Design Document

for

DigiCampus

Version 1.0

Prepared by

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Course: **CS253**

Mentor TA: ***Aman Aryan***

Date: **13/02/22**

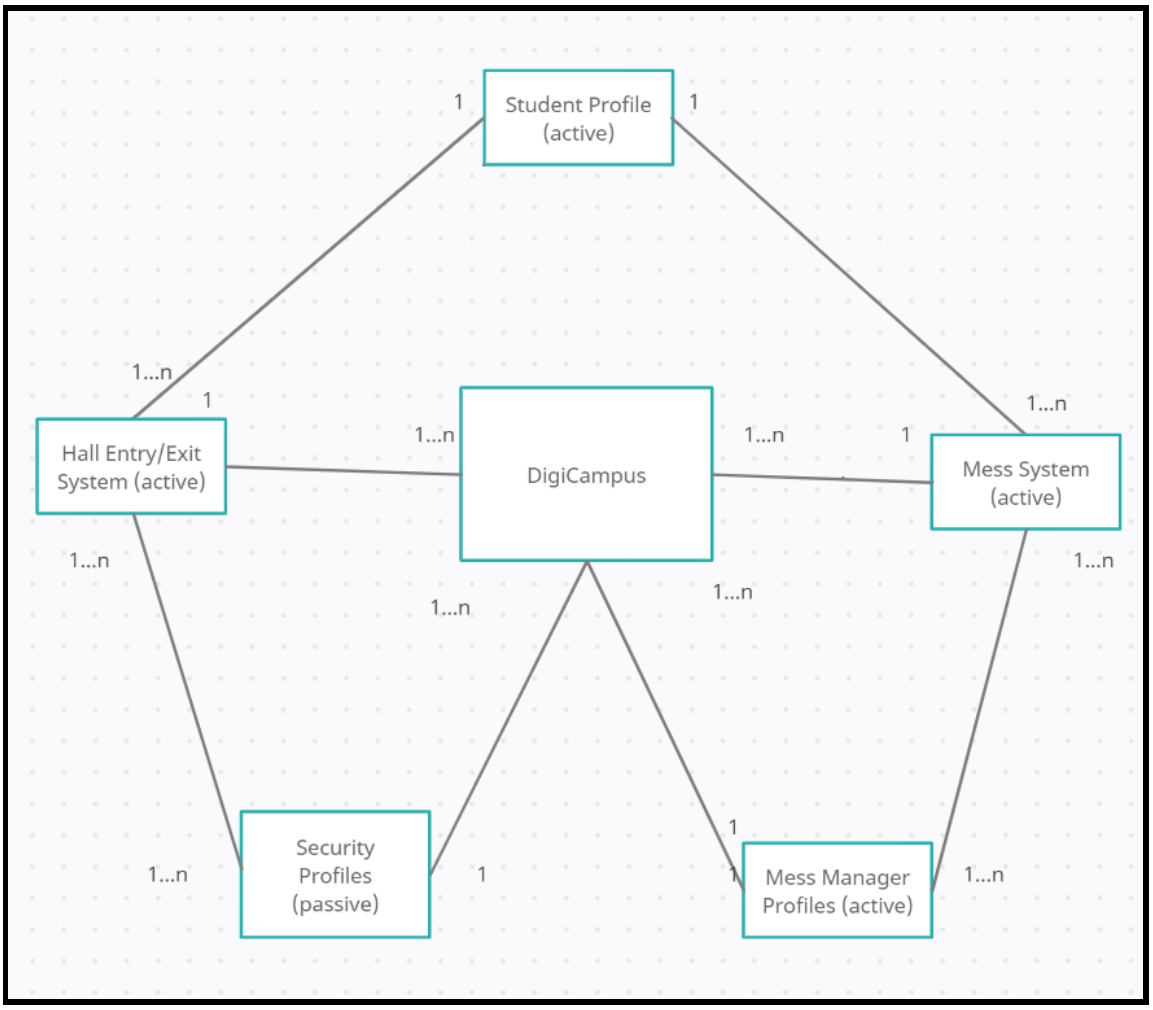
Revisions

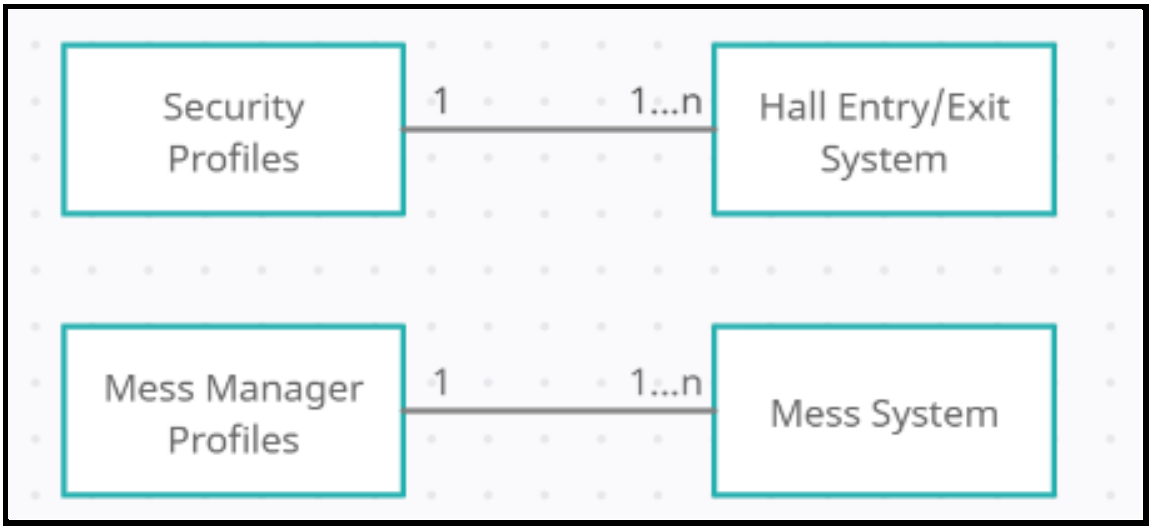
Version	Primary Author(s)	Description of Version	Date Completed

1.0	Dishay Mehta,Abhishek Pardhi,Samarth Arora,Ankur Kumar,Shashwat Gupta,Ananya Agarwal,Girik Maskara,Sarthak Kohli,Aayush Kumar,Aryan Vora	Design Document created	15/02/22

