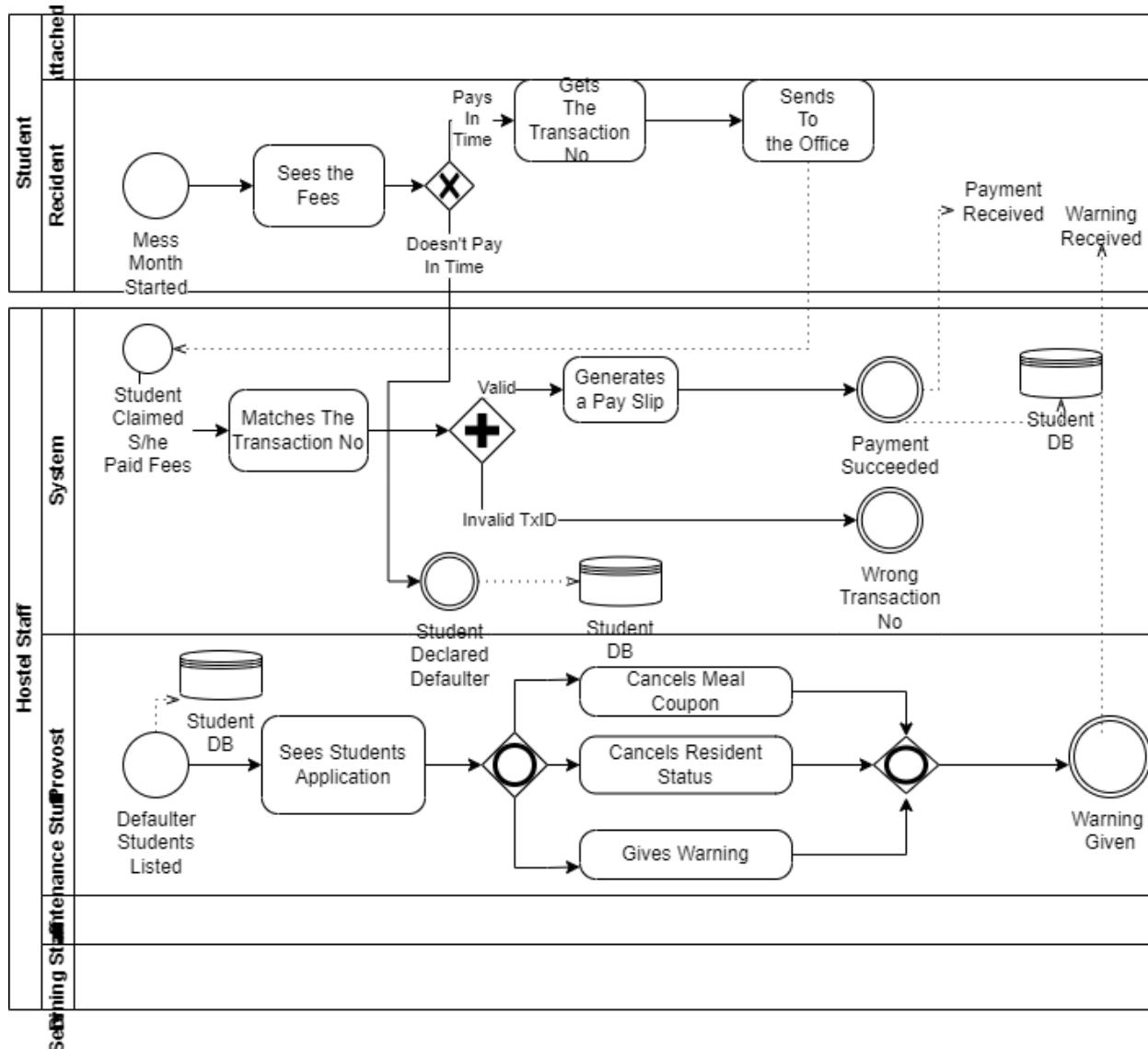
Here we also used Pools to represent different stakeholders and lanes to represent sub stakeholders in the system. Below we have shown the BPMN diagram for our system in five different modules

Room Allotment

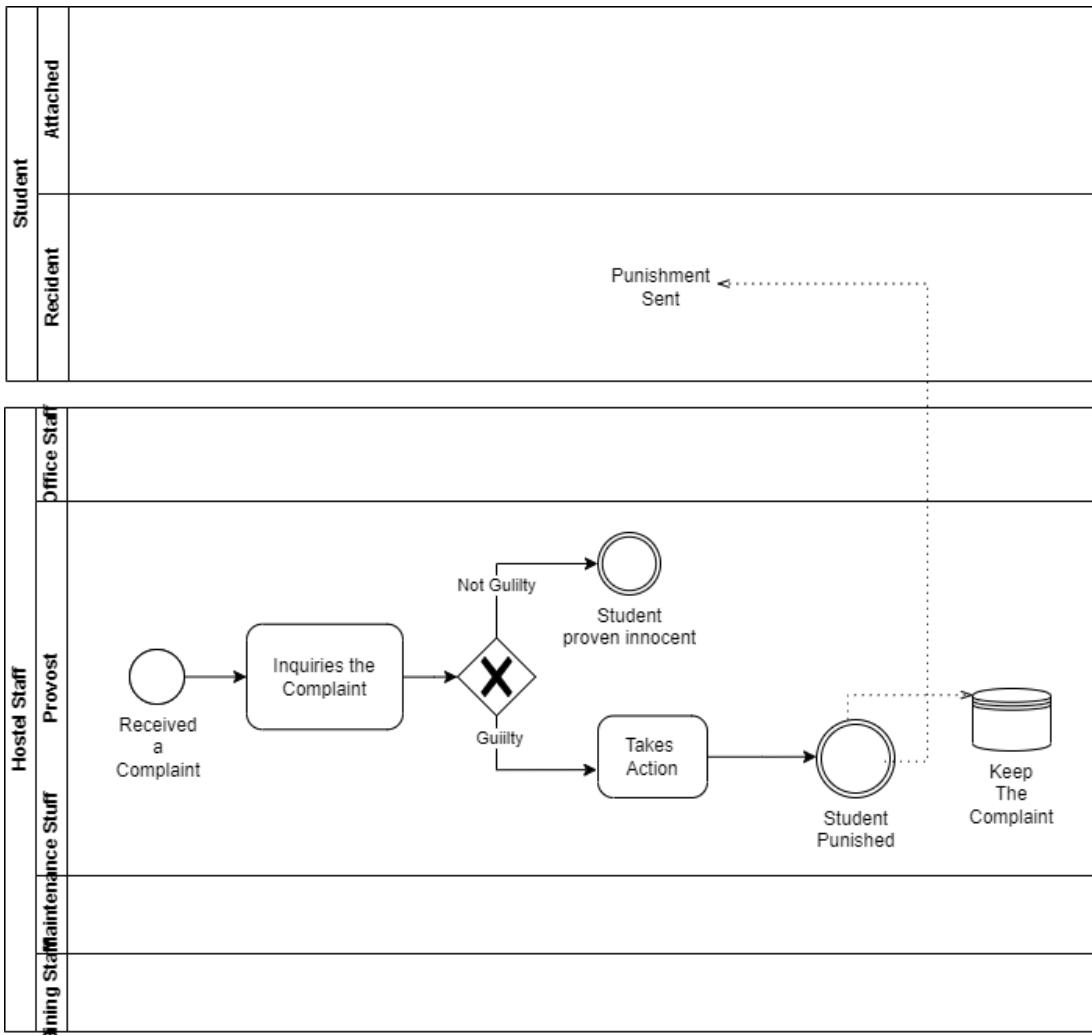


Changes: In this module we used bpmn 2.0 message interrupt feature that is now removed as per the requirement from the teachers. We also had a lane called office staff that was removed since we want to automate the system. And a new lane named system was added that represents the system we are developing.

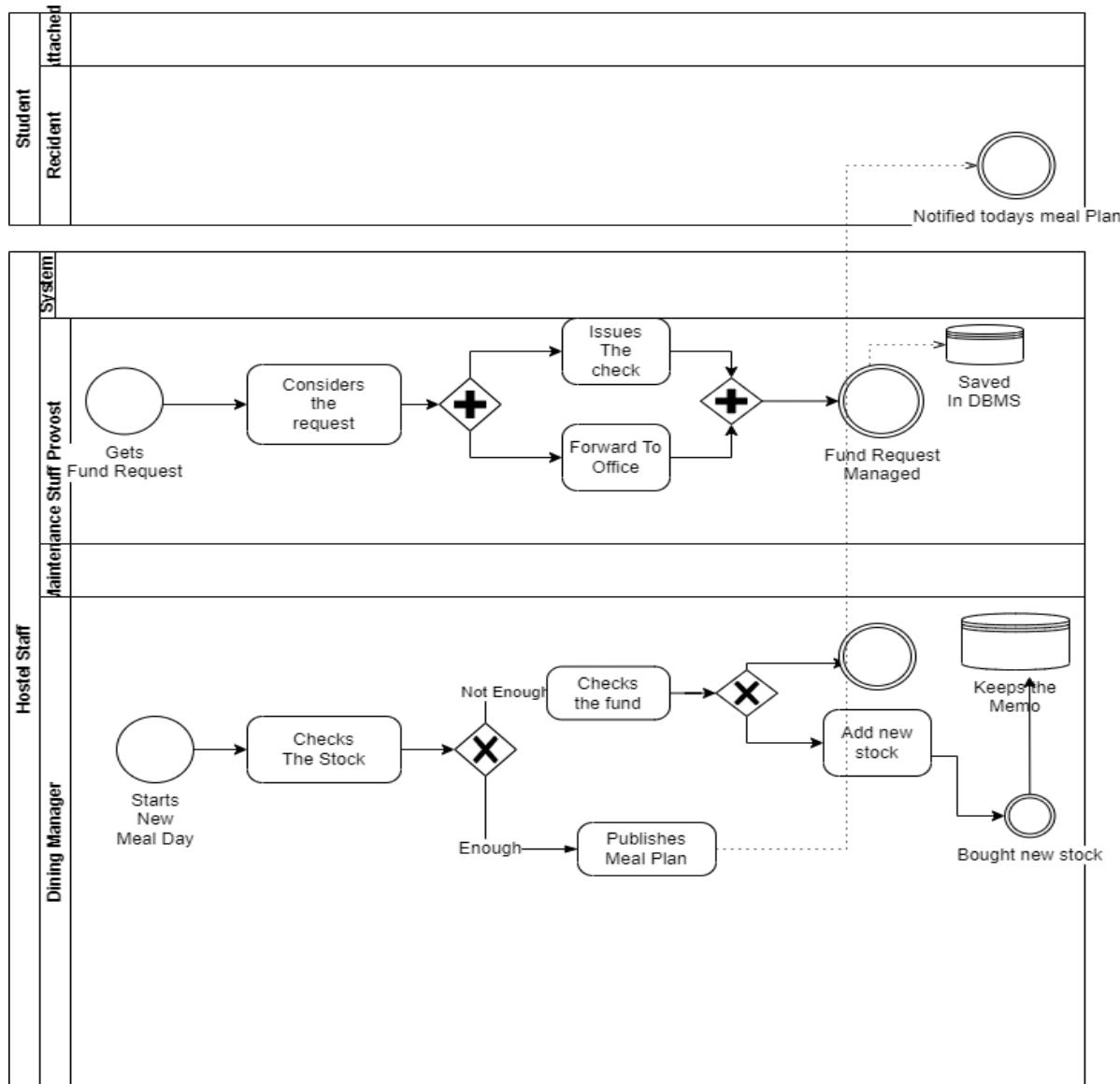
Fees



Complaint

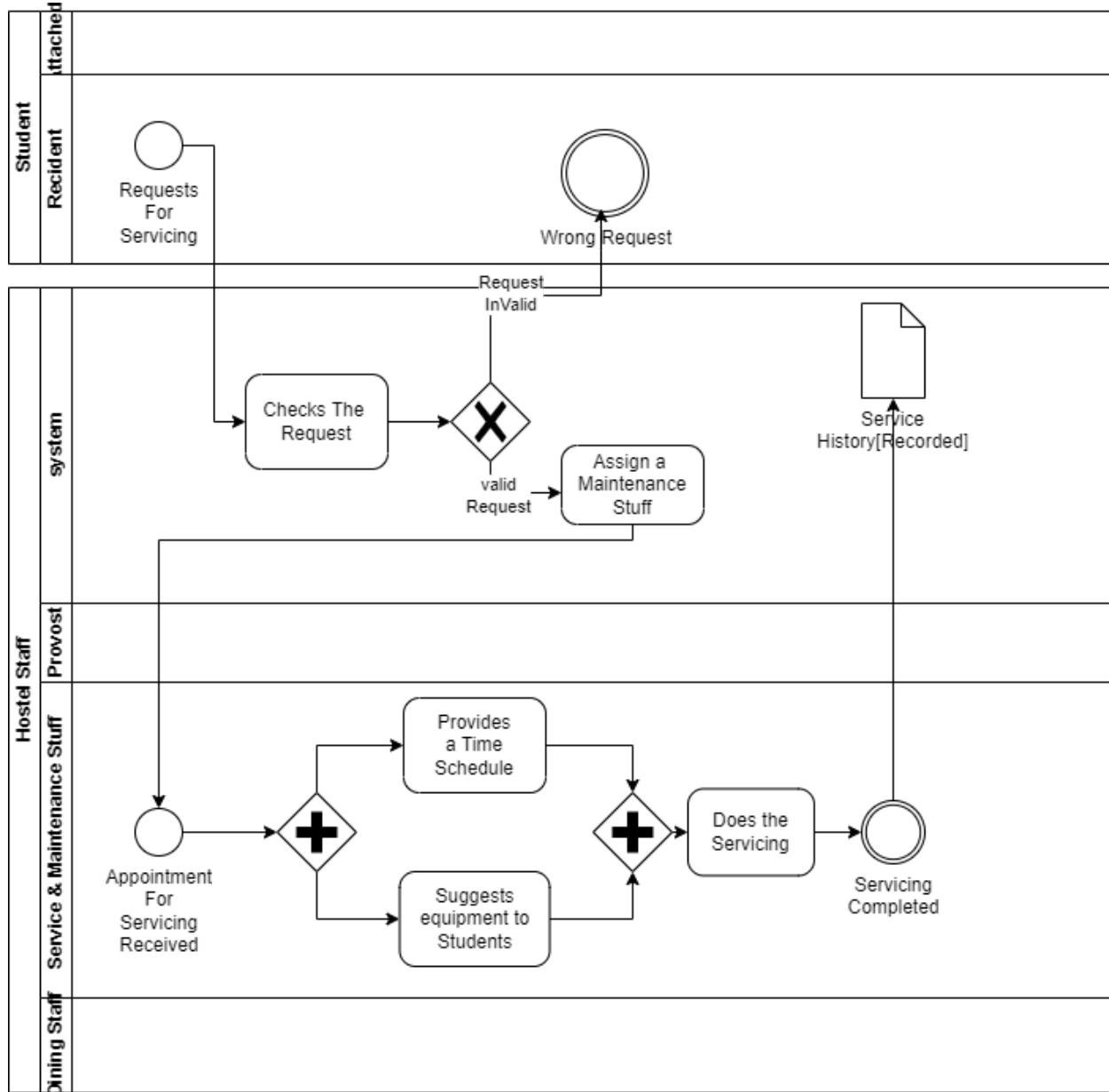


Dining



Changes: In this module in the dining manager lane, we misunderstood the requirement and so we made to trigger fund requests to the provosts every day while preparing meal. That system is changed now. Asking fund is an independent event now.

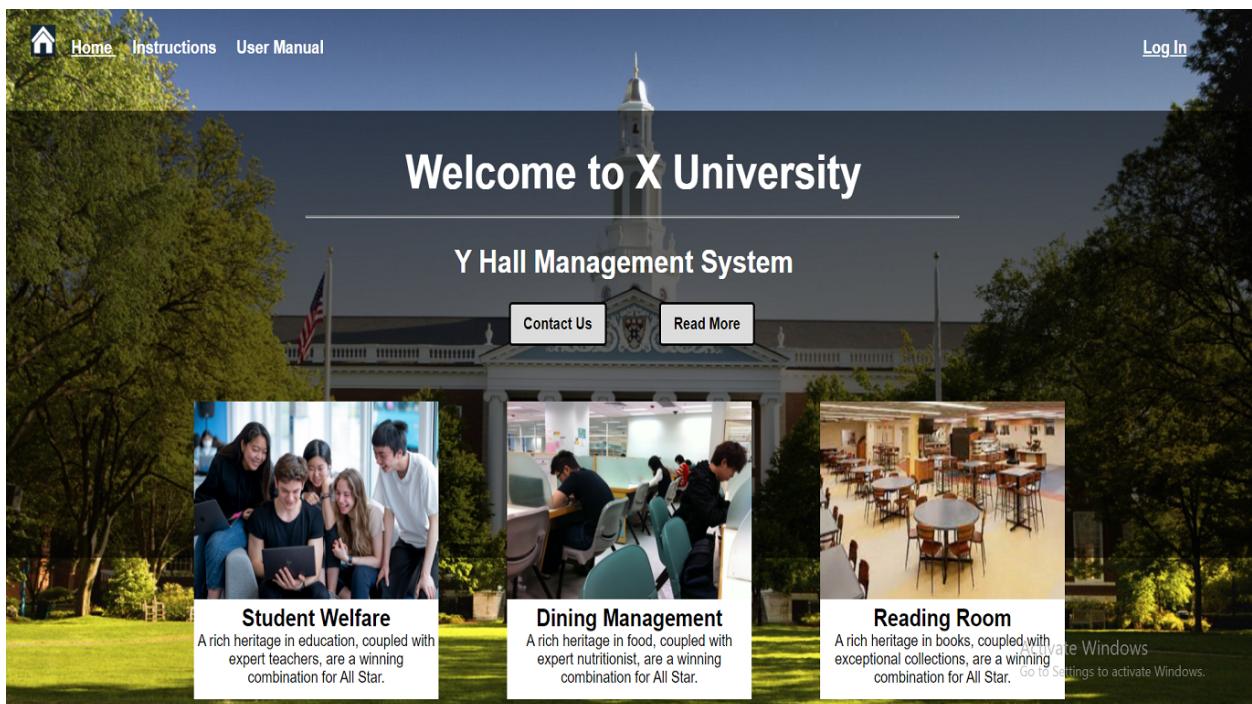
Service & Maintenance



Mock UI

While developing the mock UIs, how users can easily use it was considered carefully. The UIs were built using CANVA. Students can use it to apply for rooms, services, complaining etc. Dining related data can be found here too. Provost can carefully monitor everything about a student including his/her progress, complaints etc.

Home Page:



Student Profile Page:

 Home Instructions User Manual

 Logged In Register

Rachel Cooper	
First Name	Rachel
Last Name	Cooper
Student ID	1901108
Department	CSE
Level	2
Term	1
Present Address	Fairfax, Virginia
Permenant Address	Fairfax, Virginia
Mobile No	01XXXXXXXXX
Room No	416
Email	rachel.09@gmail.com

Edit Information

Dues Status

Dining Status

Request Services

Applications >

Notices

Complain

Change Password

Student DiningPage:

The screenshot shows a dark-themed web application for managing student dining. On the left, a sidebar contains links: Edit Information, Dues Status, Dining Status, Request Services, Applications >, Notices, Complain, and Change Password. The main content area is titled "Dining Fees" and displays a table of historical fees:

Date	Type	Amount
07-09-2021	Mess Fee	500
01-10-2021	Mess Fee	1550
10-11-2021	Mess Fee	1500
11-12-2021	Mess Fee	1550

The screenshot shows the same dark-themed web application. The sidebar includes: Edit Information, Dues Status, Dining Status, Request Services, Applications >, Notices, Complain, and Change Password. The main content area is titled "December 2021" and displays a calendar grid. Red numbers highlight specific dates: 20, 26, 27, 28, 29, 30, and 31. Below the calendar, there are two buttons: "Dining Off" with a red dot and "See Todays Meal".

Sun	Mon	Tues	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

[Home](#) [Instructions](#) [User Manual](#)

Logged In

[Register](#)[Edit Information](#)[Dues Status](#)**Dining Status**[Request Services](#)[Applications >](#)[Notices](#)[Complain](#)[Change Password](#)**December 2021**

Sun	Mon	Tues	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

[Dining Off](#) [See Todays Meal](#)

Lunch: Fish, Vegetable,
Curry, Rice
Dinner: Chicken/Egg, Curry
Vegetables, Rice

Dining Page of Mess Manager:

The screenshot shows the Dining Page of Mess Manager. At the top, there is a navigation bar with icons for Home, Instructions, User Manual, and a user profile with 'Logged In' and 'Register' buttons. On the left, a sidebar contains links for Edit Information, Dues Status, Dining Status (highlighted in white), Request Services, Applications (with a right arrow), Notices, Complain, and Change Password. The main area features a December 2021 calendar with days from Sunday to Saturday. Specific dates like 20, 26, 27, 28, 29, 30, and 31 are highlighted in red. Below the calendar, there are buttons for 'Dining Off' (with a red dot), 'Upload Memo' (with a camera icon), 'See All Memo', 'Update Meal Plan', and 'Apply for Dining Money'. A message at the bottom states '**YOU ARE MESS MANAGER FOR THIS MONTH**'.

This screenshot is identical to the one above, showing the Dining Page of Mess Manager for December 2021. It includes the same navigation bar, sidebar with 'Dining Status' selected, and the same calendar with red highlights for specific dates. The management buttons below the calendar and the monthly manager message are also present.

 Home Instructions User Manual

  Logged In Register

[Edit Information](#)

[Dues Status](#)

[Dining Status](#)

[Request Services](#)

[Applications >](#)

[Notices](#)

[Complain](#)

[Change Password](#)

Memo List

December 12,2021	
Memo of Groceries	
December 2,2021	
Memo of Groceries	
December 1,2021	
Memo of Groceries	
December 1,2021	
Memo of Groceries	

 Home Instructions User Manual

  Logged In Register

[Edit Information](#)

[Dues Status](#)

Dining Status

[Request Services](#)

[Applications >](#)

[Notices](#)

[Complain](#)

[Change Password](#)

December 2021

Sun	Mon	Tues	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

[Dining Off !\[\]\(abdaa36b47fa525142932abbc2512e5b_img.jpg\)](#) [See Todays Meal](#)

[Upload Memo !\[\]\(3c06aedd4ec46a7f04c955a640190357_img.jpg\)](#) [See All Memo](#)

[Update Meal Plan](#) [Apply for Dining Money](#)

****YOU ARE MESS MANAGER FOR THIS MONTH****

Meal Plan

Sun Dec 19,2021	Lunch : Egg,Vegetables,Rice Dinner : Chicken,Vegetables,Rice
Mon Dec 20,2021	Lunch : Egg,Vegetables,Rice Dinner : Chicken,Vegetables,Rice
Tues Dec 21,2021	Lunch : Egg,Vegetables,Rice Dinner : Chicken,Vegetables,Rice
Wed Dec 22,2021	Lunch : Egg,Vegetables,Rice Dinner : Chinese(FEAST)

Update **Extend**

December 2021

Sun	Mon	Tues	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Dining Off
 Upload Memo
 See All Memo
 Update Meal Plan
Apply for Dining Money
 YOU ARE MESS MANAGER FOR THIS MONTH

The screenshot shows a mobile application interface with a dark teal header and a light teal sidebar.

Header:

- Home
- Instructions
- User Manual
- Logged In
- Register

Left Sidebar (Dark Teal):

- Edit Information
- Dues Status
- Dining Status** (highlighted)
- Request Services
- Applications >
- Notices
- Complain
- Change Password

Main Content Area (Light Teal):

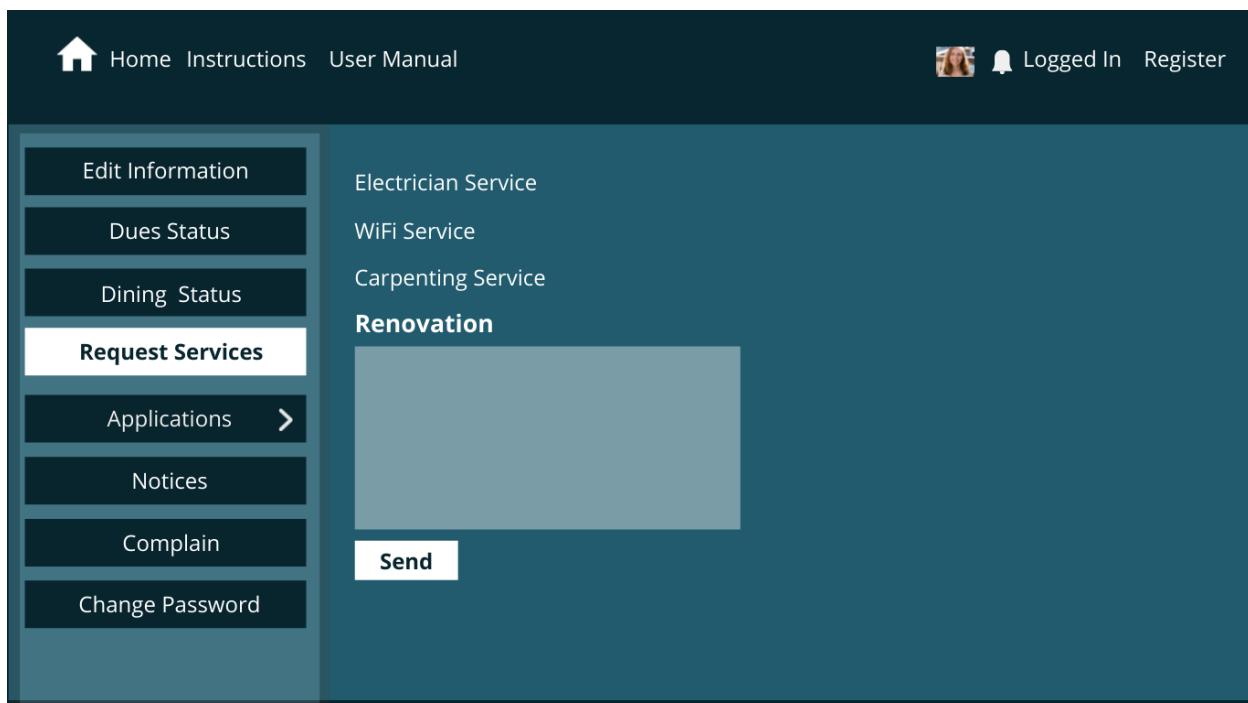
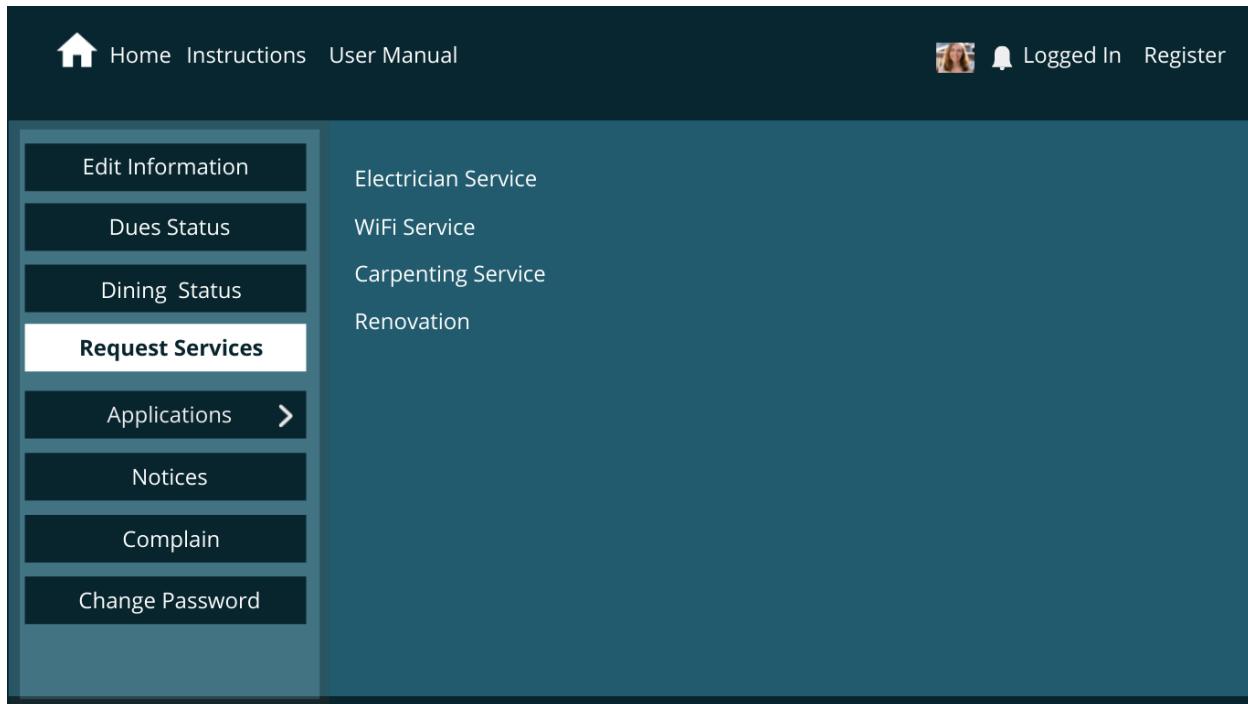
Remaining Amount **3000\$**

Requested Amount

Application

Send

Service Request of Student Side:



Student Applications:

Home Instructions User Manual

Logged In Register

Edit Information

Dues Status

Dining Status

Request Services

Applications >

Notices

Complain

Change Password

Rachel Cooper



First Name: Rachel

Last Name: Cooper

Student ID: 1901108

Department: CSE

Level: 2

Term: 1

Present Address: Fairfax, Virginia

Permenant Address: Fairfax, Virginia

Mobile No: 01XXXXXXXX

Room No: 416

Email: rachel.09@gmail.com

Apply for Room Exchange

Apply for Certificates

Others

Student Application for Room Exchange:

The screenshot shows a dark-themed web application for student management. On the left, a sidebar menu includes: Edit Information, Dues Status, Dining Status, Request Services, Applications (selected), Notices, Complain, and Change Password. The main area displays a user profile for "Rachel Cooper" with a photo. To the right of the photo are fields for First Name (Rachel), Last Name (Cooper), Student ID (1901108), Department (CSE), Level (2), Term (1), Present Address (Fairfax, Virginia), Permanent Address (Fairfax, Virginia), Mobile No (01XXXXXXXX), Room No (416), and Email (rachel.09@gmail.com). A sub-menu under Applications shows Apply for Room Exchange, Apply for Certificates, and Others.

This screenshot shows the "Apply for Room Exchange" form. The sidebar remains the same. The main form has a message: "You have no room application pending". It includes a dropdown menu for "Preferred Room No(Optional)" with options: 321, 416, 420, 2005, and 2009. Below the dropdown is a section for "Application" which is currently empty. There is a "Attach documents" field with "Choose Files" and "No file chosen" buttons. Under "Skill", there are checkboxes for Sports, Debates, and Others. At the bottom are "Send" and "Activate Windows" buttons.

Student Application for Certificates:

Home Instructions User Manual

Logged In Register

Edit Information
Dues Status
Dining Status
Request Services
Applications >
Notices
Complain
Change Password

Rachel Cooper



First Name: Rachel | Last Name: Cooper
Student ID: 1901108 | Department: CSE
Level: 2 | Term: 1
Present Address: Fairfax, Virginia | Permanent Address: Fairfax, Virginia
Mobile No: 01XXXXXXXXX | Room No: 416
Email: rachel.09@gmail.com

Apply for Room Exchange
Apply for certificates
Others

Home Instructions User Manual

Logged In Register

Edit Information
Dues Status
Dining Status
Request Services
Applications >
Notices
Complain
Change Password

Certificate Status

Approved
Inter Hall Cricket Cup Certificate

Waiting for Approval
Inter Hall Debate Certificate

Apply for New Certificates

Certificate Name:
Message:

Send

Student Application for Others:

Home Instructions User Manual

Logged In Register

Edit Information
Dues Status
Dining Status
Request Services
Applications >
Notices
Complain
Change Password

Rachel Cooper



First Name: Rachel
Last Name: Cooper
Student ID: 1901108
Department: CSE
Level: 2
Term: 1
Present Address: Fairfax, Virginia
Permanent Address: Fairfax, Virginia
Mobile No: 01XXXXXXXX
Room No: 416
Email: rachel.09@gmail.com

Apply for Room Exchange
Apply for Mess Manager
Others

Home Instructions User Manual

Logged In Register

Edit Information
Dues Status
Dining Status
Request Services
Applications >
Notices
Complain
Change Password

Topic: [Redacted]
Message:

Send

Student Notice Board:

The screenshot shows a dark-themed web application interface. At the top, there is a navigation bar with icons for Home, Instructions, User Manual, and a user profile with 'Logged In' and 'Register' buttons. On the left, a vertical sidebar contains links: Edit Information, Dues Status, Dining Status, Request Services, Applications >, Notices (which is highlighted), Complain, and Change Password. The main content area is titled 'Notices' and displays a grid of four items, each with a date and a title. The items are: Sun Dec 19, 2021 - Intra Hall Cricket Tournament; Mon Dec 13, 2021 - Room Allocation Notice; Tues Dec 21, 2021 - Intra Hall Debate Tournament; and Wed Dec 01, 2021 - Mess charge of this month.

Date	Title
Sun Dec 19, 2021	Intra Hall Cricket Tournament
Mon Dec 13, 2021	Room Allocation Notice
Tues Dec 21, 2021	Intra Hall Debate Tournament
Wed Dec 01, 2021	Mess charge of this month

Student Complaint Page:

The screenshot shows a dark-themed web application interface. At the top, there is a navigation bar with icons for Home, Instructions, User Manual, and a user profile with 'Logged In' and 'Register' buttons. On the left, a vertical sidebar contains links: Edit Information, Dues Status, Dining Status, Request Services, Applications >, Notices, Complain (which is highlighted), and Change Password. The main content area has fields for 'Topic' (with a placeholder) and 'Application' (a large text area). At the bottom, there is a 'Send' button.

Student Side Notifications:

The screenshot shows a student profile page with a sidebar menu and a main content area. The sidebar on the left includes links for Edit Information, Dues Status, Dining Status, Request Services, Applications, Notices, Complain, and Change Password. The main content area displays a student's profile picture and name, Rachel Cooper. To the right of the profile are various student details: First Name (Rachel), Last Name (Coo), Student ID (1901108), Department (CSE), Level (2), Present Address (Fairfax, Virginia), Mobile No (01XXXXXXXX), Email (rachel.09@gmail.com), and Room No (416). A notifications sidebar on the right lists three recent events: "28 min ago Hall sports tournament certificate request has been approved", "One hour ago You have to pay hall fees", and "One Day ago Hall debate tournament certificate request has been approved".

First Name	Last Name	Student ID	Department	Level	Present Address	Mobile No	Email	Room No
Rachel	Coo	1901108	CSE	2	Fairfax, Virginia	01XXXXXXXX	rachel.09@gmail.com	416

Notifications:

- 28 min ago Hall sports tournament certificate request has been approved
- One hour ago You have to pay hall fees
- One Day ago Hall debate tournament certificate request has been approved

Provost Page:

Home Instructions User Manual

Logged In Register

Edit Information

See Fund Requests

See Defaulter List

See Complains

See Applications >

Pay Staff Salary

See Student Profile

See Room Info

Fees

Notices

Ivana Patel



First Name Ivana

Last Name Patel

Post Professor

Department CSE

Mobile no 01XXXXXXXX

Email ivana.patel.teacher.x@gmail.com

Provost Page Fund Request:

The screenshot shows the 'Fund Requests' section of the Provost Page. On the left, a sidebar menu includes 'Edit Information', 'See Fund Requests', 'See Defaulter List', 'See Complains', 'See Applications >', 'Pay Staff Salary', 'See Student Profile', 'See Room Info', 'Fees', and 'Notices'. The main area displays a table titled 'Fund Requests' with four rows. Each row contains a date, a request description, and an 'Approve' button.

Fund Requests	
Sun Dec 19, 2021	Fund request for gym Approve
Mon Dec 13, 2021	Fund request for dining renovation Approve
Tues Dec 21, 2021	Fund request for library Approve
Wed Dec 01, 2021	Fund request for sports equipment Approve

The screenshot shows the 'Defaulter List' section of the Provost Page. On the left, a sidebar menu includes 'Edit Information', 'See Fund Requests', 'See Defaulter List', 'See Complains', 'See Applications >', 'Pay Staff Salary', 'See Student Profile', 'See Room Info', 'Fees', and 'Notices'. The main area displays a table titled 'Defaulter List' with three rows. Each row contains a student ID, due amount, and several action buttons: 'Warning', 'Meal Off', 'Seat Cancel', and 'Clear'.

Student ID	Due Amount	Warning	Meal Off	Seat Cancel	Clear
1901055	1000	Warning	Meal Off	Seat Cancel	Clear
1905055	1000	Warning	Meal Off	Seat Cancel	Clear
1801065	1000	Warning	Meal Off	Seat Cancel	Clear

Provost Side See Applications for Certificates:

The screenshot shows a user profile for "Ivana Patel". The profile includes a photo, first name, last name, post, department, mobile number, and email. Below the profile, there is a section titled "Applications for Certificates" with three sub-options: "Applications for Room Allotment", "Applications for Others", and "See Applications >". On the left sidebar, there are various navigation links including "Edit Information", "See Fund Requests", "See Defaulter List", "See Complains", "See Applications >", "Pay Staff Salary", "See Student Profile", "See Room Info", "Fees", and "Notices".

The screenshot shows a "Certificate Application List" table. The table has three columns: "Applications", "Accept", and "Reject". There are three rows, each representing an application for a hall cricket tournament certificate. Each row contains an "Accept" button and a "Reject" button. On the left sidebar, there are various navigation links including "Edit Information", "See Fund Requests", "See Defaulter List", "See Complains", "See Applications >", "Pay Staff Salary", "See Student Profile", "See Room Info", "Fees", and "Notices".

Applications	Accept	Reject
Application for hall cricket tournament certificate	Accept	Reject
Application for hall cricket tournament certificate	Accept	Reject
Application for hall cricket tournament certificate	Accept	Reject

Provost Side See Applications for Room Allotment:

The screenshot shows a user profile for "Ivana Patel". The profile includes a photo, first name, last name, post, department, mobile number, and email. Below the profile, there are three application categories: "Applications for Certificates", "Applications for Room Allotment" (which is selected), and "Applications for Others". On the left sidebar, there is a vertical list of navigation links including "Edit Information", "See Fund Requests", "See Defaulter List", "See Complains", "See Applications", "Pay Staff Salary", "See Student Profile", "See Room Info", "Fees", and "Notices".

The screenshot shows a list of room allotment requests under the "Applications" section. The requests are listed as follows:

- Request by: 1705078 , requested 2009
- Request by: 1705078 , requested 420

Below the list, there are dropdown menus for "Student ID" and "Room No.", and two buttons: "Apply" and "Apply All". On the right side, there is a message about activating Windows.



 Home Instructions User Manual

 Log Out

[Edit Information](#)

[See Fund Requests](#)

[See Defaulter List](#)

[See Complains](#)

[Applications](#)

[Pay Staff Salary](#)

[See Student Profile](#)

[See Room Info](#)

[fees](#)

[Notices](#)

Student ID 1705078

Preferred Room No 2009

Application
Please sir give me a sit , My house is to far from buet

Attached document

Skill:

- others

Activate Windows
Go to Settings to activate Windows.

Provost Side Pay Staff Salary:

The screenshot shows a user interface for managing staff salaries. On the left, a sidebar menu lists various administrative tasks. The 'Pay Staff Salary' option is highlighted. The main content area displays a 'Staff List' table with two entries:

Staff Name	Pay
1. Ken Wattson	Pay
2. Conny Tucker	Pay

Provost Side See Student Profile:

The screenshot shows a user interface for viewing student profiles. On the left, a sidebar menu lists various administrative tasks. The 'See Student Profile' option is highlighted. The main content area displays a 'Student ID' field with a placeholder box and a 'Show' button.

Provost Side See Room Information:

Home Instructions User Manual

Logged In Register

Edit Information

See Fund Requests

See Defaulter List

See Complains

See Applications >

Pay Staff Salary

See Student Profile

See Room Info

Fees

Notices

Room No

Show

Provost Side Set Mess Charge:

Home Instructions User Manual

Logged In Register

Edit Information

See Fund Requests

See Defaulter List

See Complains

See Applications >

Pay Staff Salary

See Student Profile

See Room Info

Fees

Notices

Current Mess Month

Current Mess Charge

Submit

Provost Side Send Notices:

The screenshot shows a dark-themed web application interface. On the left, a sidebar contains a vertical list of links: Edit Information, See Fund Requests, See Defaulter List, See Complains, See Applications >, Pay Staff Salary, See Student Profile, See Room Info, Fees, and Notices. The 'Notices' link is highlighted with a white background. The main content area has a header 'Notices'. Below it is a table with four rows, each representing a notice with a date and description. The columns are 'Sun' (date: Dec 19, 2021), 'Mon' (date: Dec 13, 2021), 'Tues' (date: Dec 21, 2021), and 'Wed' (date: Dec 01, 2021). The descriptions are: 'Intra Hall Cricket Tournament', 'Room Allocation Notice', 'Intra Hall Debate Tournament', and 'Mess charge of this month'. At the bottom of the main area, there are input fields for 'Category' and 'Upload pdf' (with a file icon), and a 'Send' button.

Sun Dec 19,2021	Intra Hall Cricket Tournament
Mon Dec 13,2021	Room Allocation Notice
Tues Dec 21,2021	Intra Hall Debate Tournament
Wed Dec 01,2021	Mess charge of this month

Category

Upload pdf

Send

Staff Page:

Home Instructions User Manual

Logged In Register

Edit Information

See Pending Requests

Notices

Change Password

Ken Wattson



First Name Ken **Last Name** Wattson

Post Electrician **Total Handled Request** 22

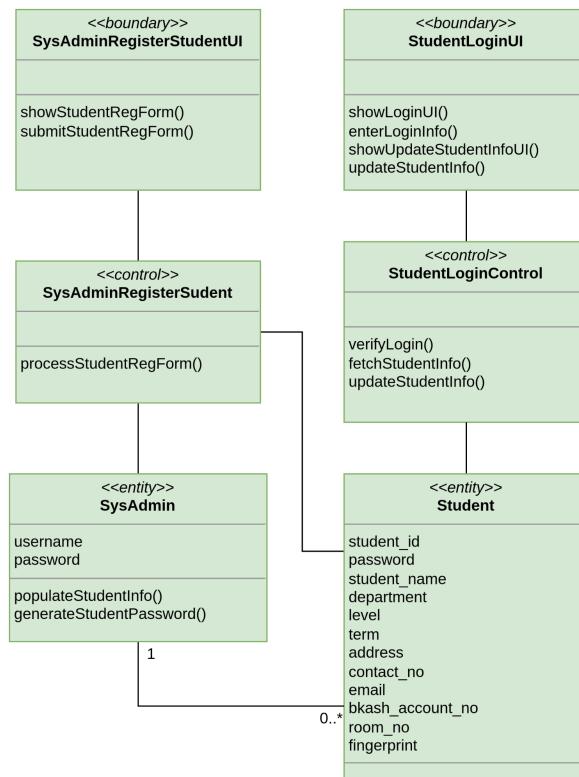
Mobile no 01XXXXXXXXX **Email** ken.wattsonx@gmail.com

Class diagrams

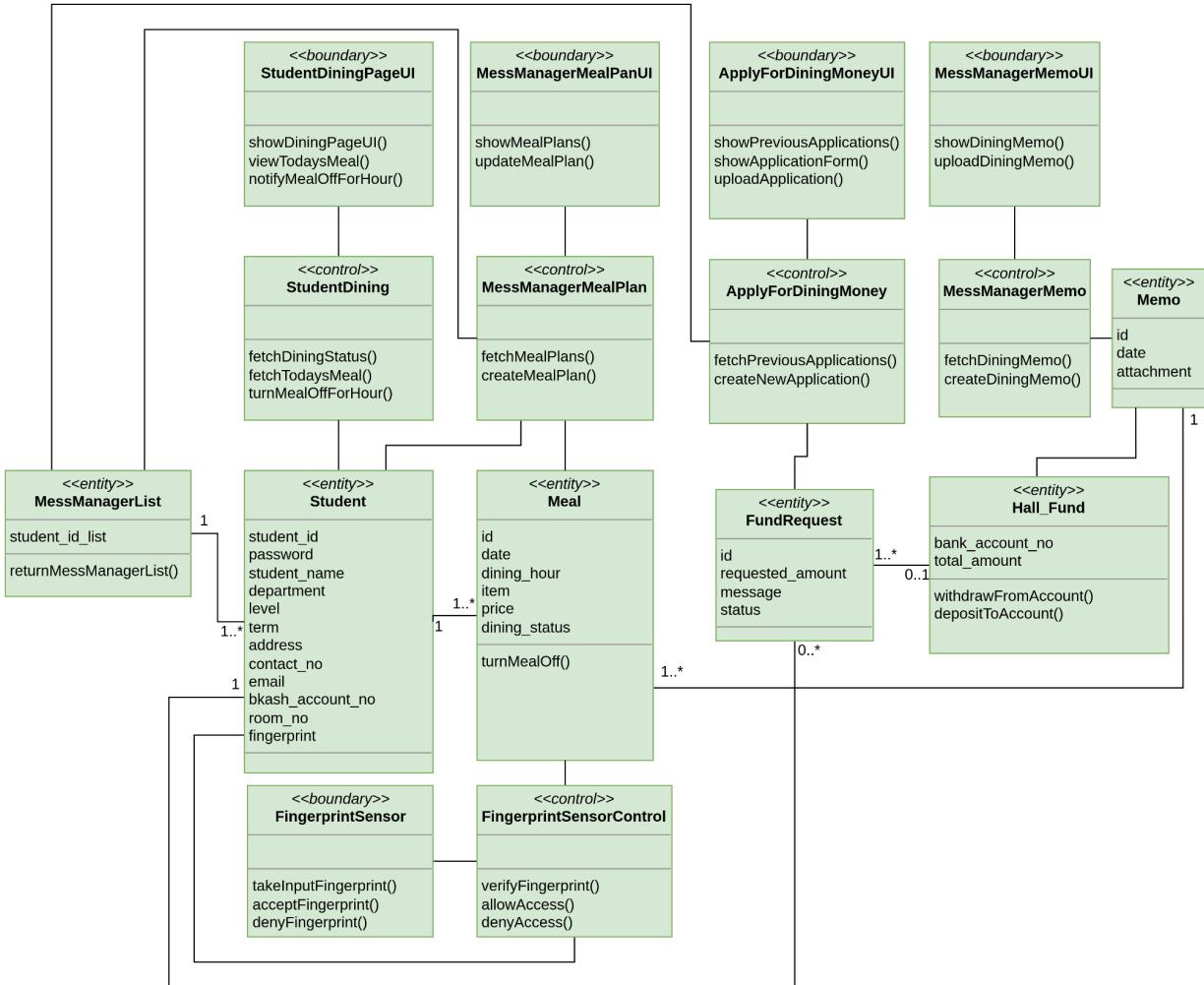
While preparing class diagrams, the interaction of the actors with the system was considered. As a result, boundary classes were created to facilitate actors using various features of our project. Entity classes correspond to the information that needs to be stored on disk. And finally, control classes are what act as middlemen between the boundary and the entity classes.

Since displaying the entire class diagrams seems congested, they were grouped into similar use cases and only relevant classes and associations were displayed. The multiplicity of the association between boundary and control classes were one to one and thus omitted.

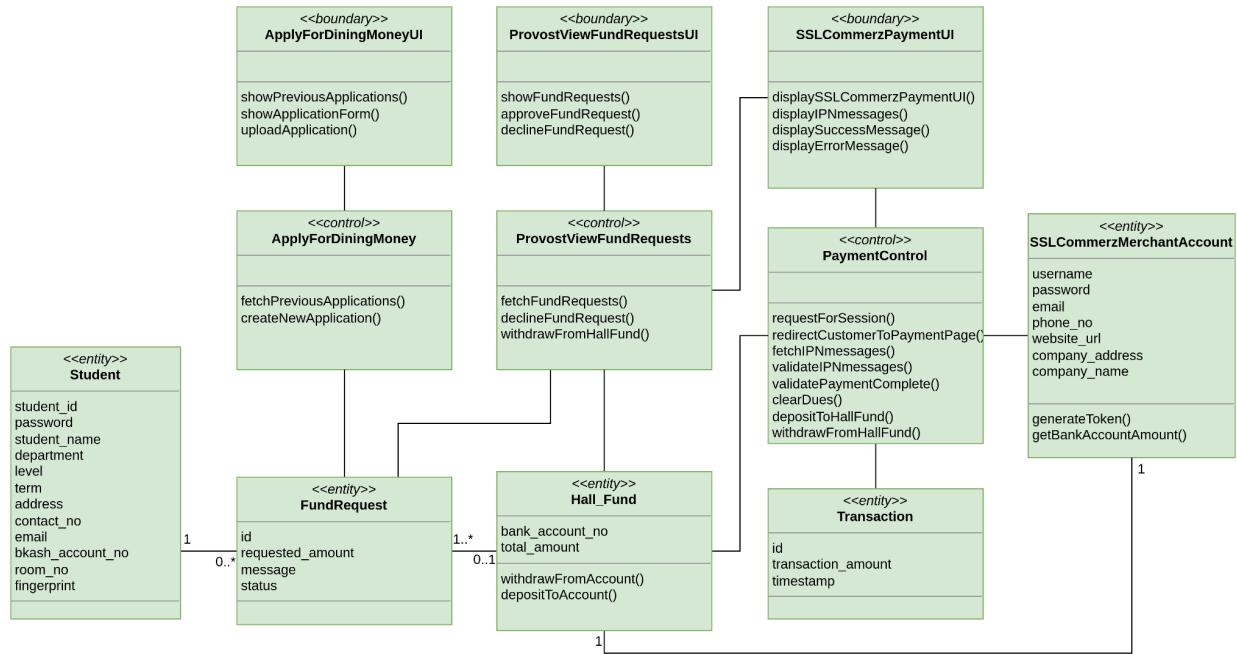
Student Login



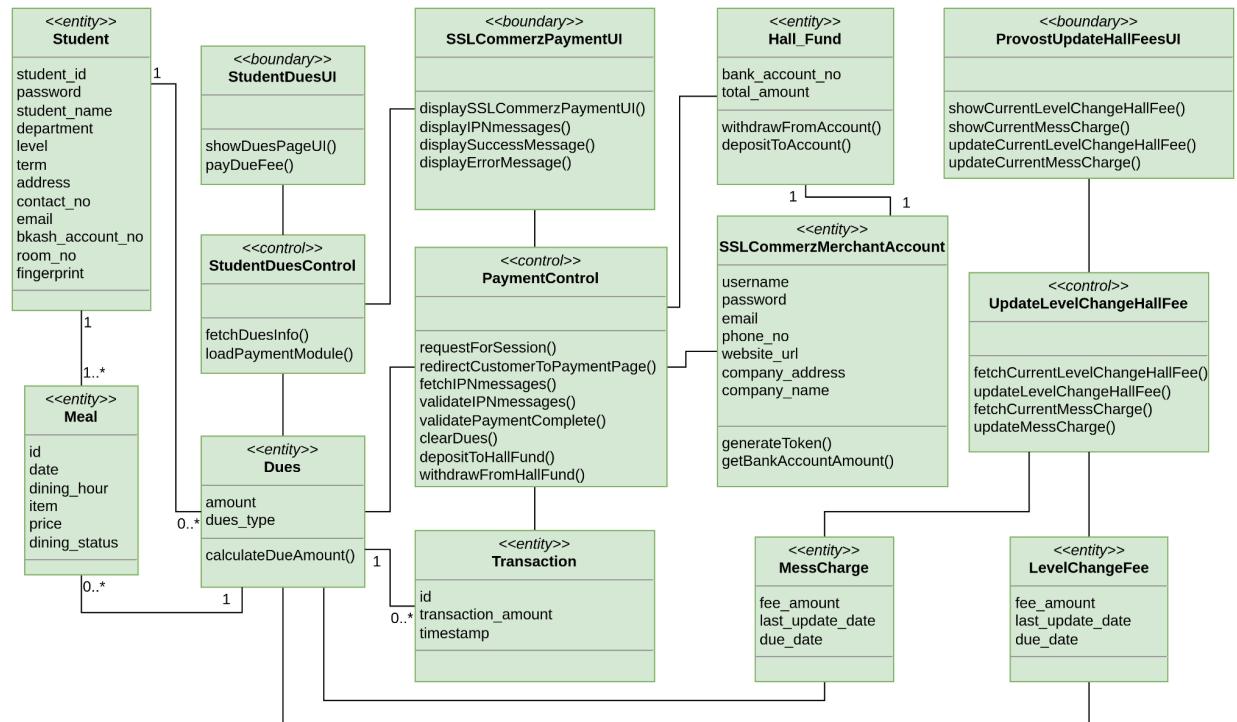
Dining



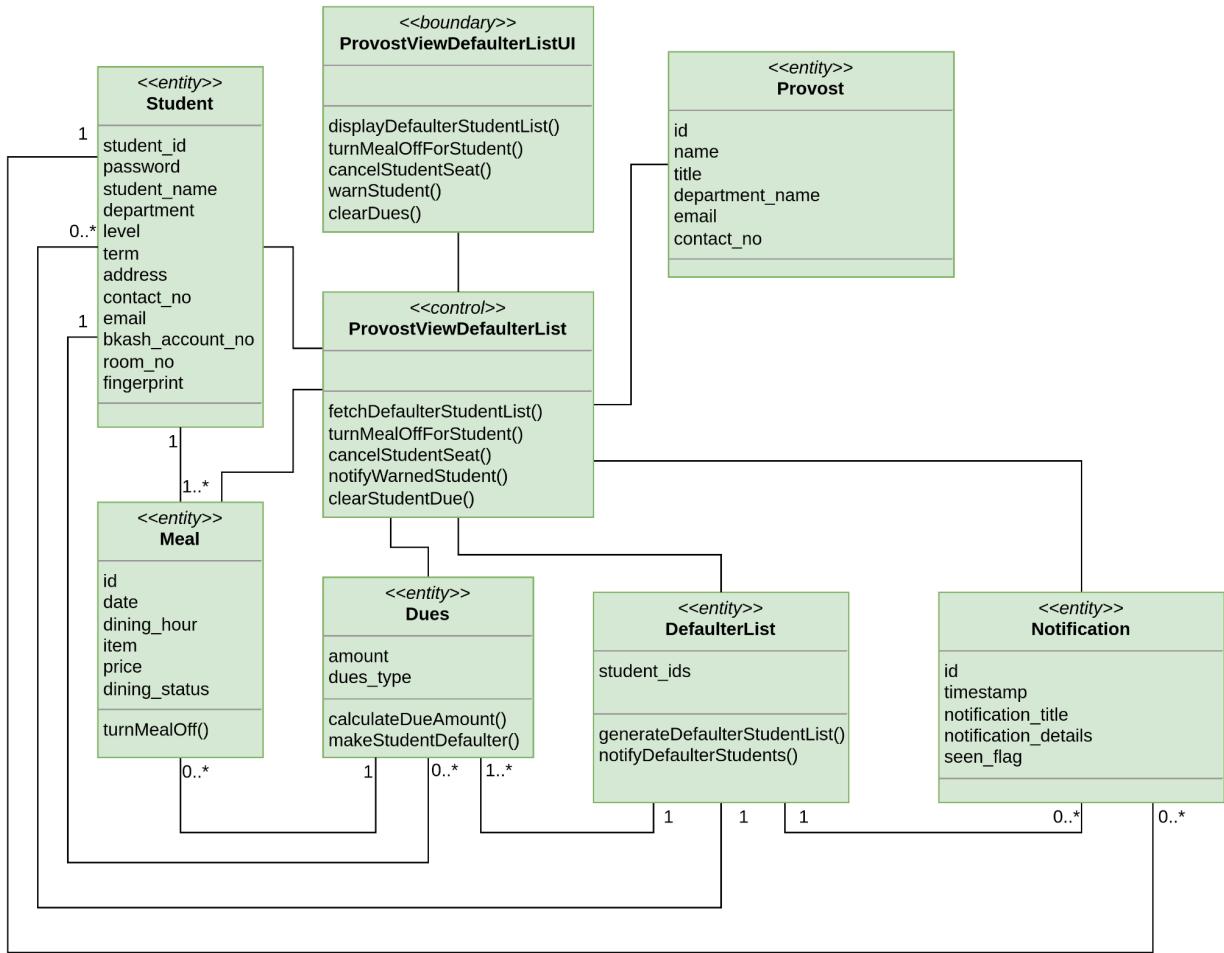
Request for Dining money



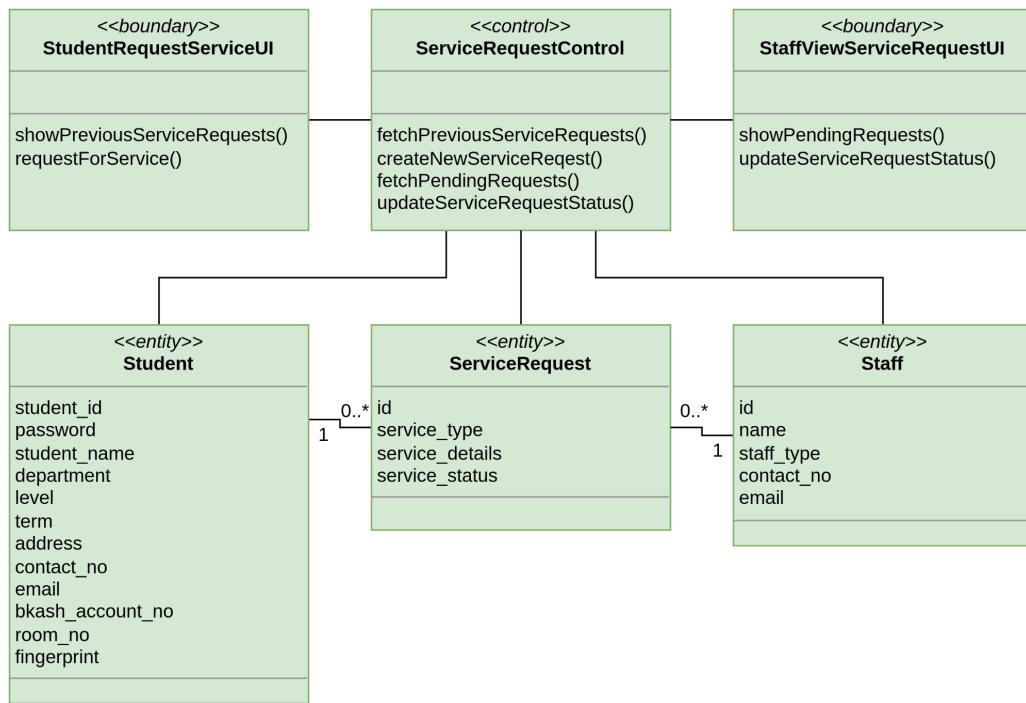
Hall Fees and Dues



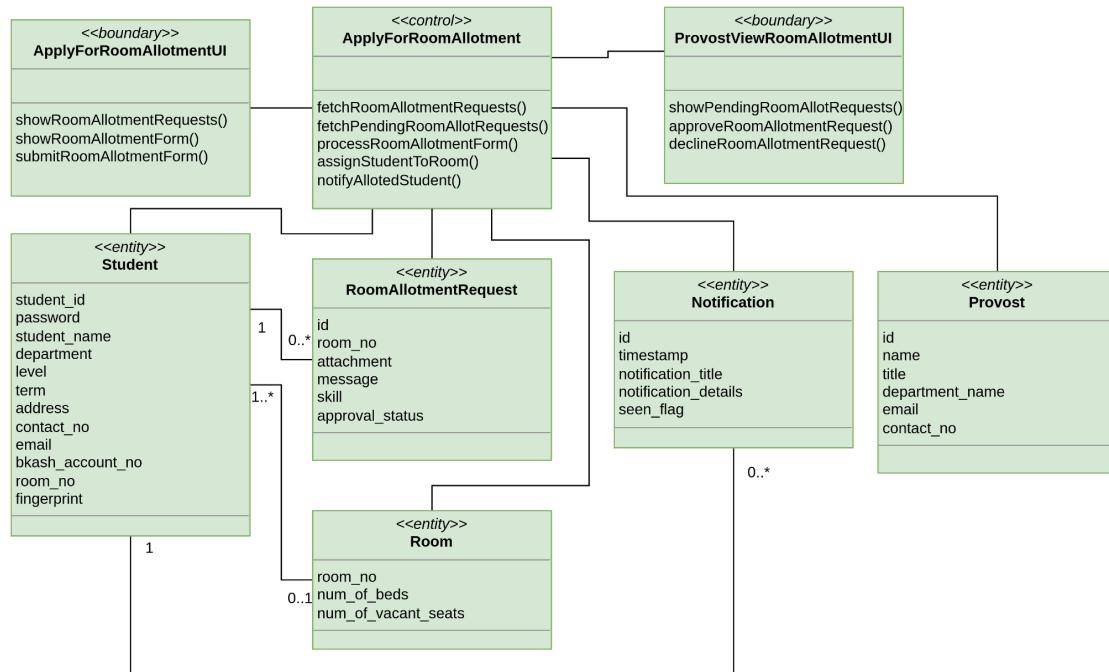
Defaulter List



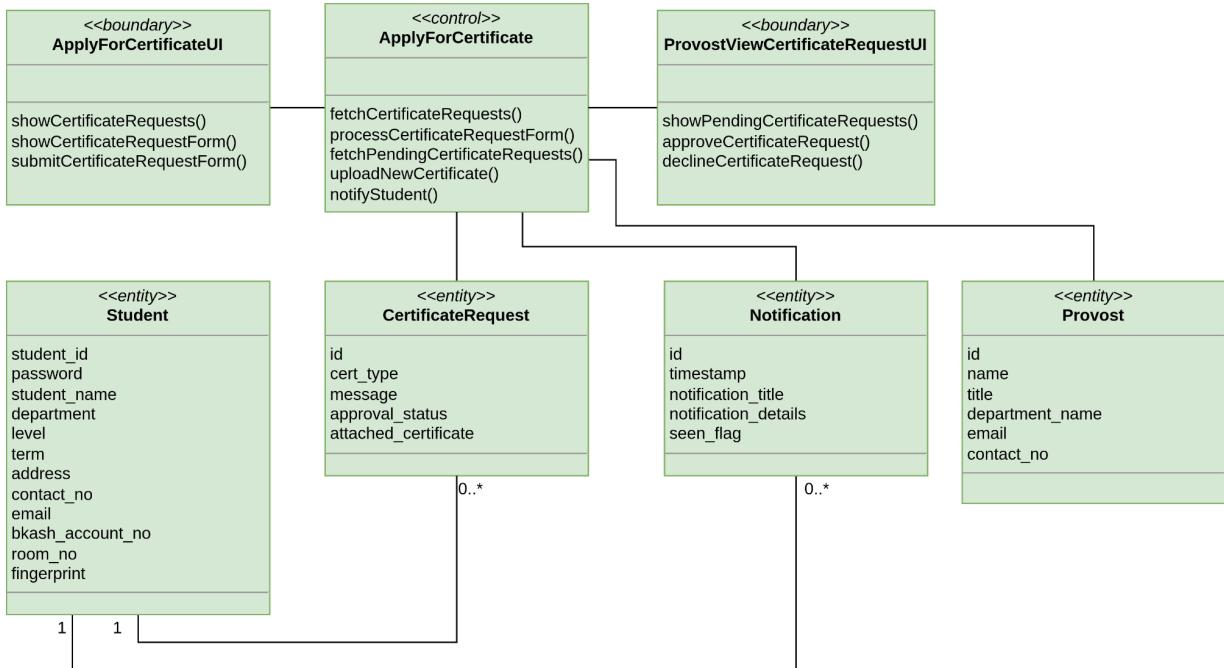
Service Request



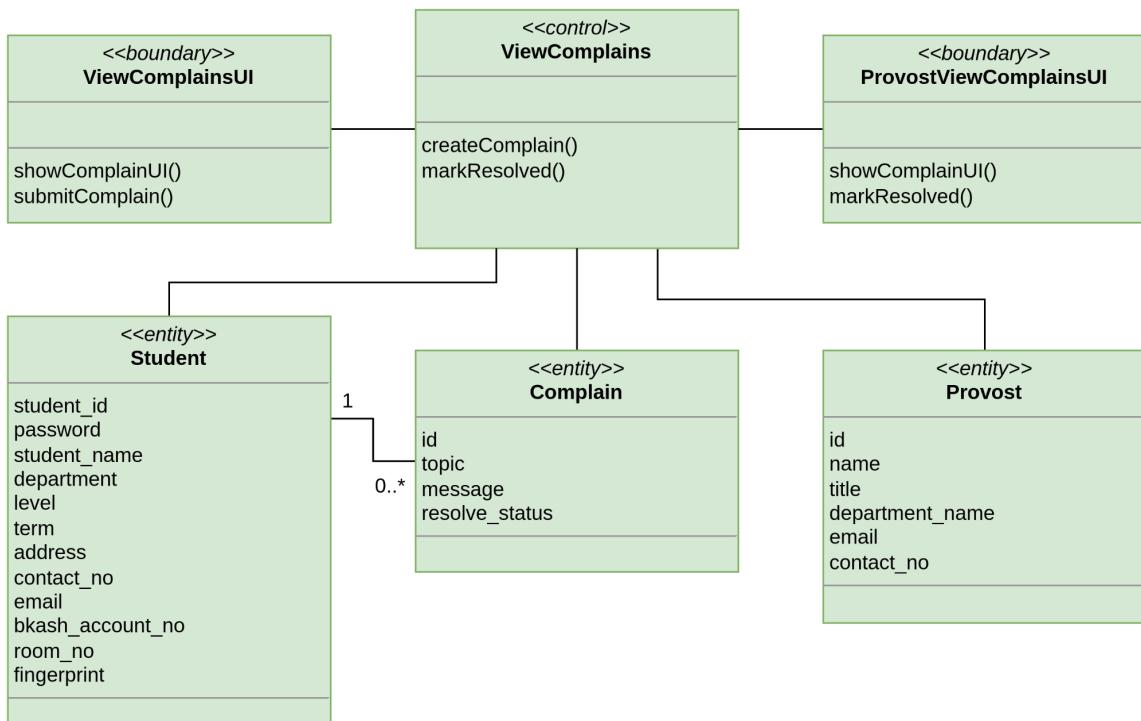
Room Allotment Request



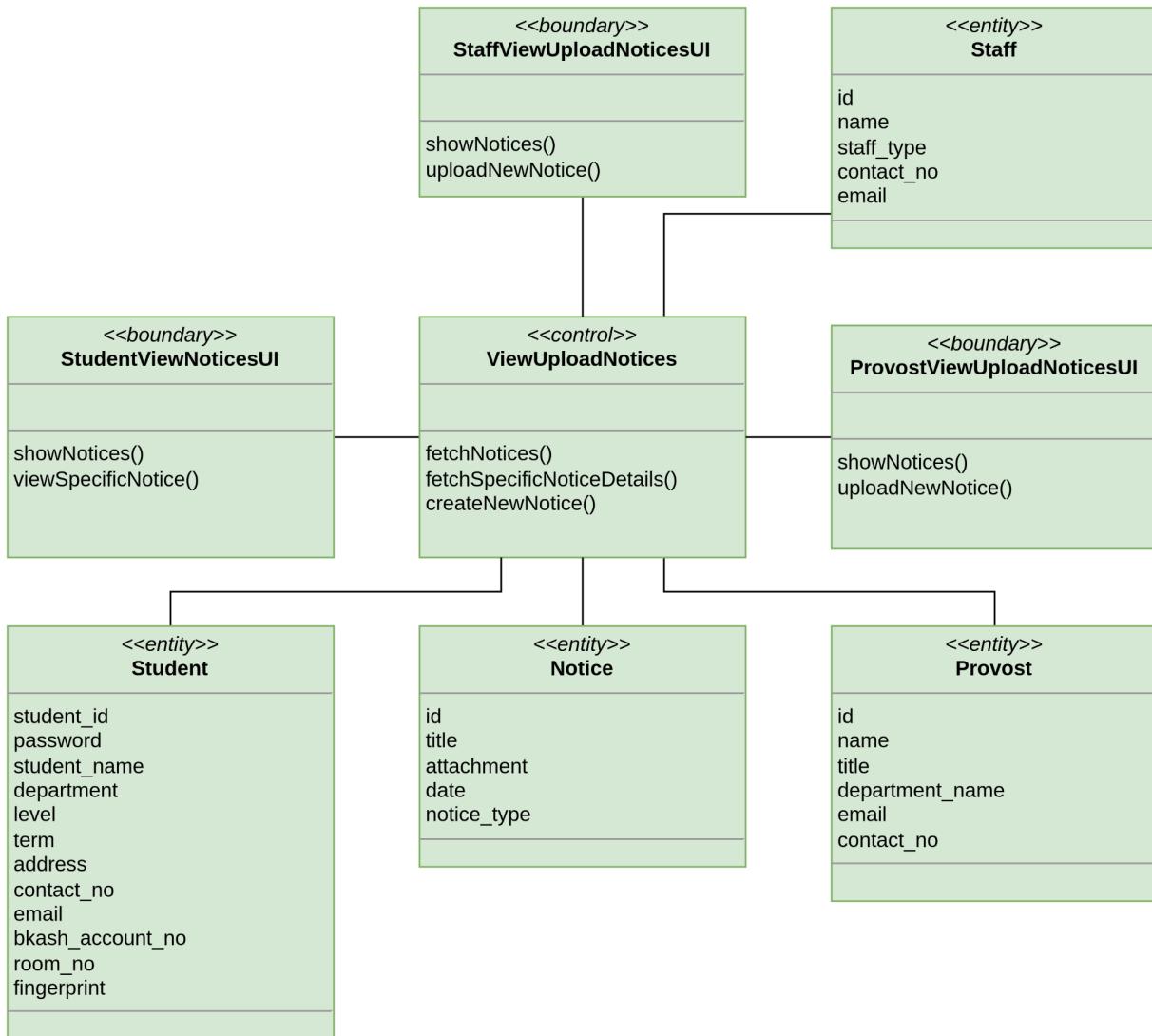
Application for certificate



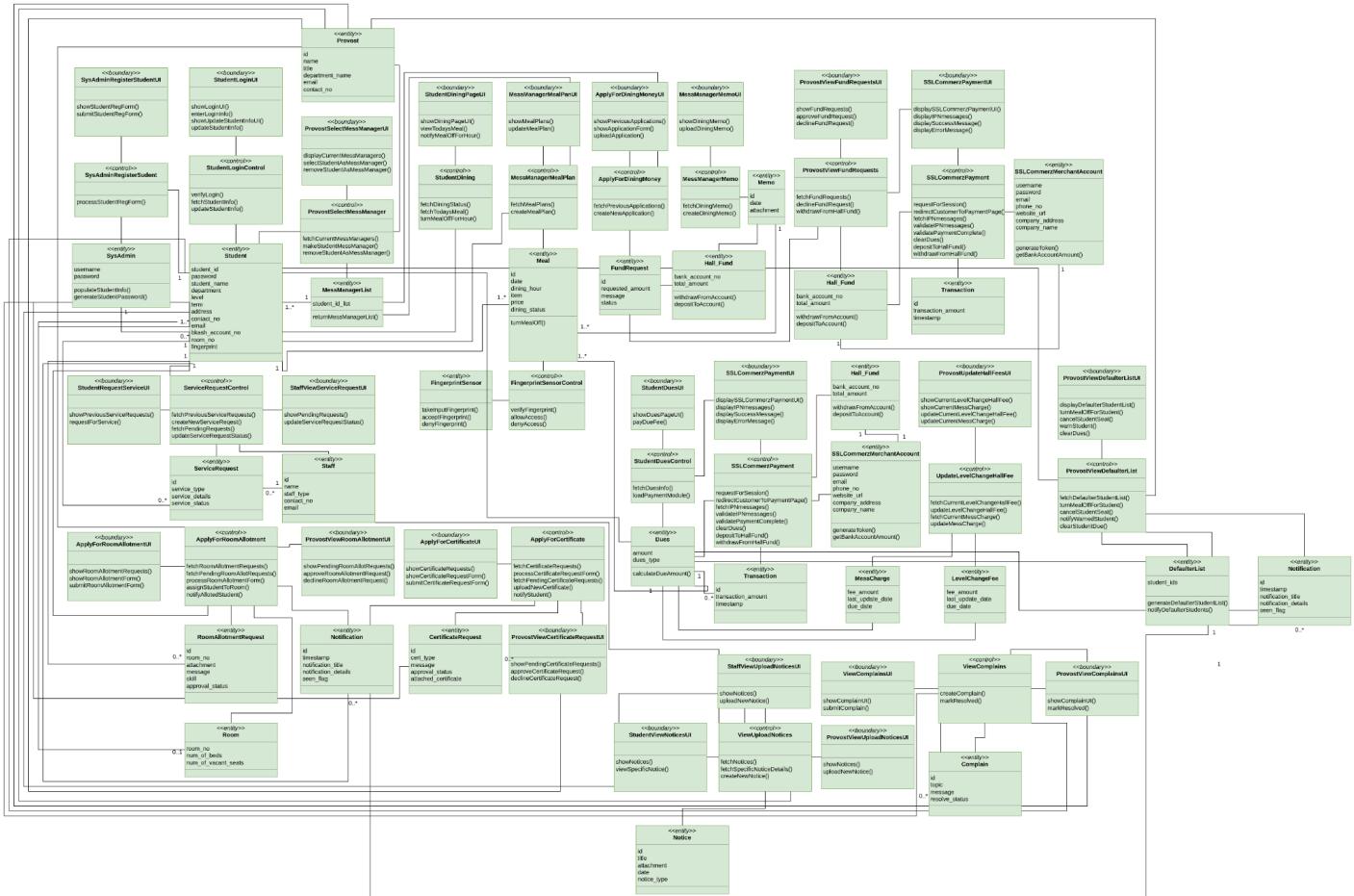
Complain



Notice



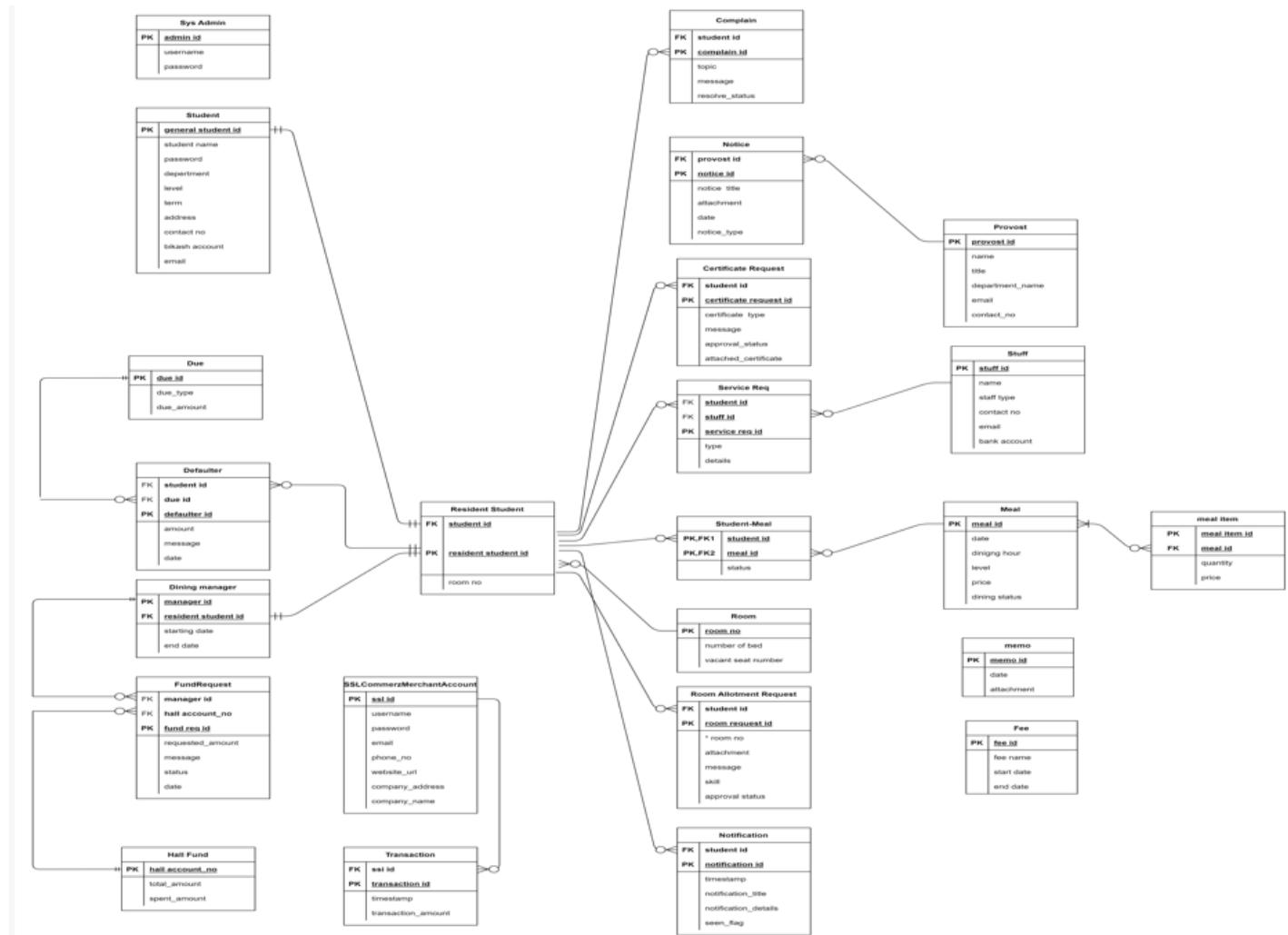
Complete Class Diagram



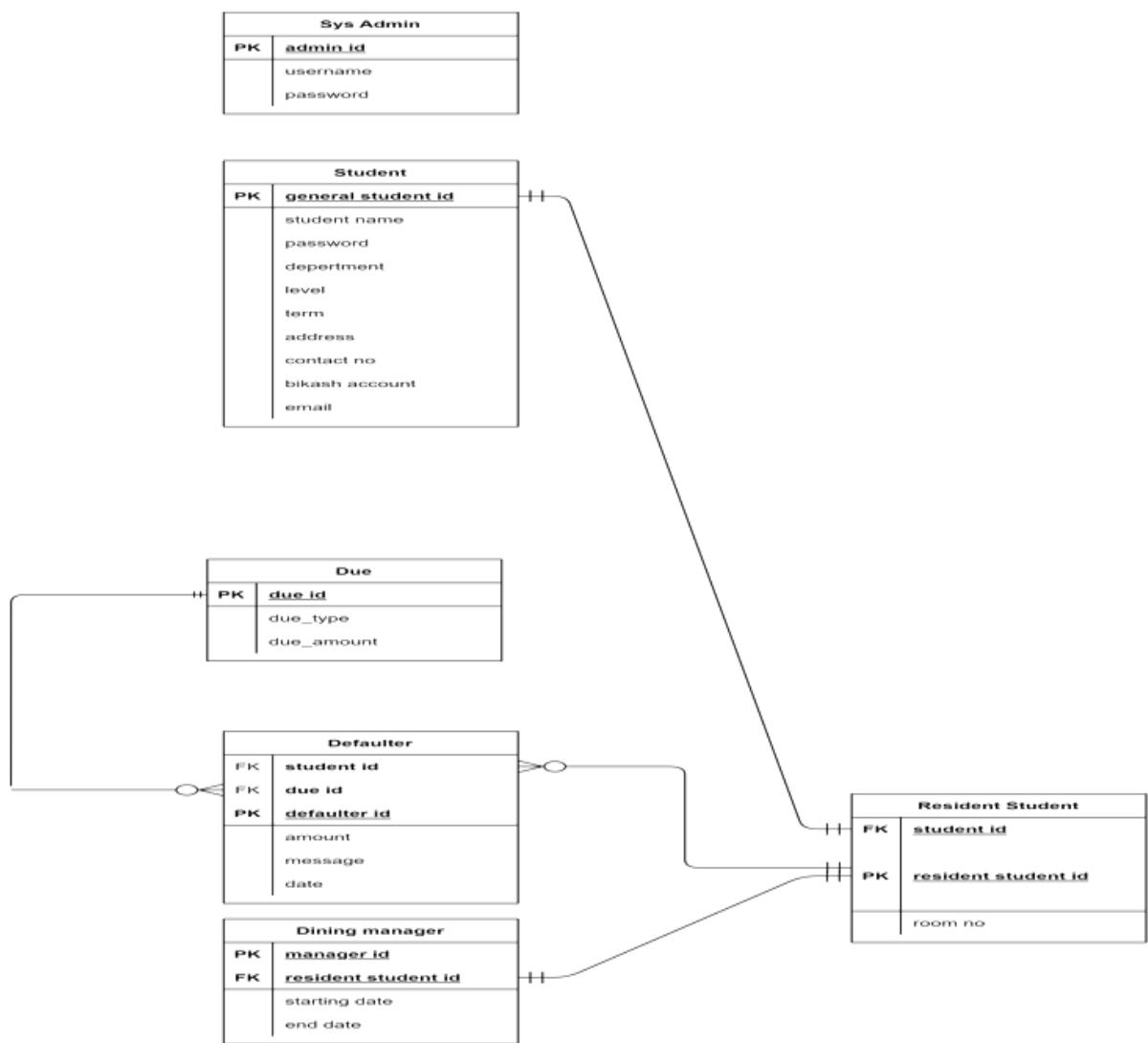
ER diagrams

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how “entities” such as people, objects or concepts relate to each other within our system. For the ERD diagrams, several related use cases were combined to give a better idea of how datas are related to each other and where we mainly focus on the relationships of elements within entities . Here the focus was showing how the hall management part would work. Since displaying the entire ERD diagrams seems congested, they were grouped into similar use cases and only relevant tables and associations were displayed . This ER diagrams are used to model and design relational database for our implemented module

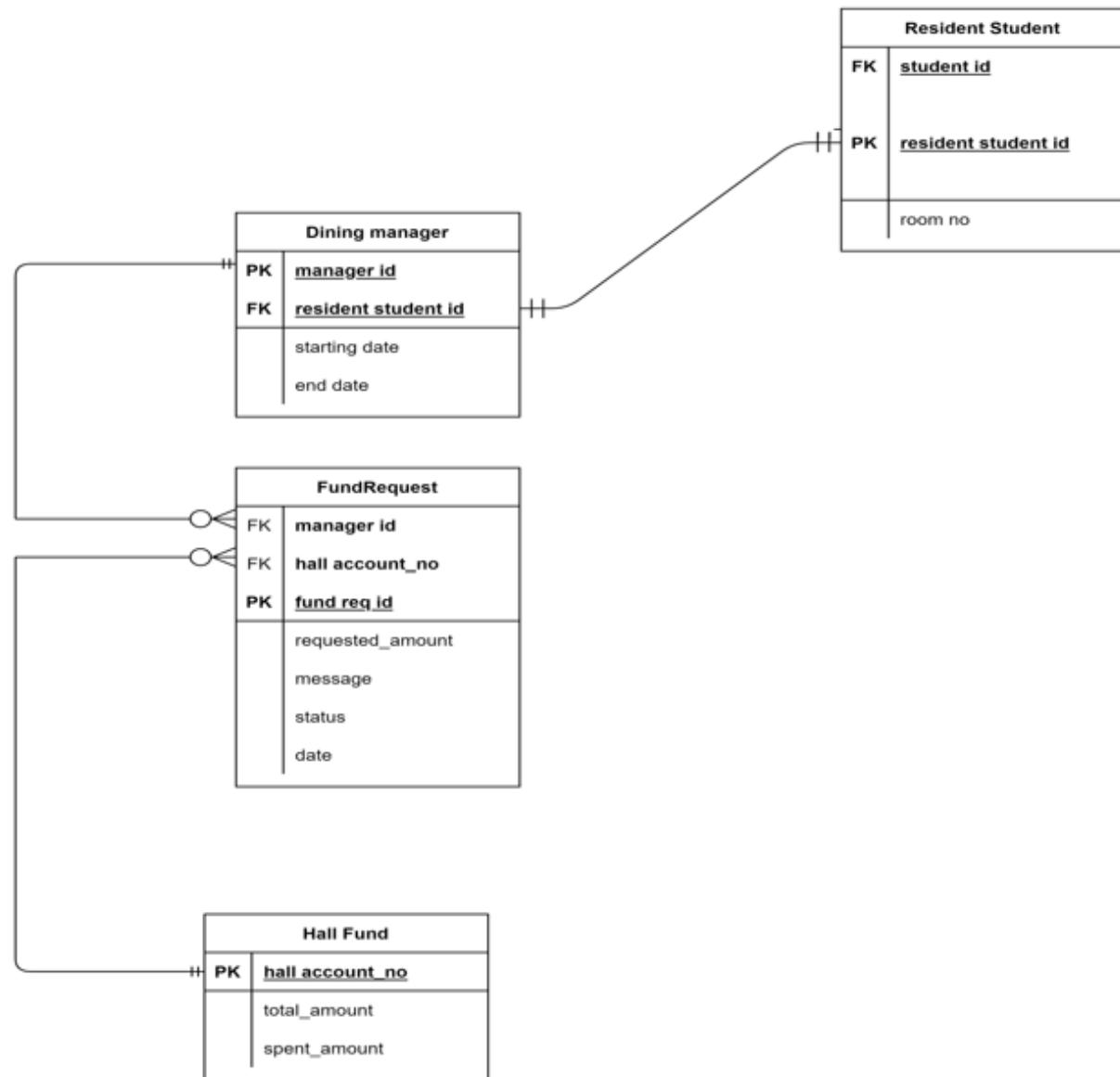
Full ERD :



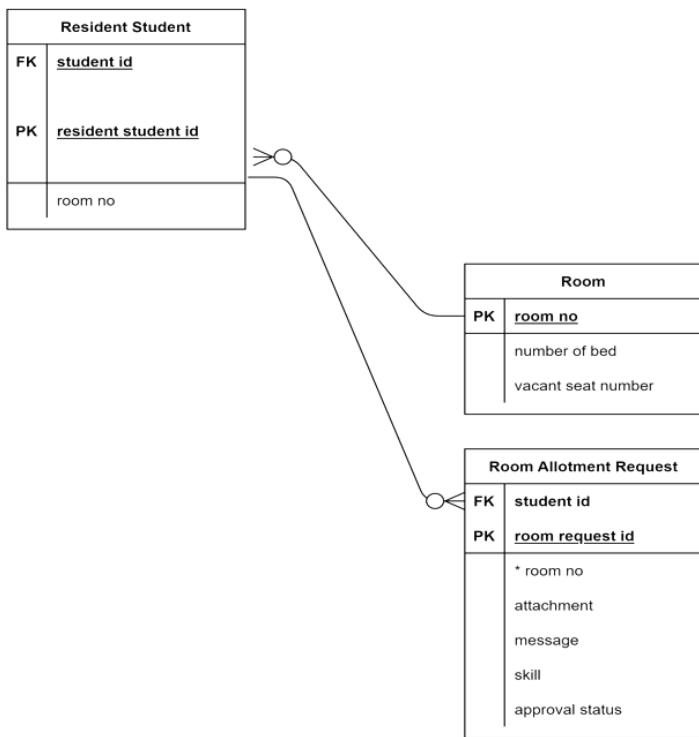
Student Side :



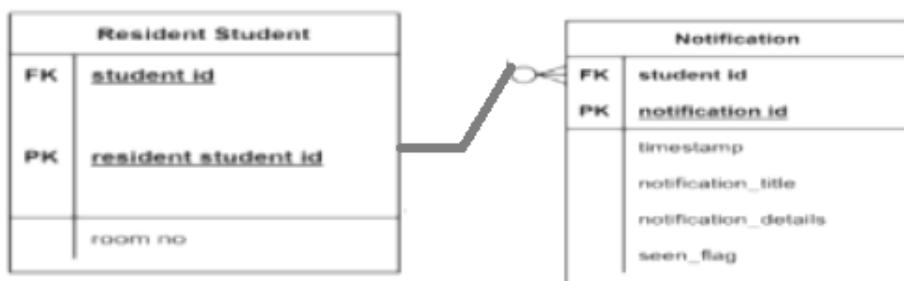
Dinning :



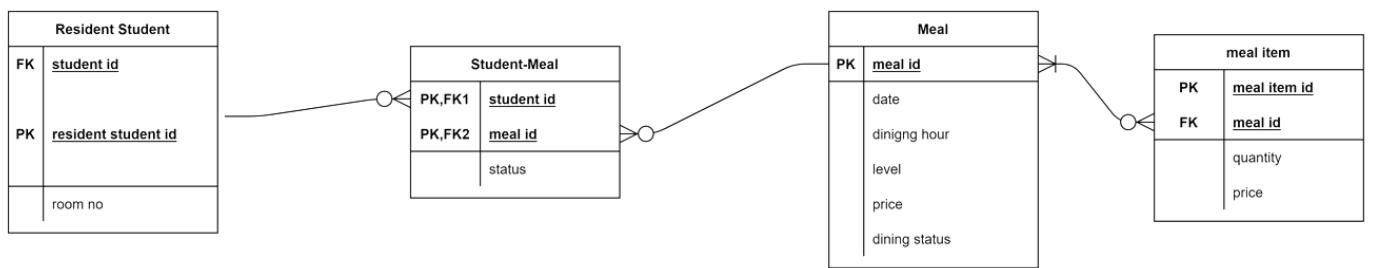
Room Allotment :



Notification :



Meal :

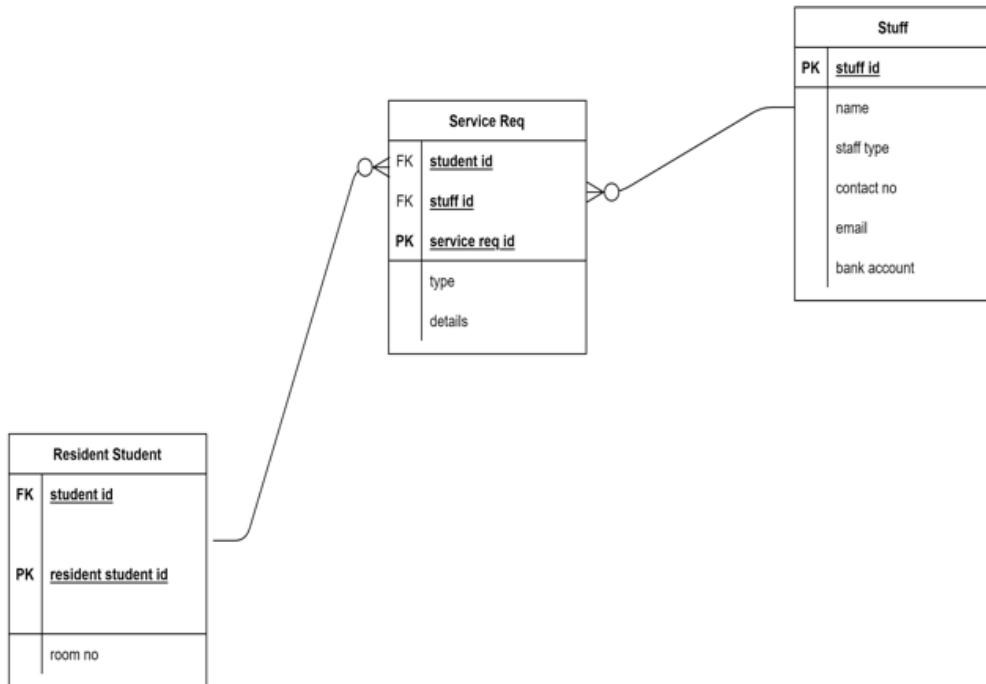


Memo and Fees :

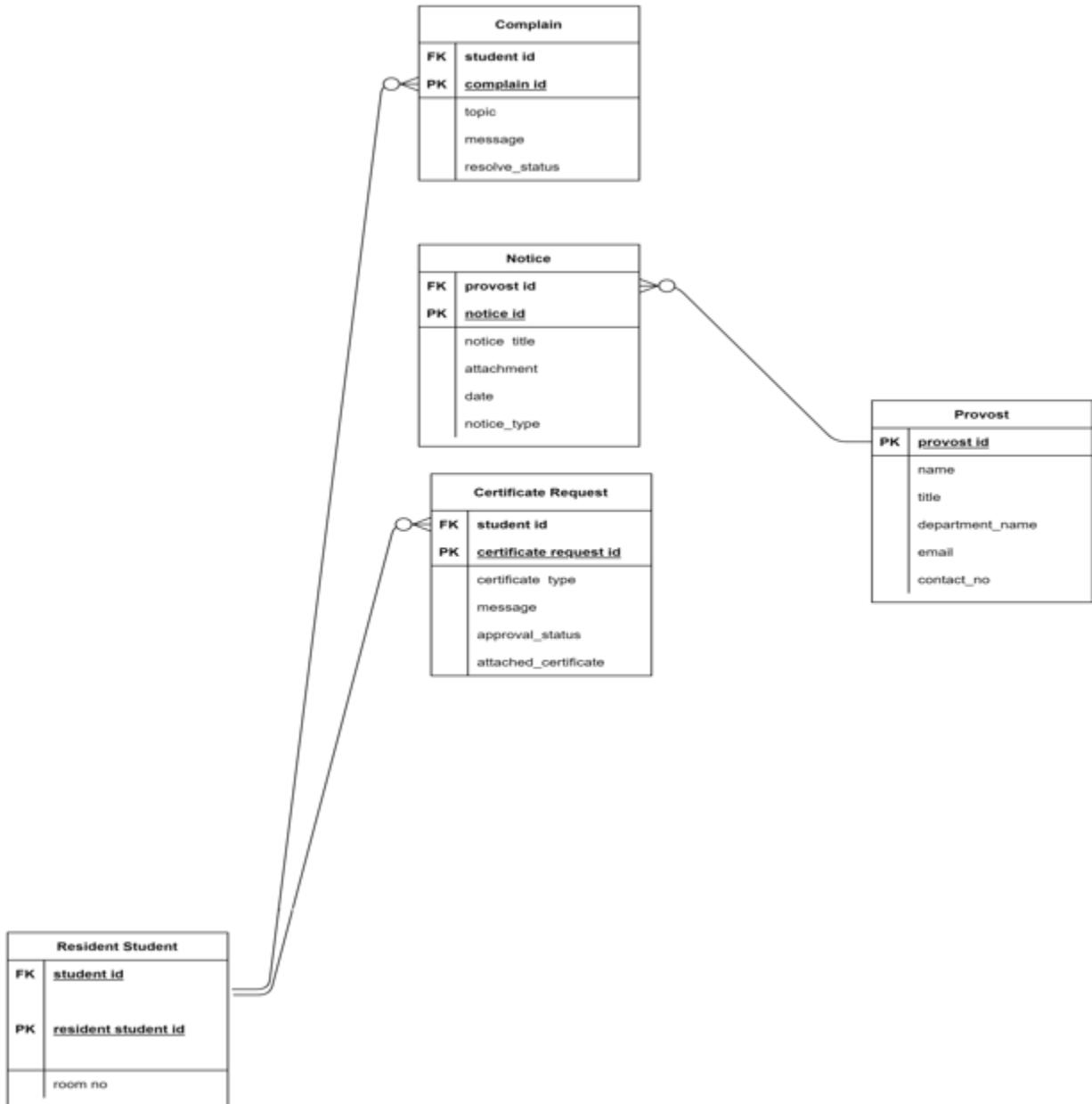
memo	
PK	<u>memo id</u>
	date
	attachment

Fee	
PK	<u>fee id</u>
	fee name
	start date
	end date

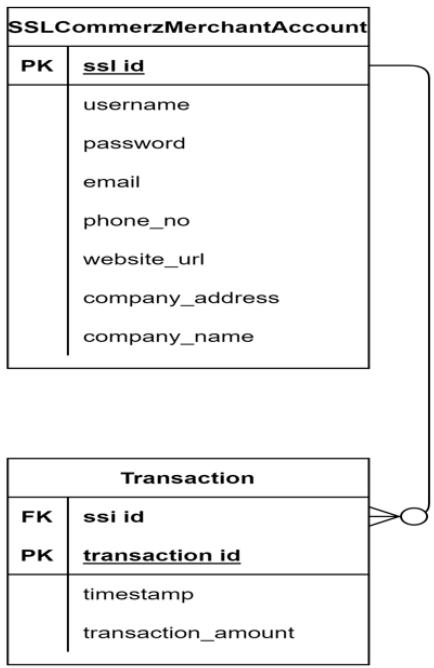
Service :



Notice , Complain and Certificate :



Transaction:



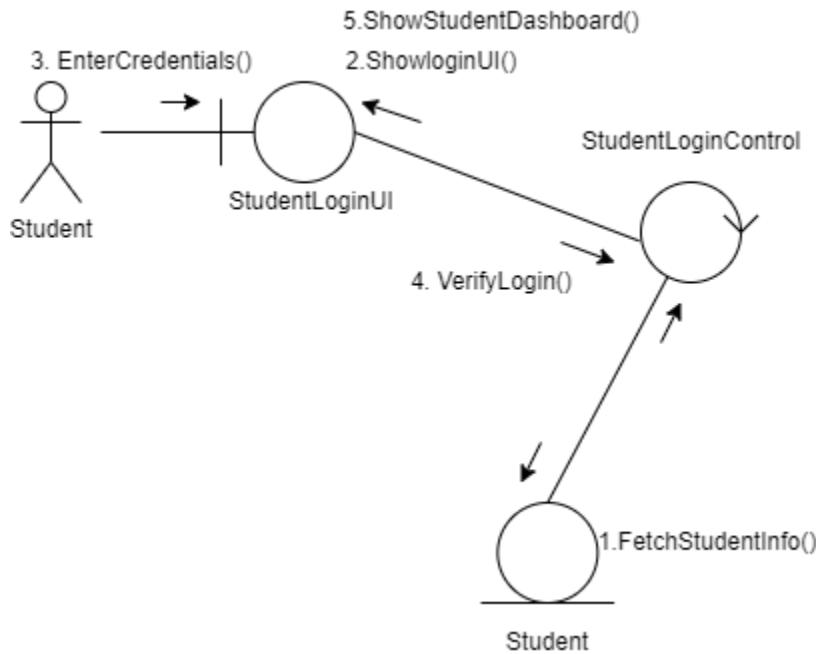
Collaboration diagrams

For the collaboration diagrams, several related use cases were combined to give a better idea of control flow. Ex: the Room Allotment Request collaboration diagram shows the student's side of posting a room allotment request and the provost's side of viewing and approving the requests in the same diagram.

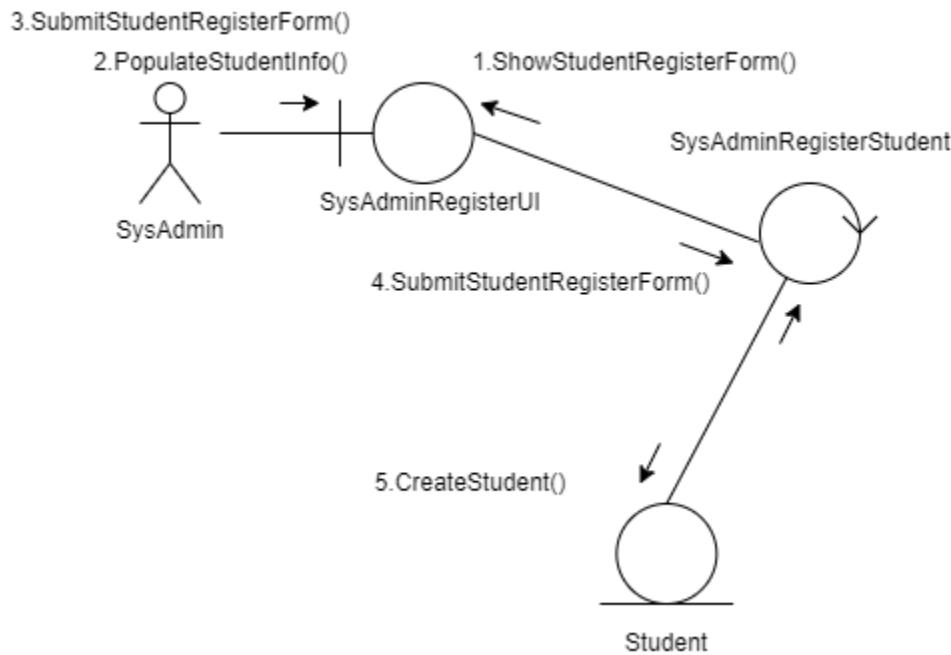
In cases entities could take similar actions in a given sequence(Ex: provost approving and declining a particular request), I depicted them through the branching notation of collaboration diagrams.

Though we modeled the payment system based on SSLCommerz's API, I gave a high level overview of their API excluding the details because the focus was showing how the hall management part would work,

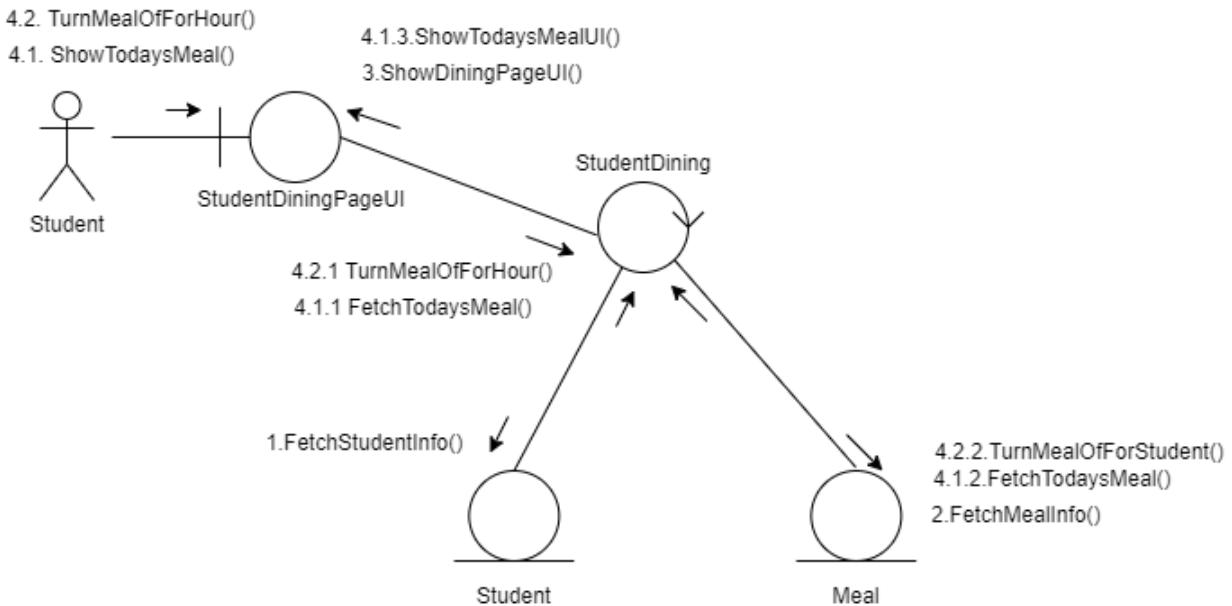
Login:



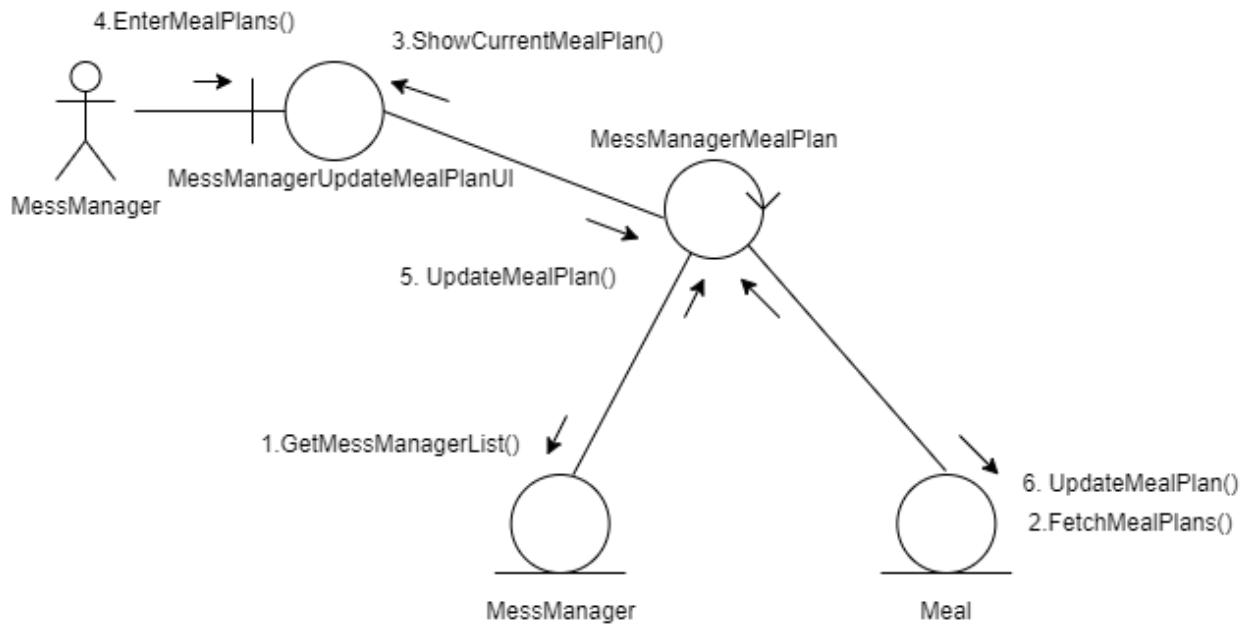
Register Student:



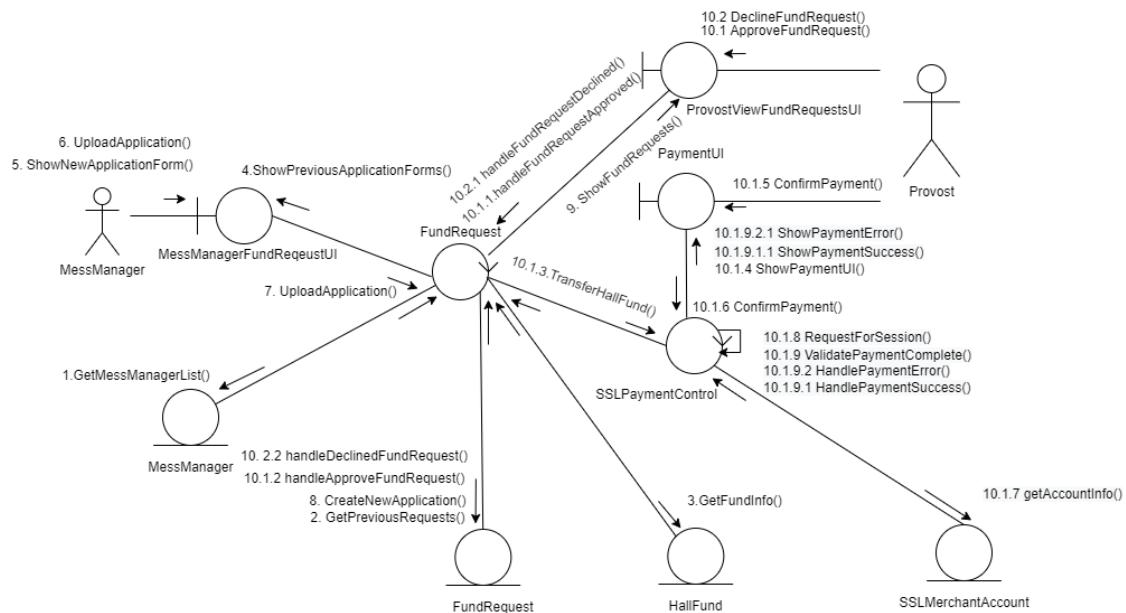
Student Dining:



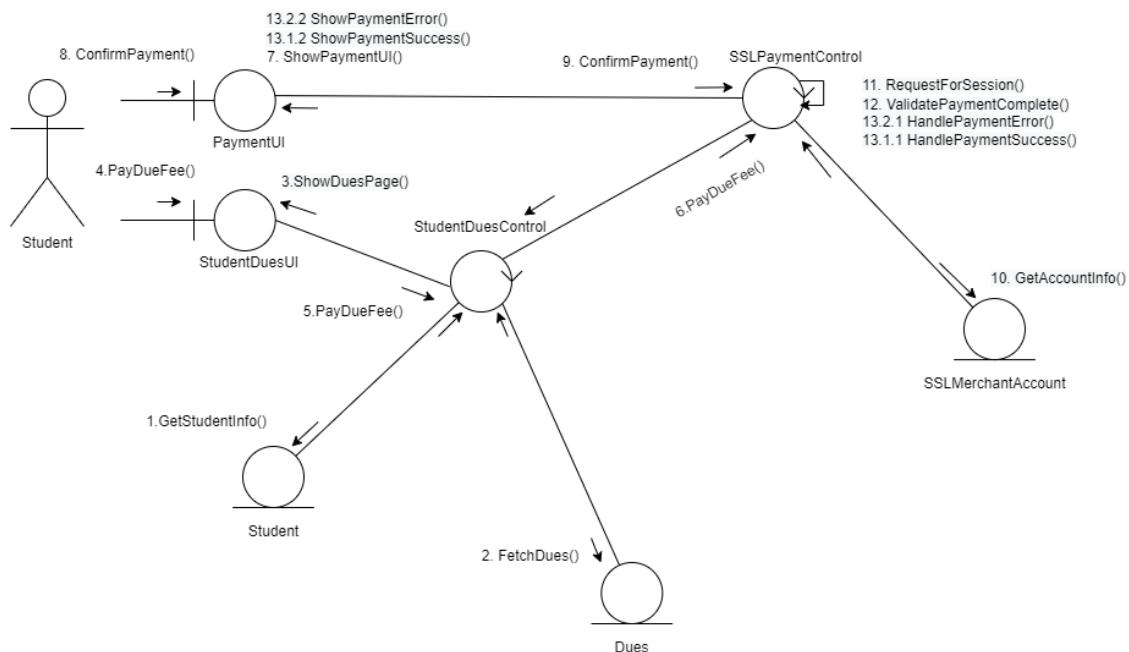
Mess manager update meal plan:



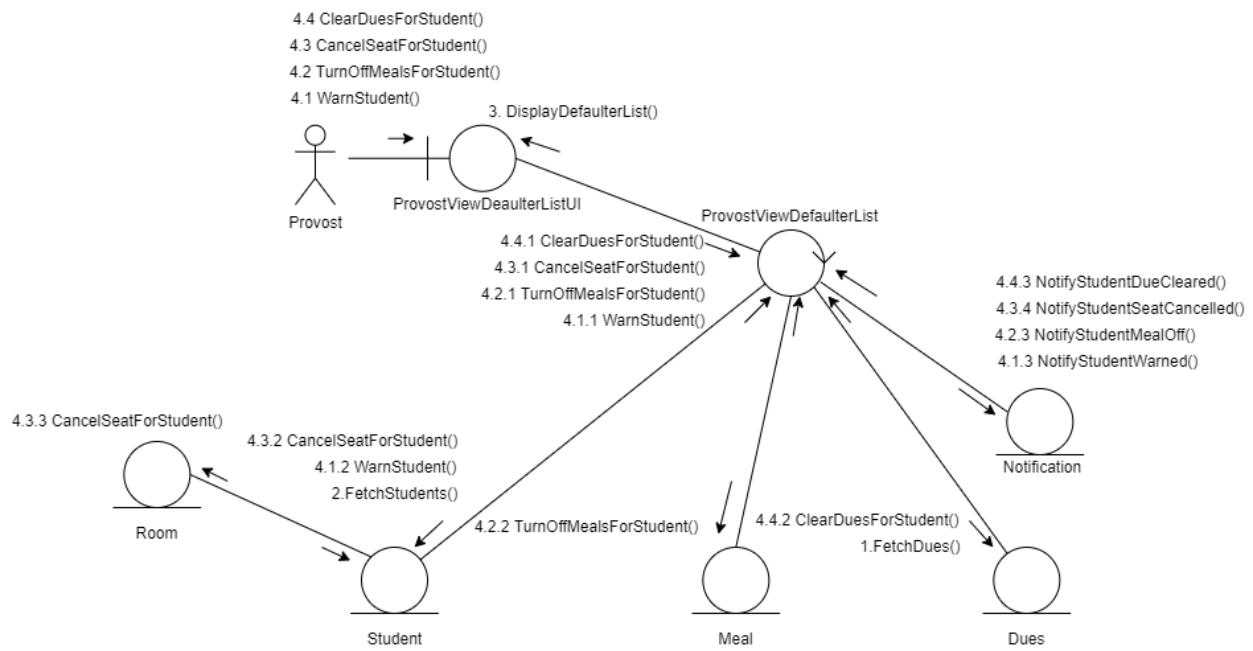
Fund Request:



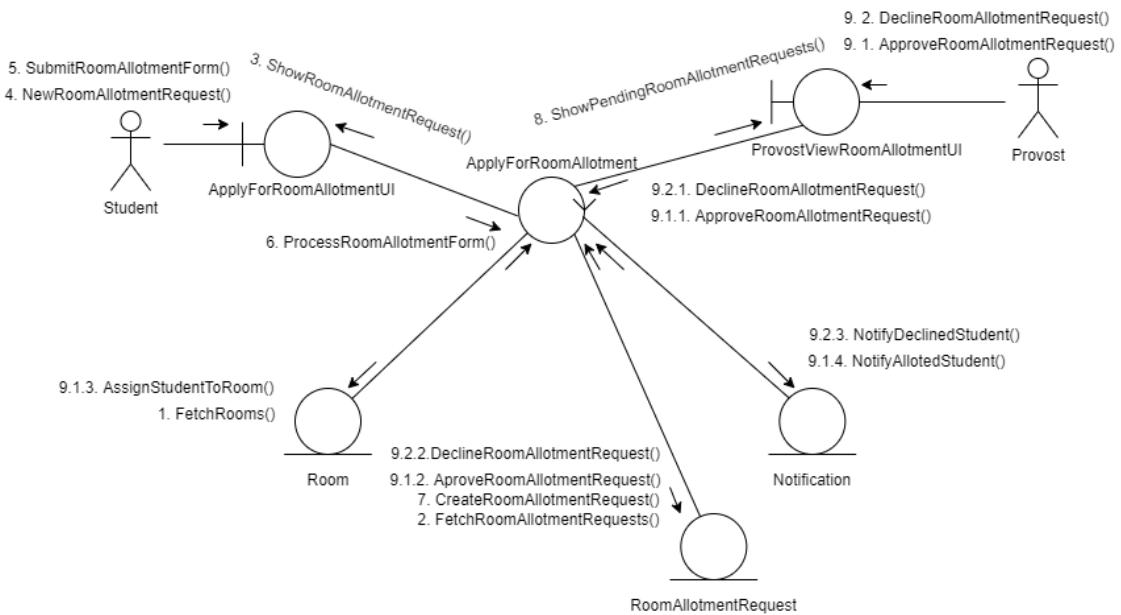
Student Pay due:



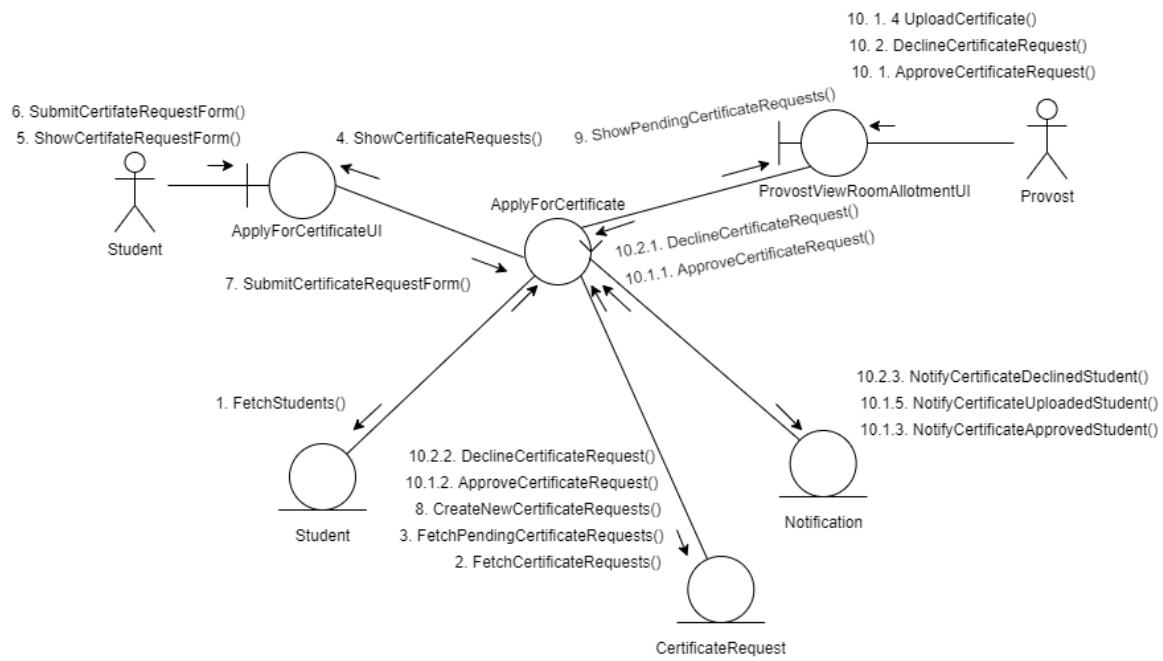
Provost View Defaulter list:



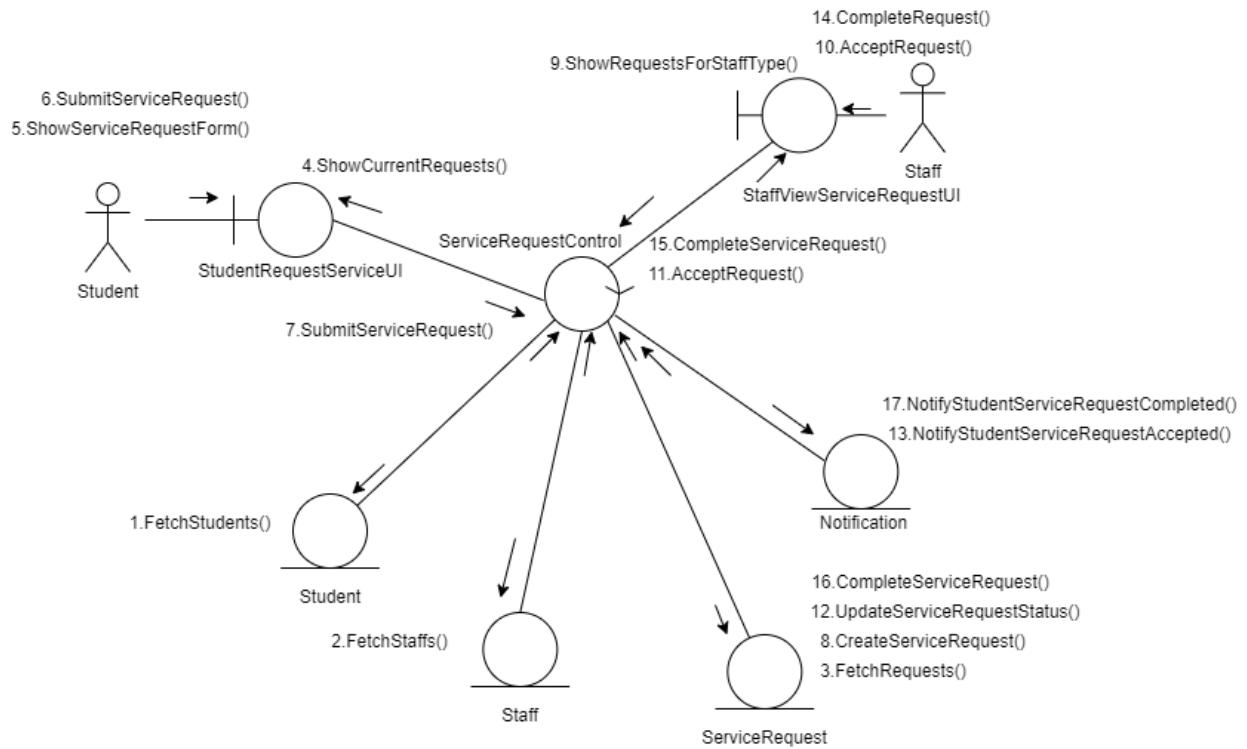
Room Allotment:



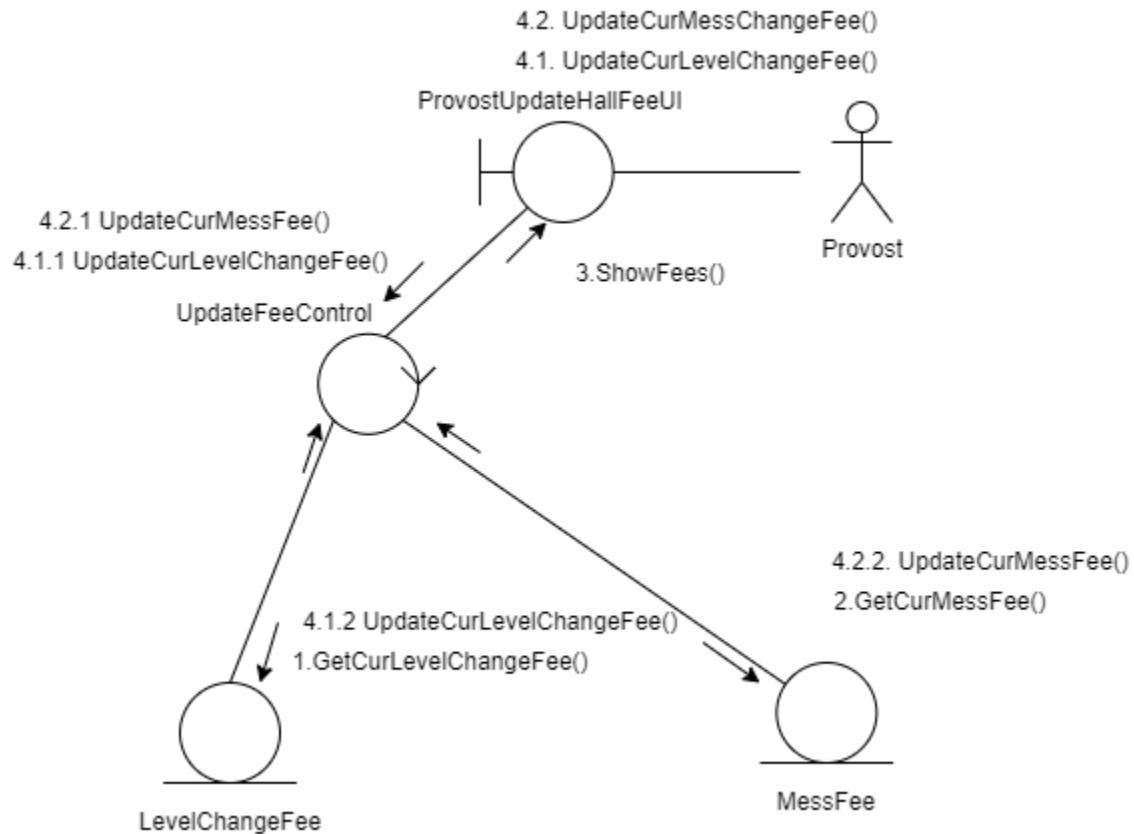
Certificate Request:



Service Request:



Provost Update Fee:

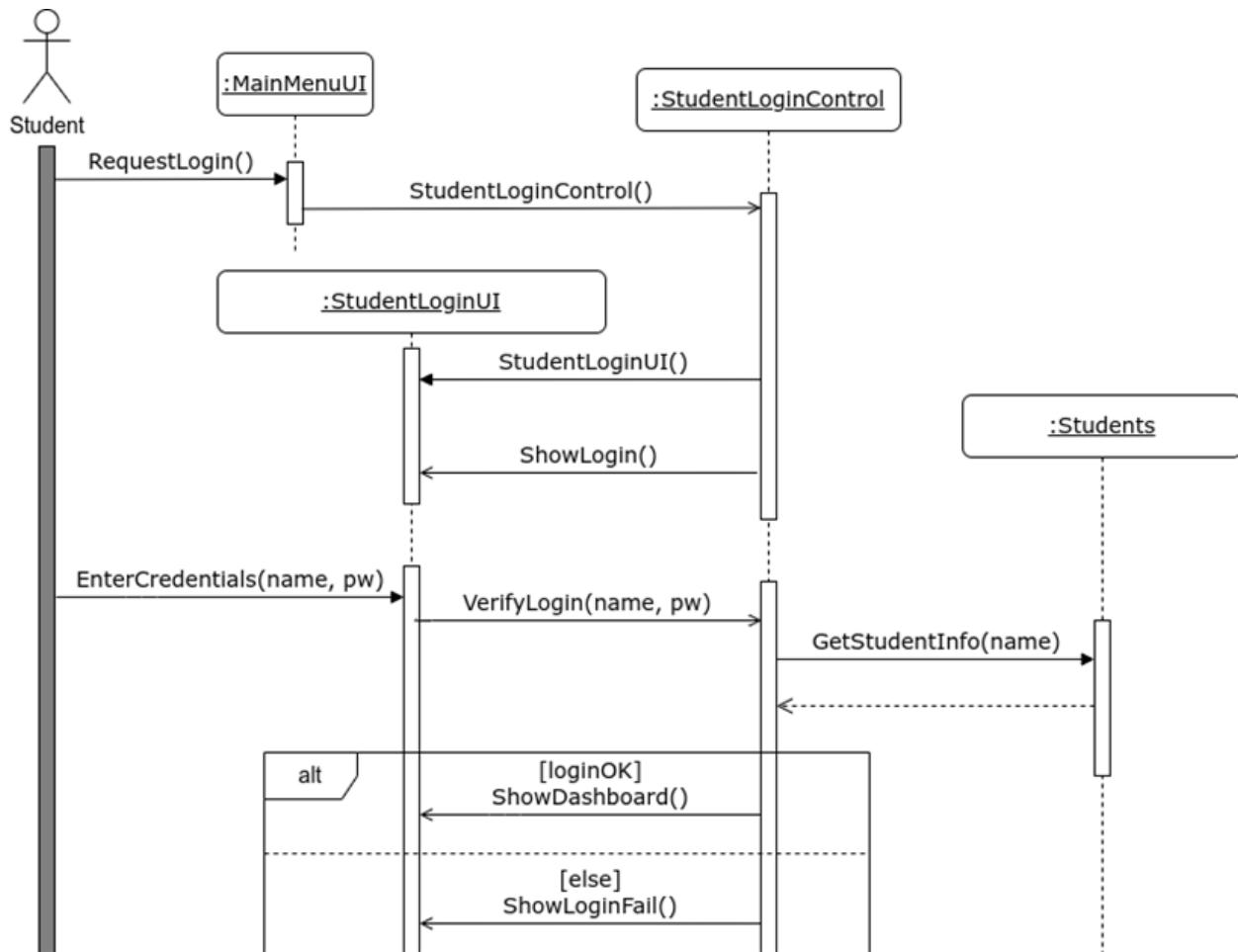


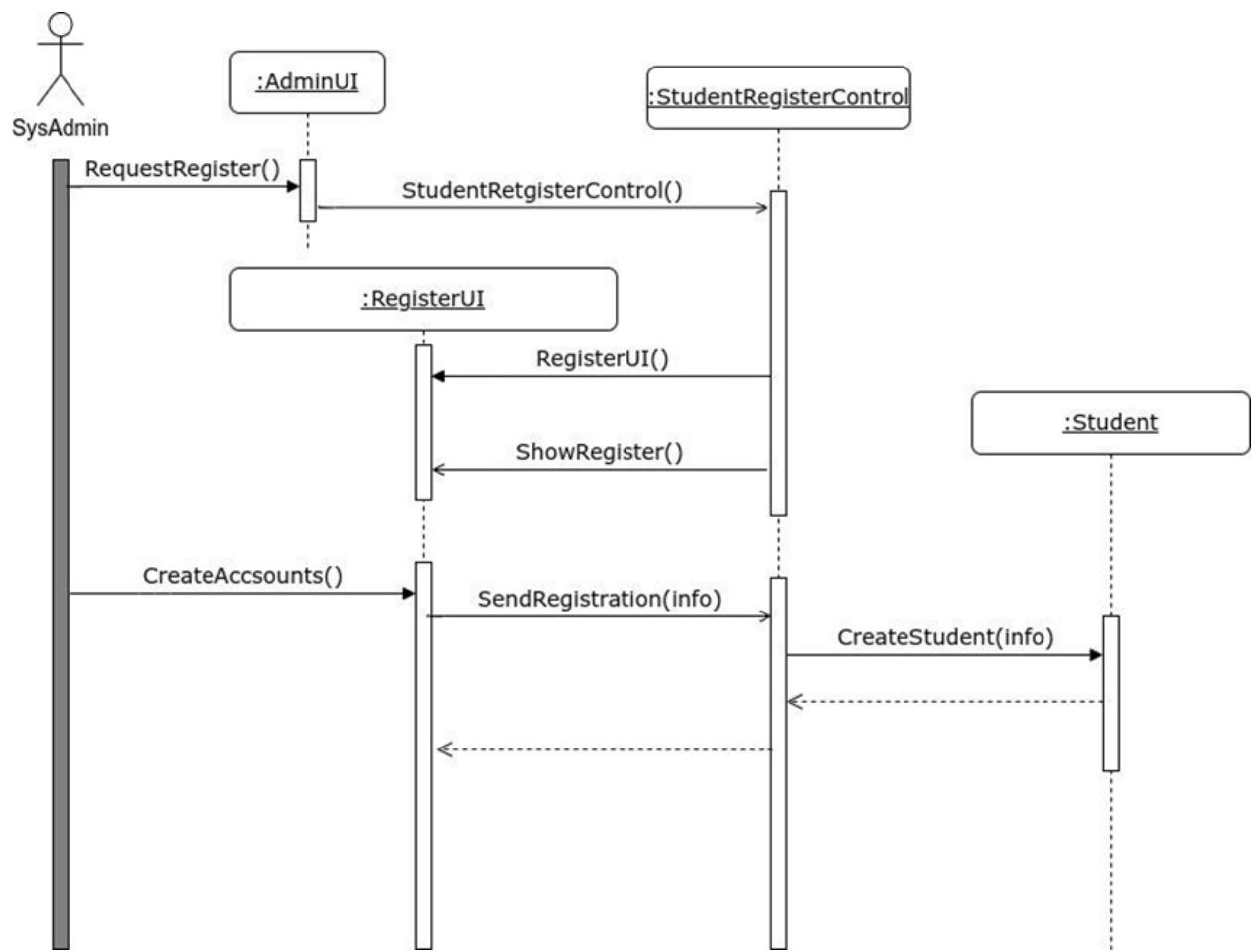
Sequence diagrams

Sequence diagram was made along side collaboration diagram, so both diagrams work with similar modules. We tried to model the flow of function calls and interactions as the user requested for some page or performed some action. User would first interact with a Main Menu UI. The Main Menu UI would interact with a controller that managed the whole process.

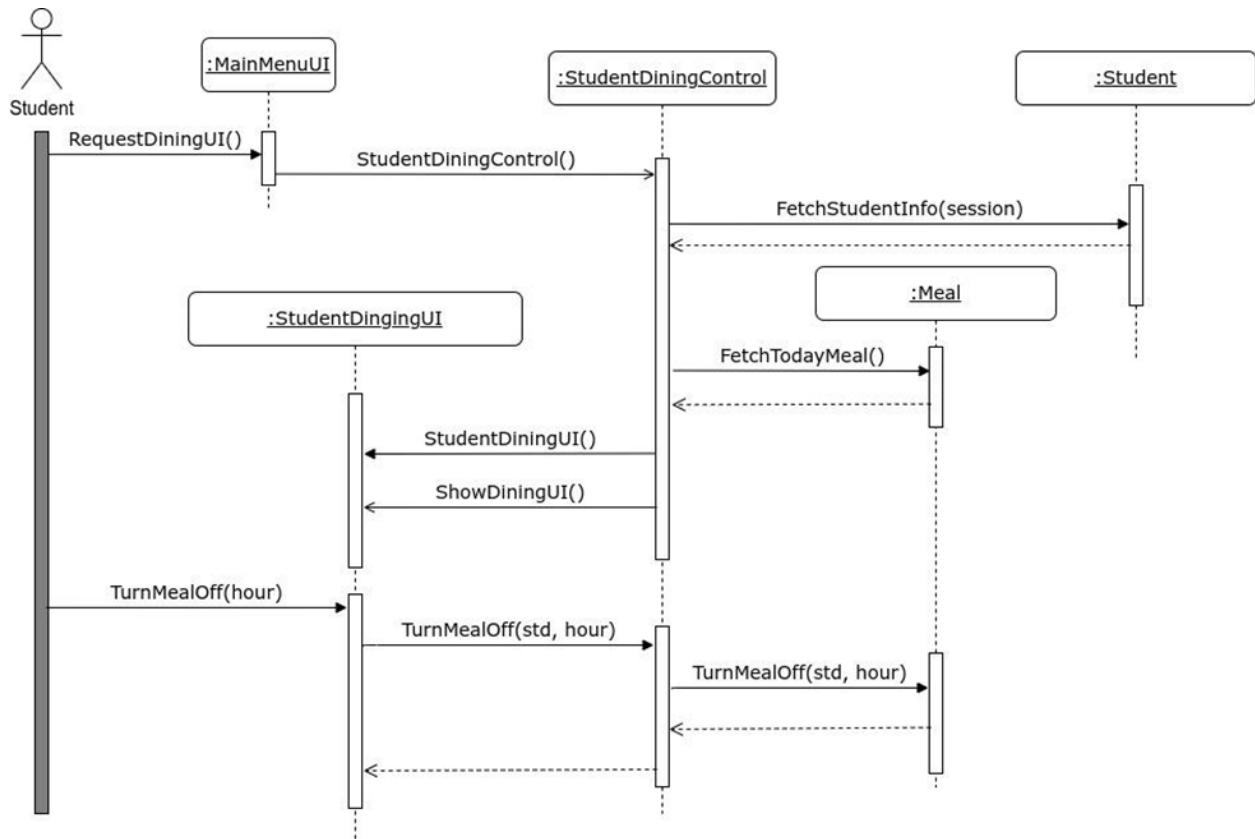
We tried to maintain usage of asynchronous and non-asynchronous calls with proper arrows. Some acts like notification generation would be an asynchronous activity. For SSLcommerz API, though their UI is controlled by third party, it was shown for clarity

Login and Account Creation:

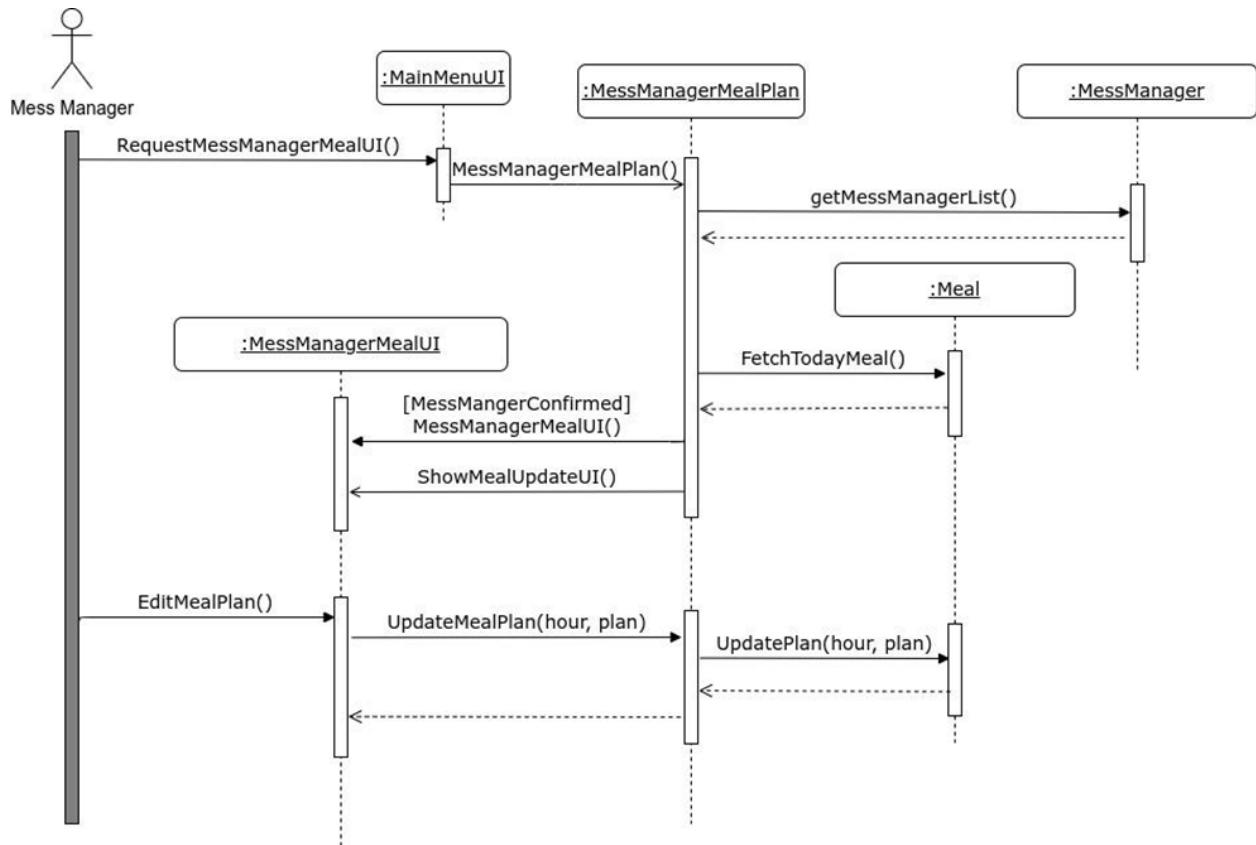




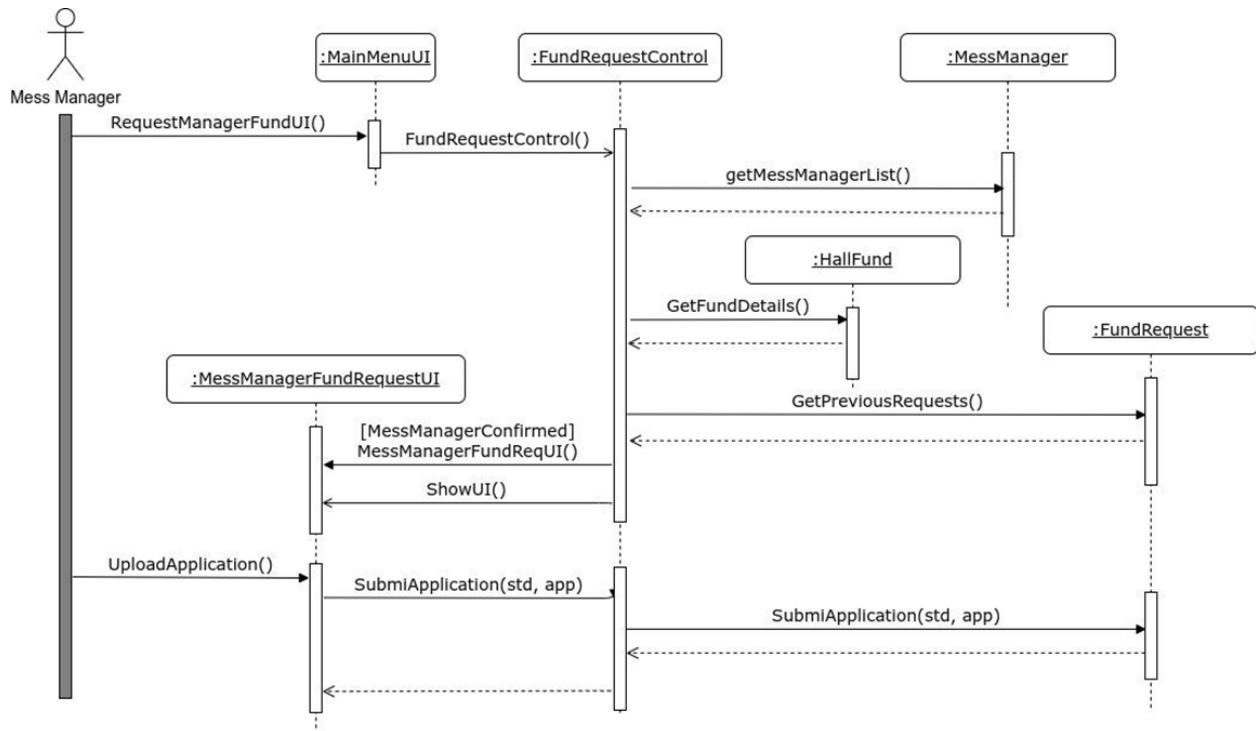
Student Dining:

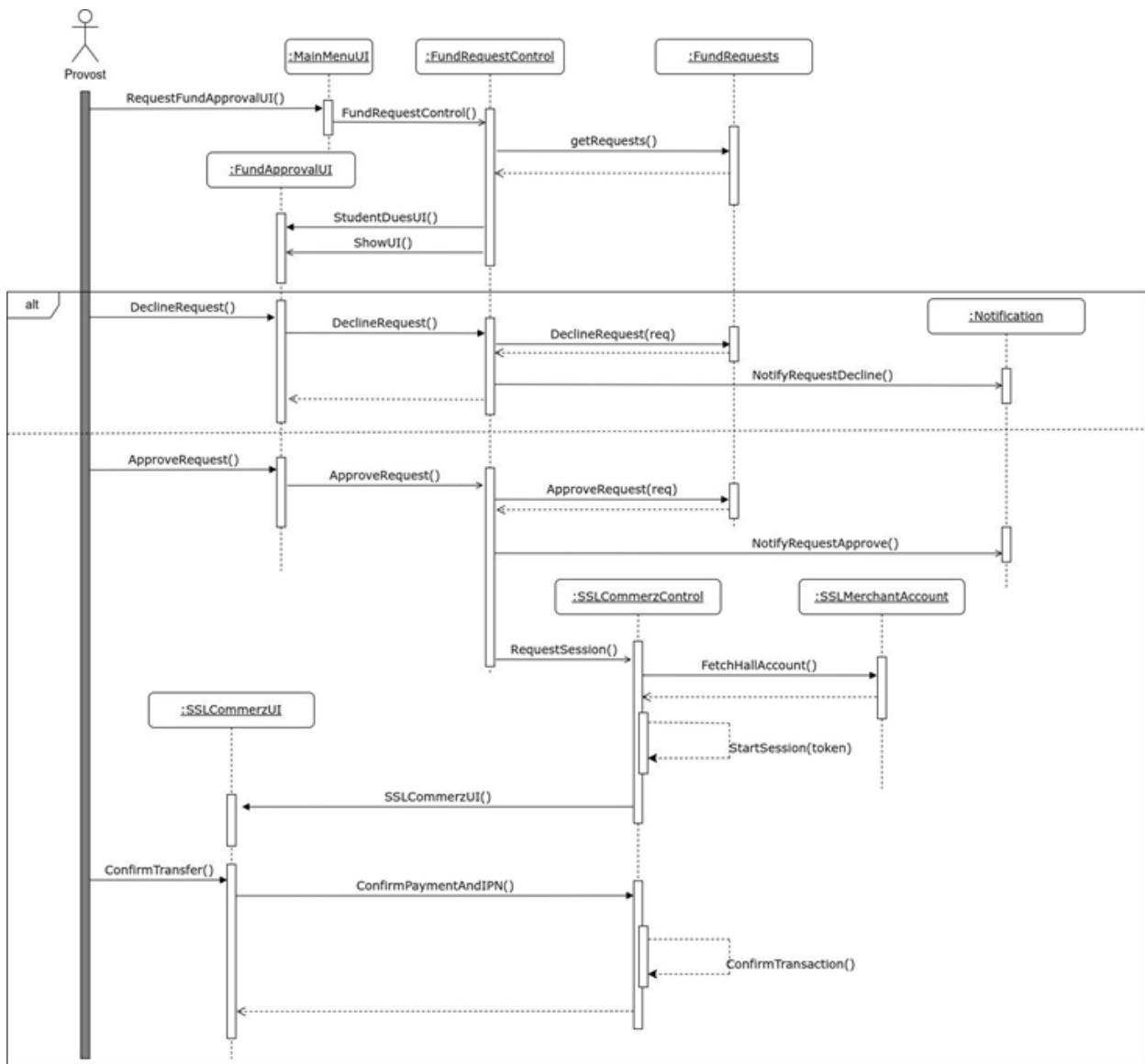


Mess Manager Meal Plan:

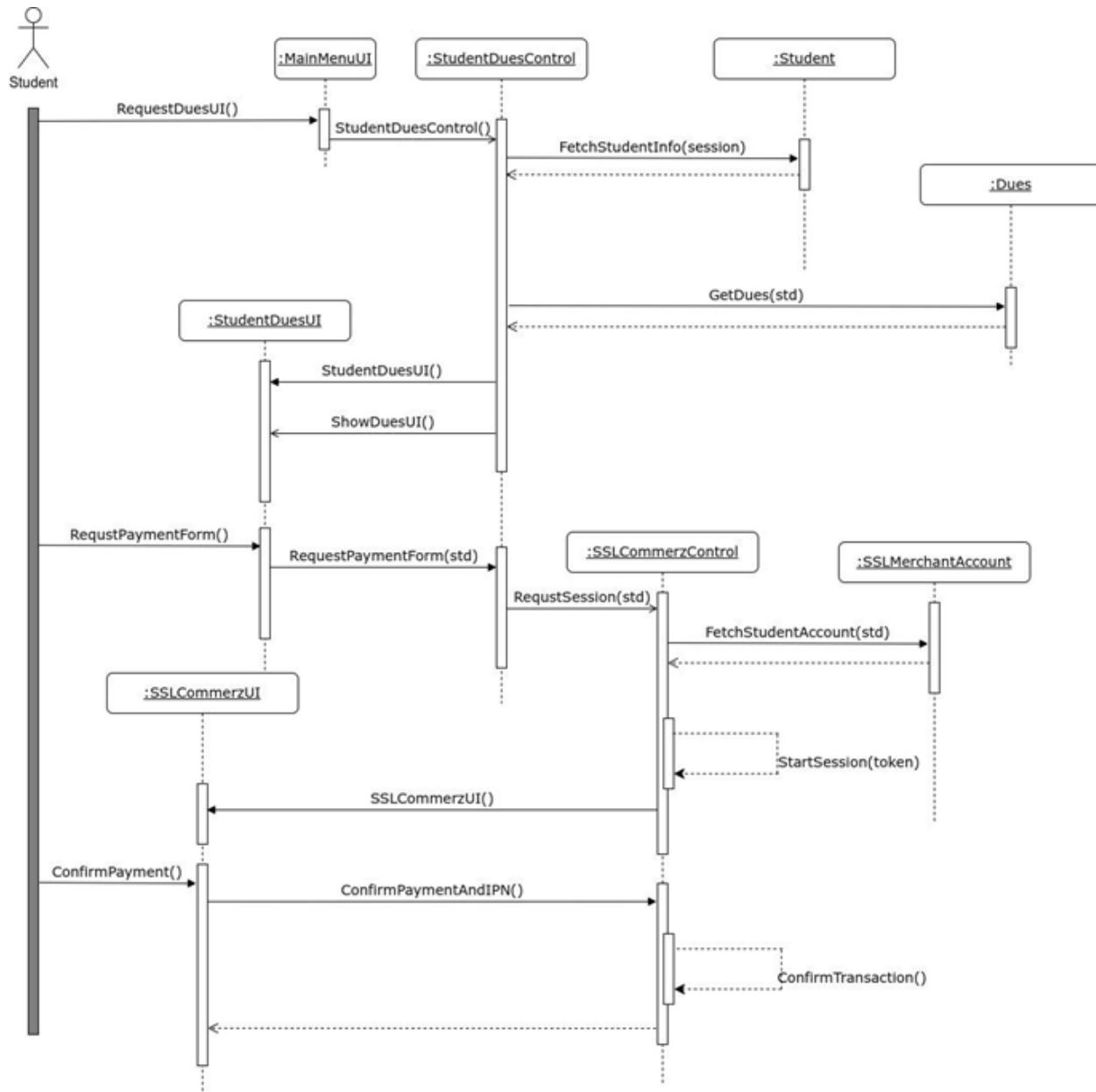


Mess Manager Fund Request:

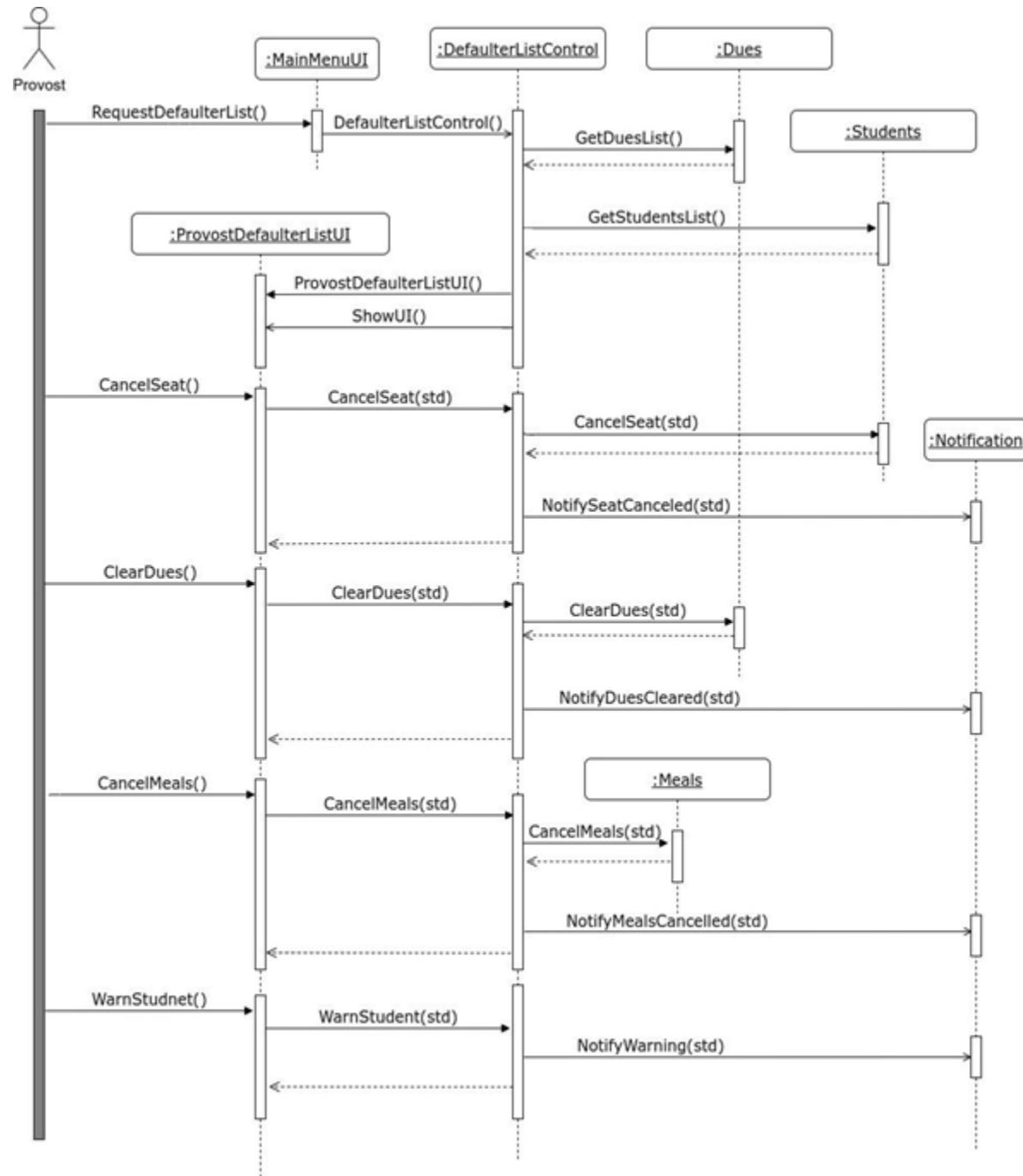




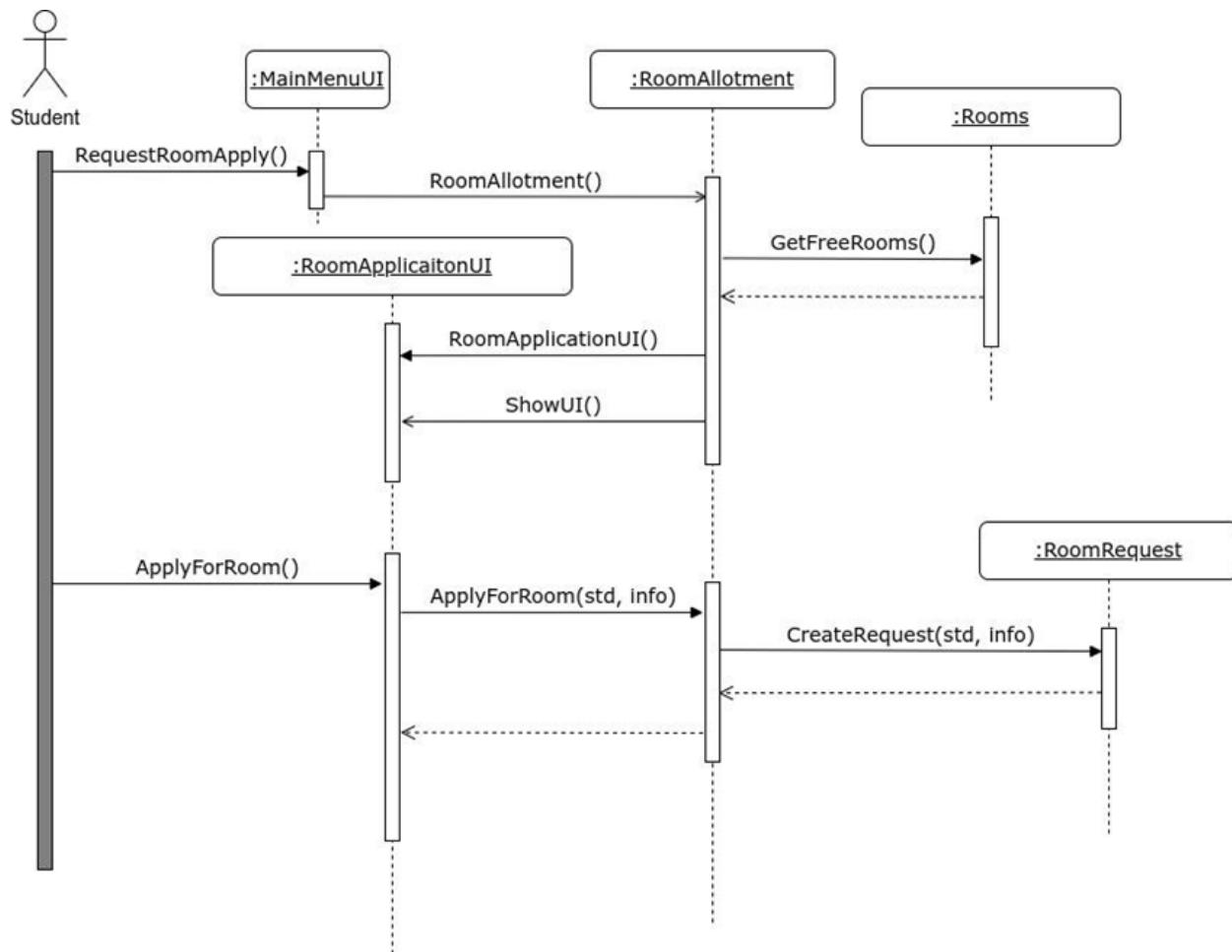
Student Due Payment:

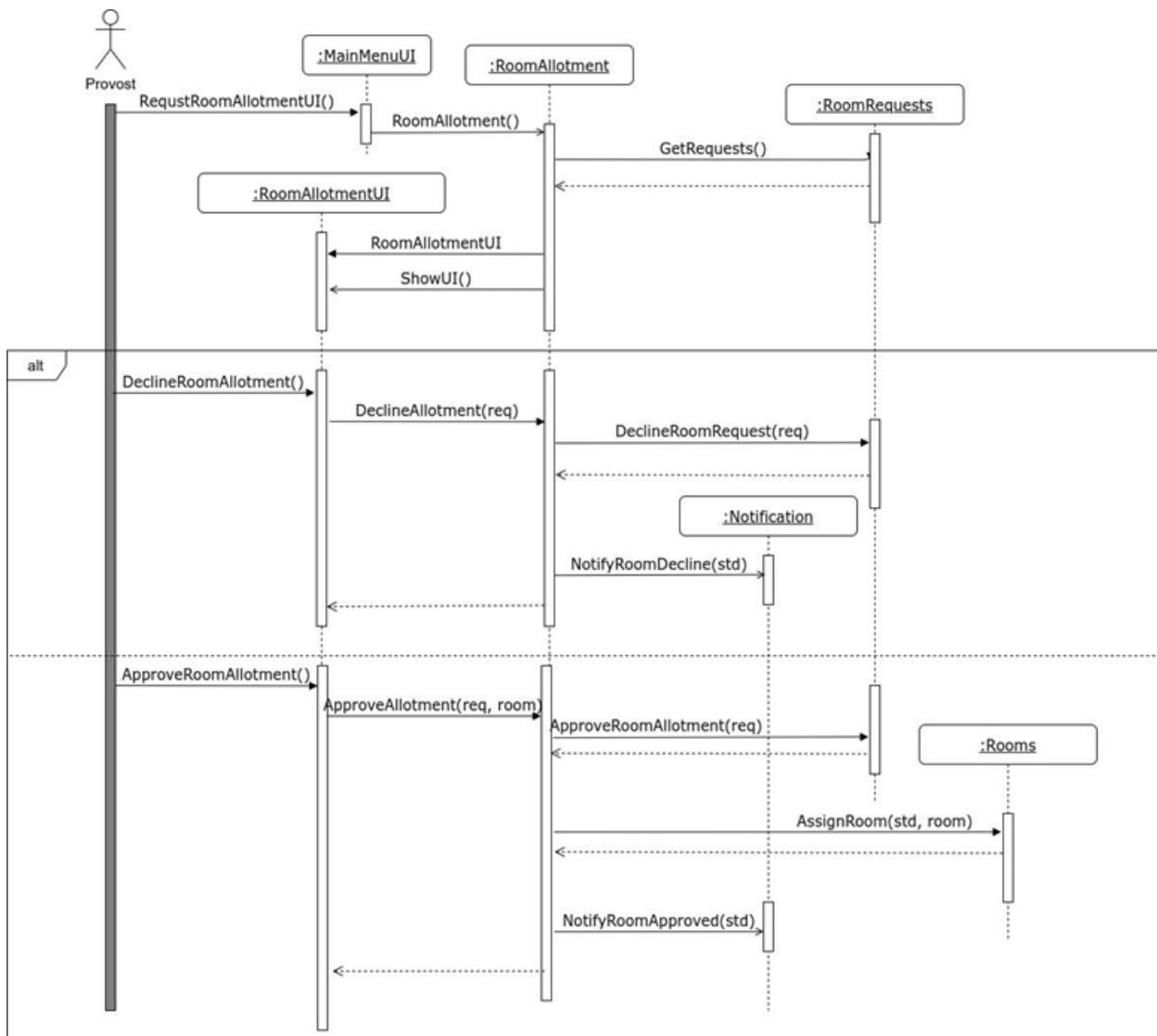


Provost Defaulter Actions:

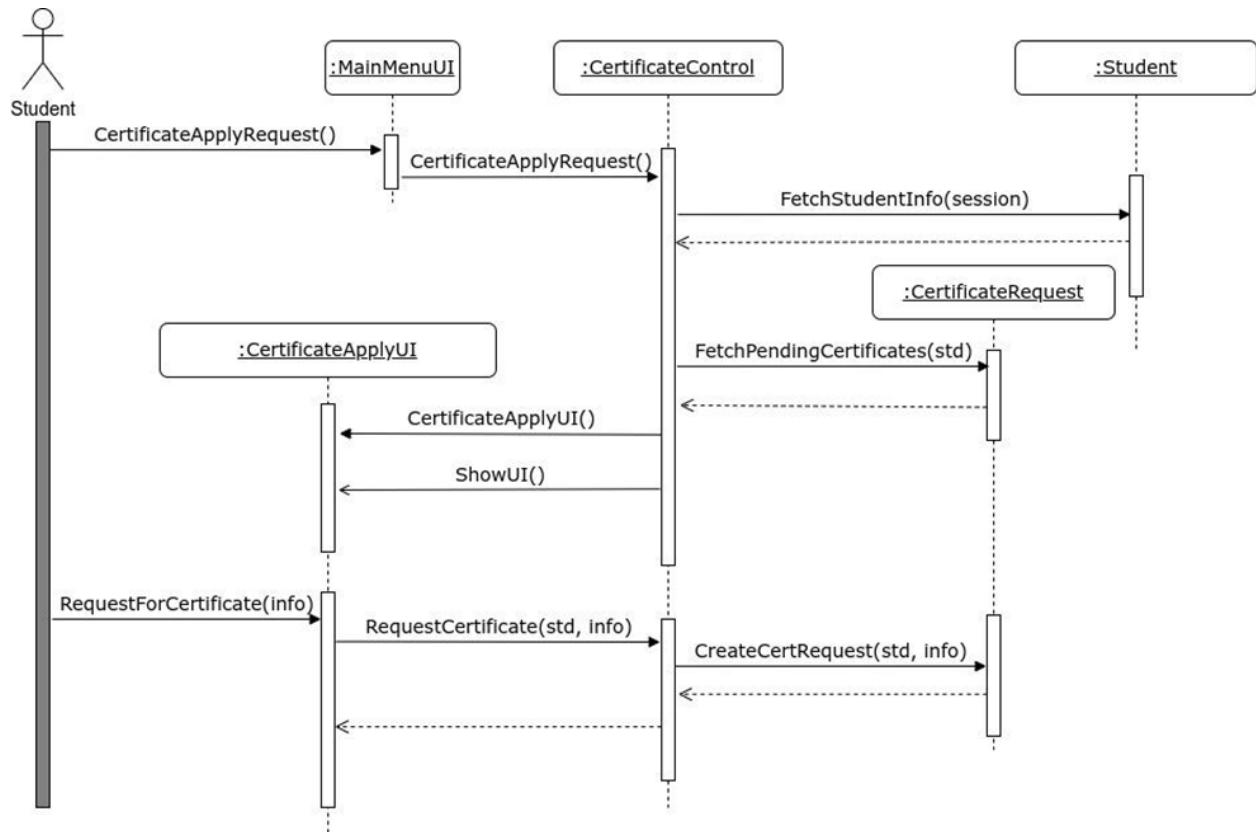


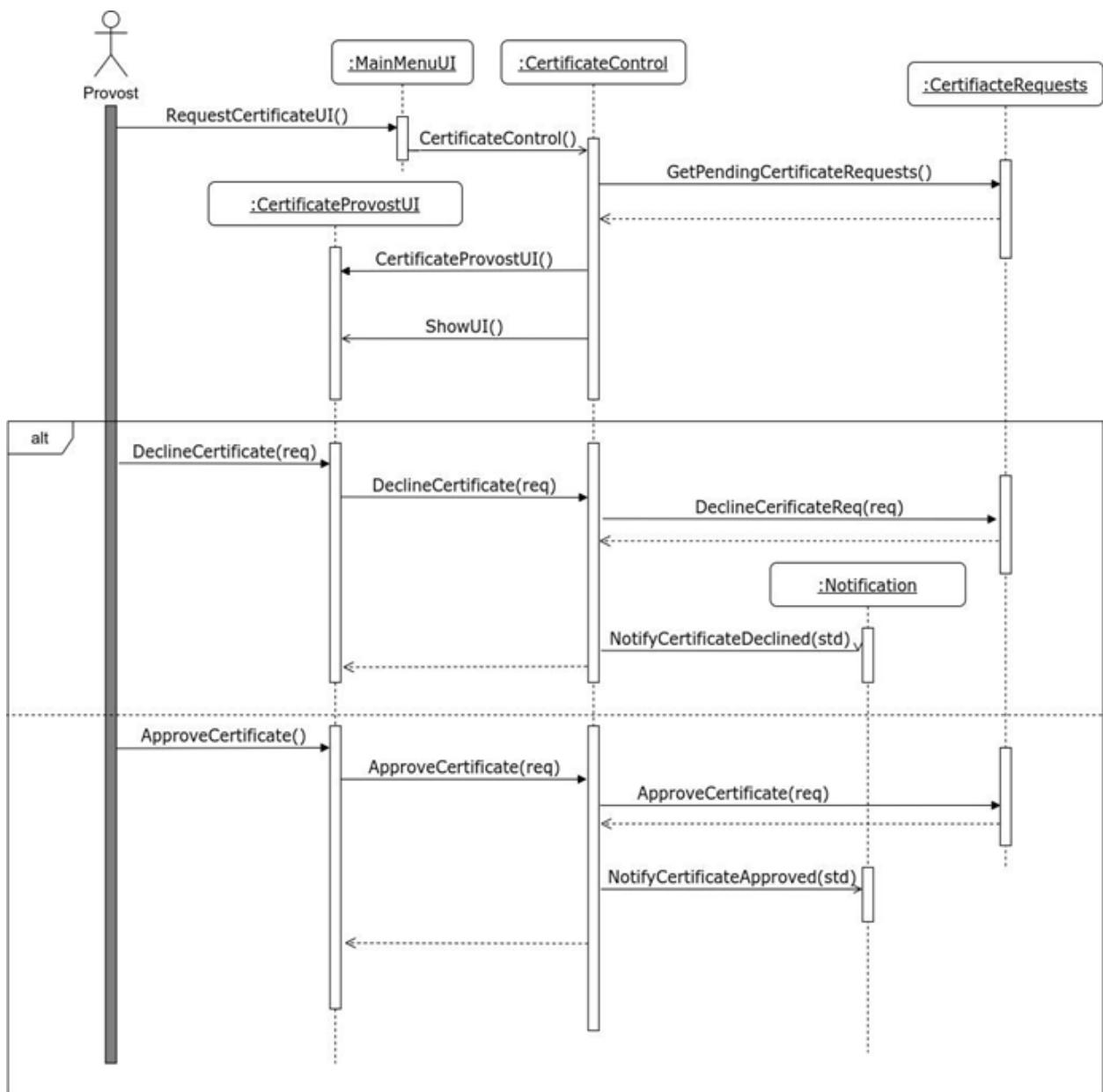
Room Allotment:



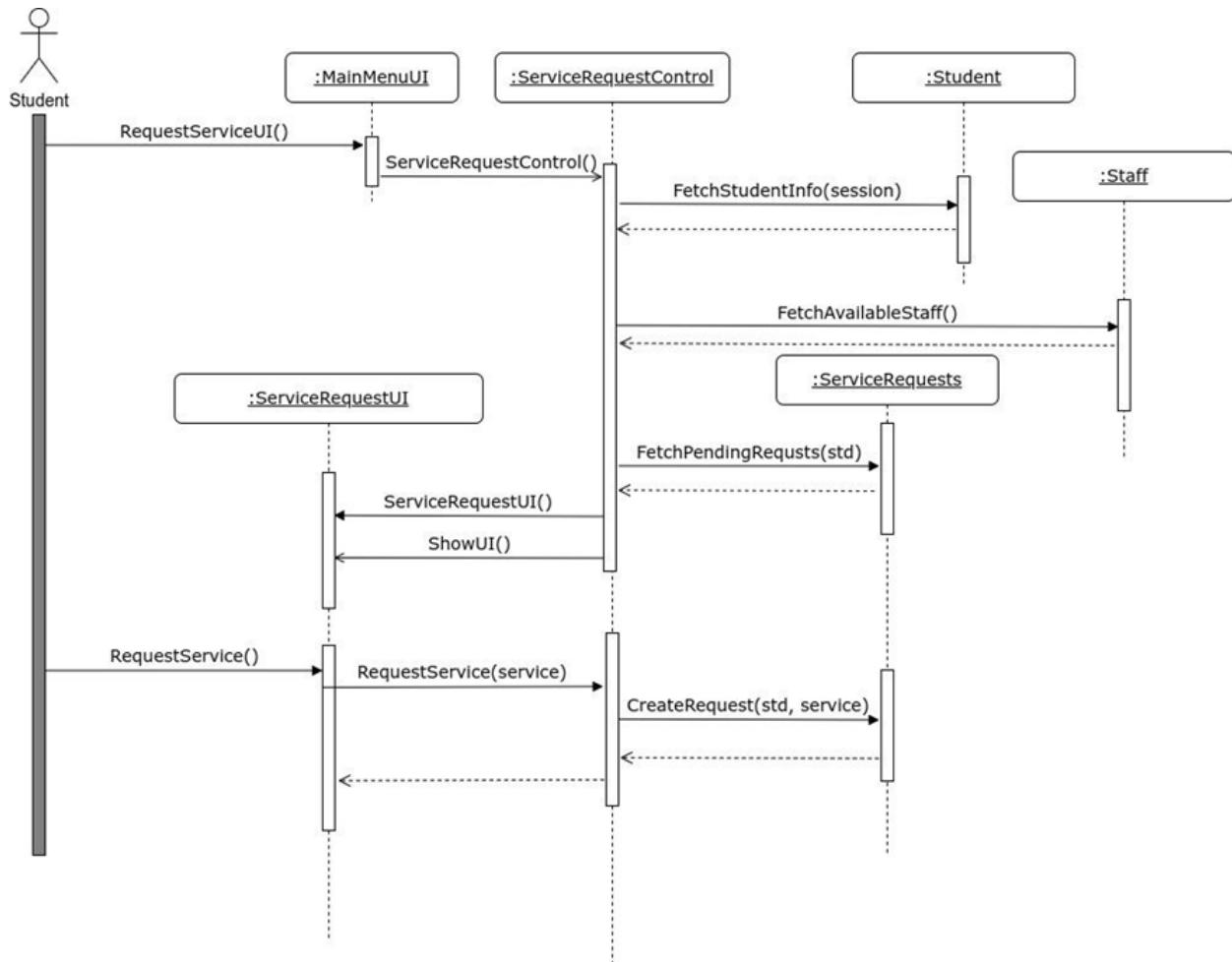


Certificate Request:

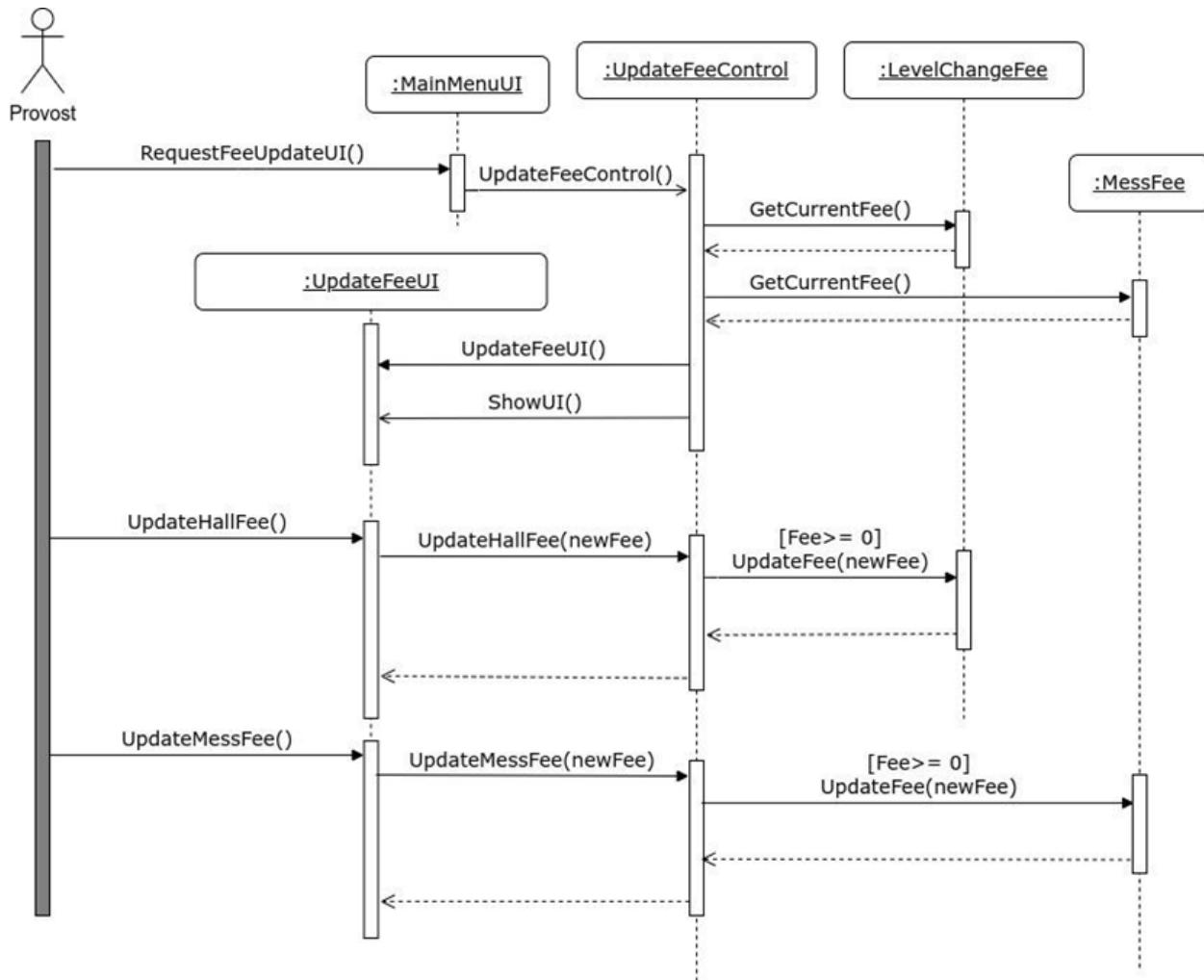




Service Request:



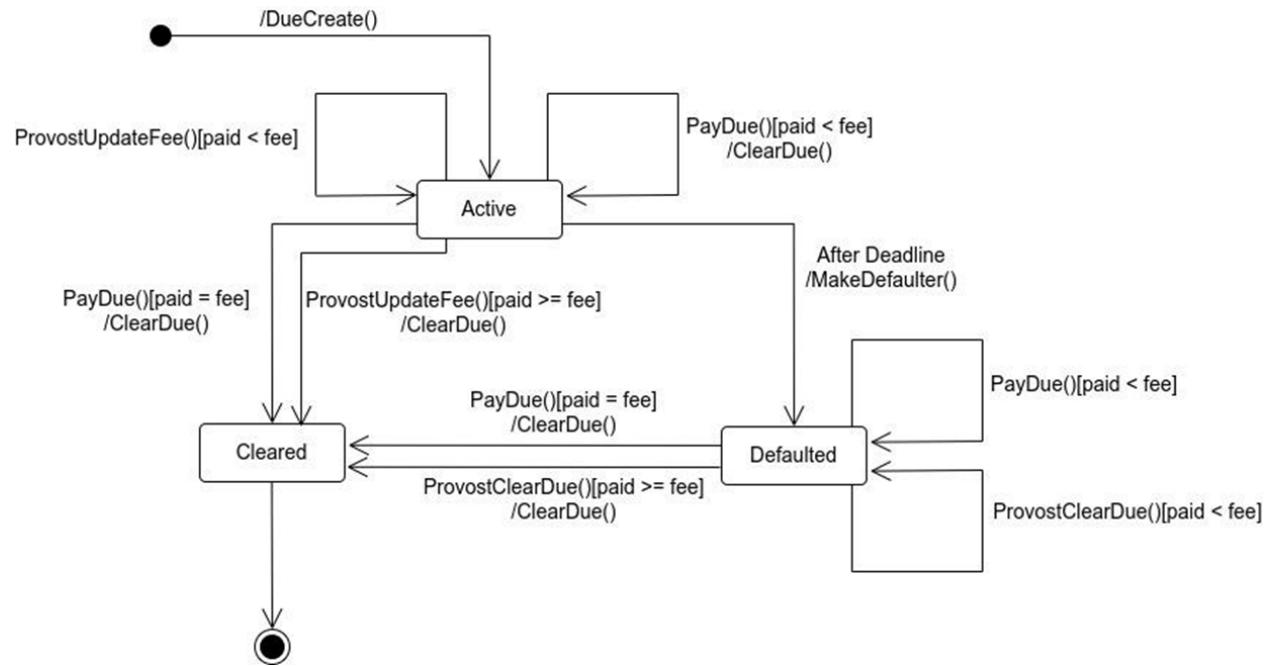
Fee Updates By Provost:



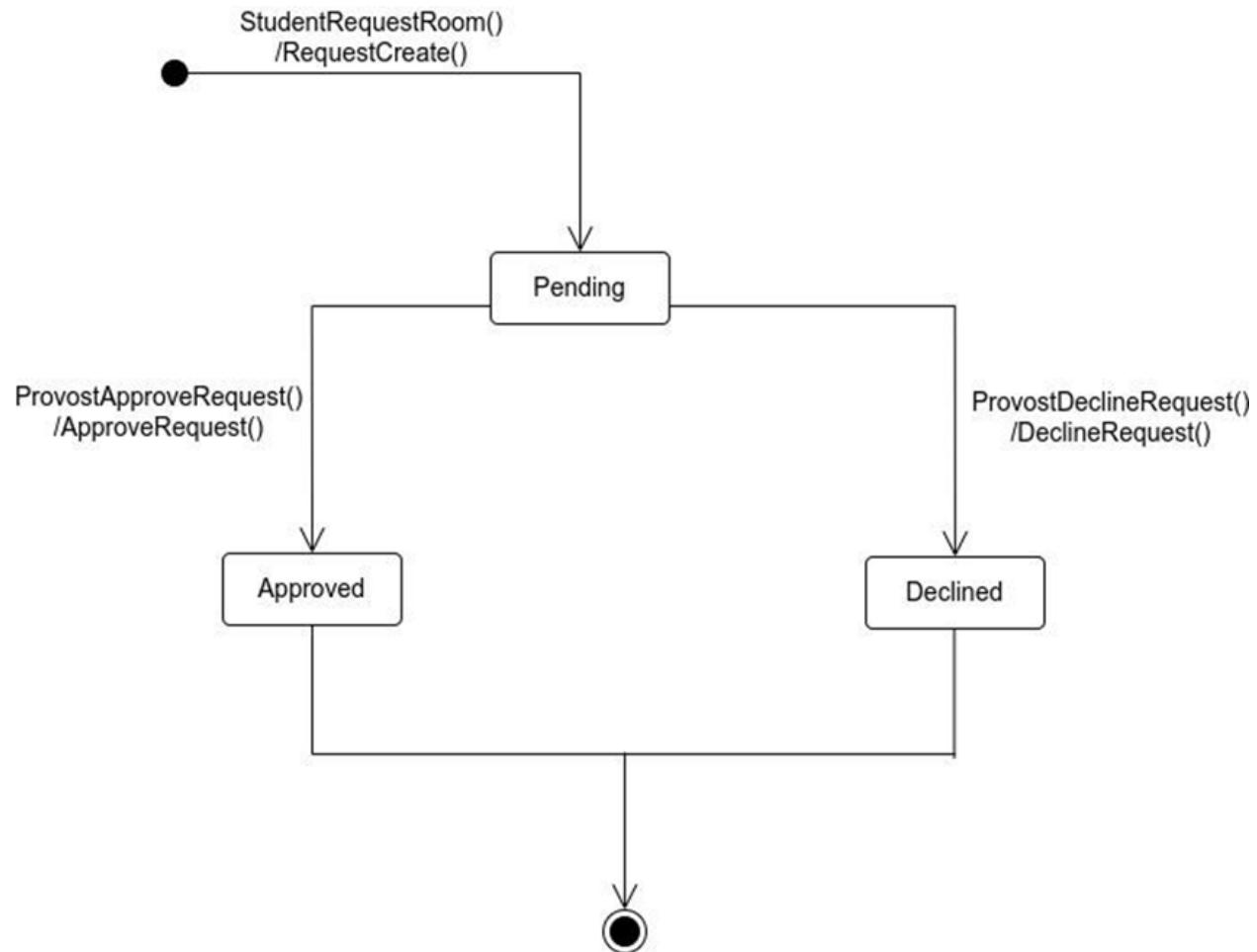
State diagrams

For two modules: Student Due Payment and Room Allotment, we created state diagram for Due class and Room Request class respectively. The diagrams represent the states these classes pass through. Some other class like Service Request and Certificate Request can also have states. But their behaviour is exactly same as Room Request, so their state diagrams are not shown

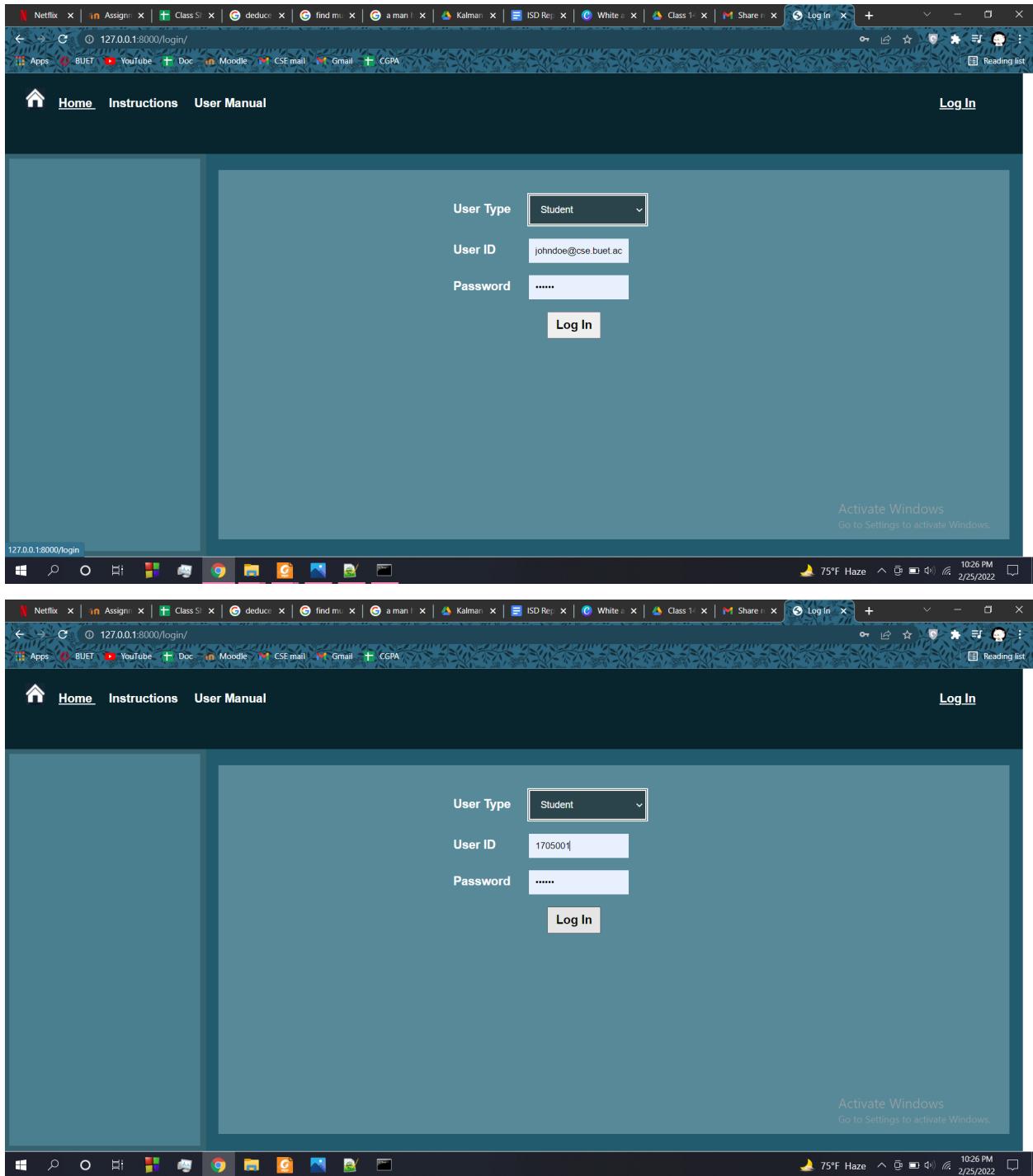
Due States:



Room Request States:



The snippets of implemented use-case/module



The screenshot shows a student profile page with a dark blue header. The top bar includes links for Home, Instructions, User Manual, and Log Out. A sidebar on the left lists options: Edit Information, Dues Status, Dining Status, Request Services, Applications, Notices, Complain, and Change Password. The main content area displays the student's information: Name (Kowshic Roy), Student ID (1705001), Department (CSE), Level (3), Term (2), Present Address (Rangpur), Permanent Address (Rangpur), Mobile No (880+): 1521249494, Room No (420), and Email (vdrkowshic@gmail.com). A placeholder text 'Activate Windows' with a link to 'Go to Settings to activate Windows.' is visible. The bottom status bar shows system icons and the date/time: 2/25/2022, 10:26 PM, 75°F Haze.

The screenshot shows a university management system homepage with a dark blue header. The top bar includes links for Home, Instructions, User Manual, and Log In. The main content features a large banner with the text 'Welcome to X University' and 'Y Hall Management System'. Below the banner are three sections: 'Student Welfare' (with a photo of students using laptops), 'Dining Management' (with a photo of people eating), and 'Reading Room' (with a photo of a study area). Each section has a title, a brief description, and two buttons: 'Contact Us' and 'Read More'. The bottom status bar shows system icons and the date/time: 2/25/2022, 10:25 PM, 75°F Haze.

The screenshot shows a web application interface for room application submission. On the left, a sidebar menu lists various options: Edit Information, Dues Status, Dining Status, Request Services, Applications, Notices, Complain, and Change Password. The main content area displays a message: "You have no room application pending". It includes a dropdown field for "Preferred Room No(Optional)", a large text area for "Application" which is currently empty, and a "Send" button. Below the application area, there is a "Attach documents" section with a "Choose Files" button and a message indicating "No file chosen". A skill selection section shows checkboxes for Sports, Debates, and Others, all of which are unchecked. In the bottom right corner, there is a message: "Activate Windows Go to Settings to activate Windows." The browser's address bar shows the URL `127.0.0.1:8000/student/1705001/room-req`. The taskbar at the bottom shows various open applications like Netflix, Assignments, Classmate, etc.

This screenshot shows the same web application after a room application has been submitted. The sidebar menu remains the same. The main content area now displays the submitted application details: "Student ID" is listed as 1705078 and "Preferred Room No" is listed as 2009. The "Application" text area contains the message: "Please sir give me a sit , My house is to far from buet". Below the application, there is a section for "Attached document" which is currently empty. The skill selection section shows a single checked checkbox for "others". The "Send" button is visible at the bottom of the application form. The browser's address bar shows the URL `127.0.0.1:8000/room-app/1`. The taskbar at the bottom shows various open applications like Netflix, Assignments, Classmate, etc.

The screenshot shows a web-based application interface. At the top, there is a navigation bar with links for Home, Instructions, User Manual, Log Out, and a user profile icon. Below the navigation bar is a sidebar containing several menu items: Edit Information, See Fund Requests, See Defaulter List, See Complains, Applications, Pay Staff Salary, See Student Profile, See Room Info, fees, and Notices. The main content area displays a profile for "John Doe". It includes a placeholder profile picture, a title "John Doe", and a list of personal details: Post (Professor), Department (CSE), Mobile (880+), and Email (johndoe@cse.buet.ac.bd). In the bottom right corner of the main area, there is a message: "Activate Windows Go to Settings to activate Windows." The status bar at the bottom shows system information: 75°F Haze, 10:27 PM, 2/25/2022.

This screenshot is identical to the one above, but the "Applications" menu item in the sidebar is highlighted with a white background and black text. A dropdown menu has appeared below the "Applications" item, listing three options: "Applications for Certificates", "Applications for Room Allotment", and "Applications for Others". The rest of the interface, including the profile information and system status, remains the same.

The screenshot shows a web browser window with a dark blue header bar containing various application icons. The main content area has a teal background. At the top right, there are links for "Home", "Instructions", and "User Manual". On the far right, a "Log In" button is visible. The central part of the page contains a form with three fields: "User Type" (set to "Provost"), "User ID" (set to "johndoe@cse.buet.ac"), and "Password" (set to "....."). Below the password field is a "Log In" button. In the bottom right corner of the teal area, there is a message: "Activate Windows Go to Settings to activate Windows." The bottom of the screen shows a standard Windows taskbar with icons for Start, Search, Task View, File Explorer, and other system tools.

This screenshot shows the same web browser window after logging in. The header bar and taskbar are identical to the previous screenshot. The main content area now displays a sidebar on the left with several menu items: "Edit Information", "See Fund Requests", "See Defaulter List", "See Complains", "Applications", "Pay Staff Salary", "See Student Profile", "See Room Info", "fees", and "Notices". The main body of the page has a teal background. It features a "Sort By" section with radio buttons for "CGPA", "Seniority", "Present Address", and "Extra Curricular Activity", followed by a "Sort" button. Below this is a section titled "Applications" containing a list of requests: "Request by: 1705078 , requested 2009" and "Request by: 1705078 , requested 420". At the bottom, there are two dropdown menus: "Student ID" and "Room No" (with an option to "(decline)" or "Apply All"). The bottom right corner again displays the Windows activation message: "Activate Windows Go to Settings to activate Windows." The taskbar at the bottom includes icons for Start, Search, Task View, File Explorer, and other system tools.