1 Context Design

1.1 Context Model

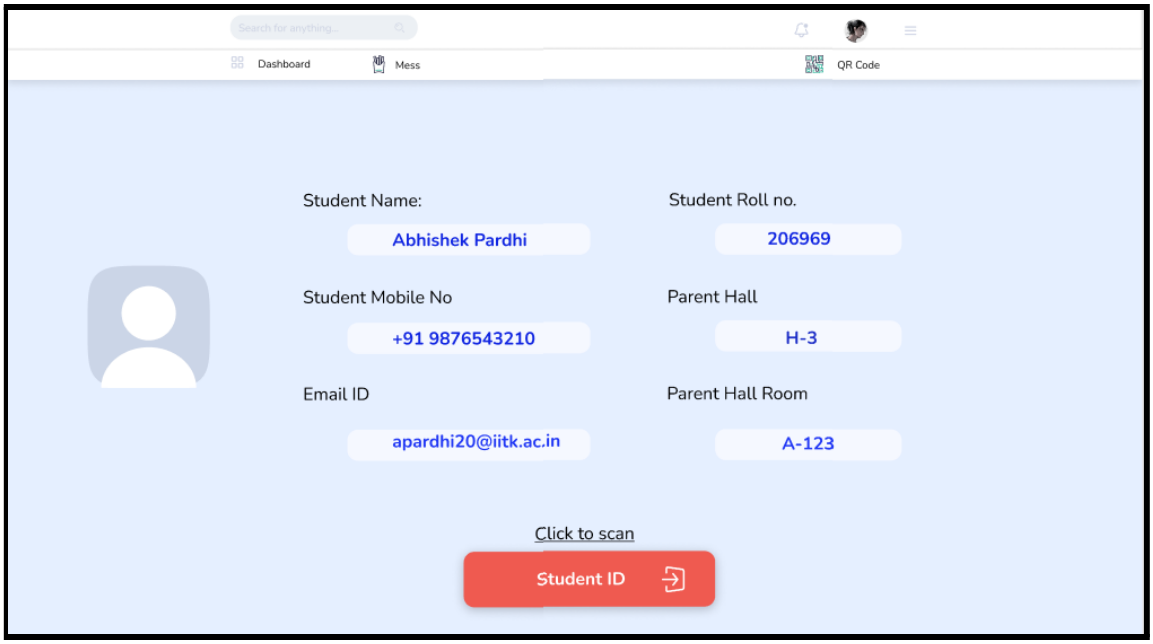




1.2 Human Interface Design

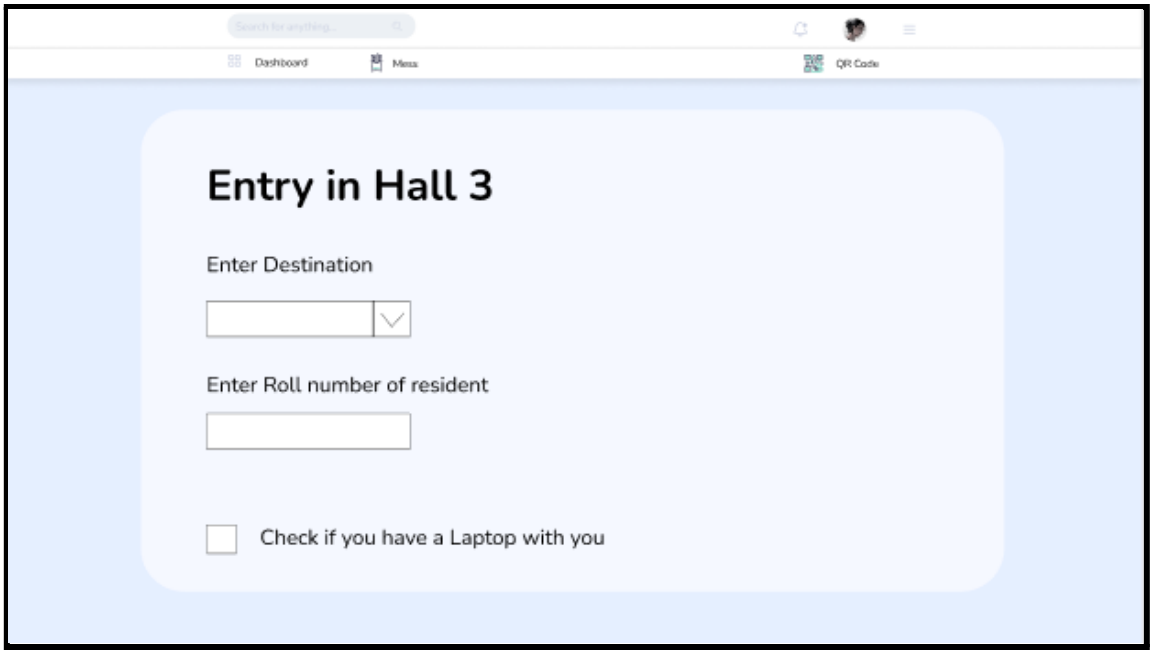
The first version of the human interface looks like this:

- **Student Profile:**

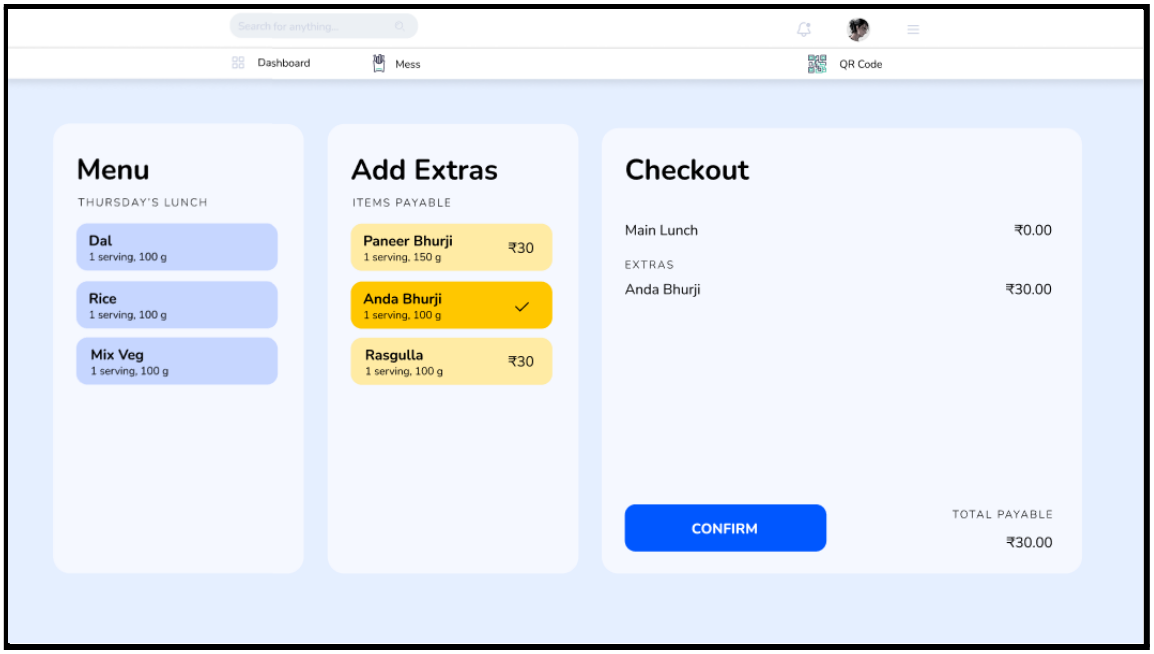


- **Scanning Code At The Gate**

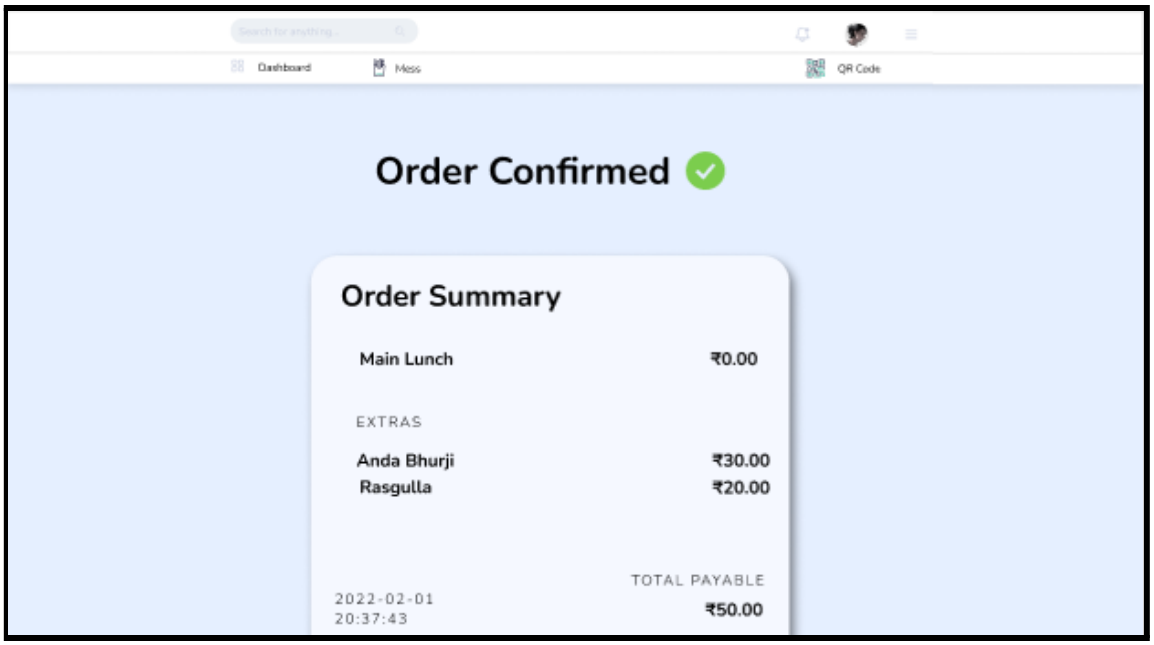
- **Entry/Exit Details**



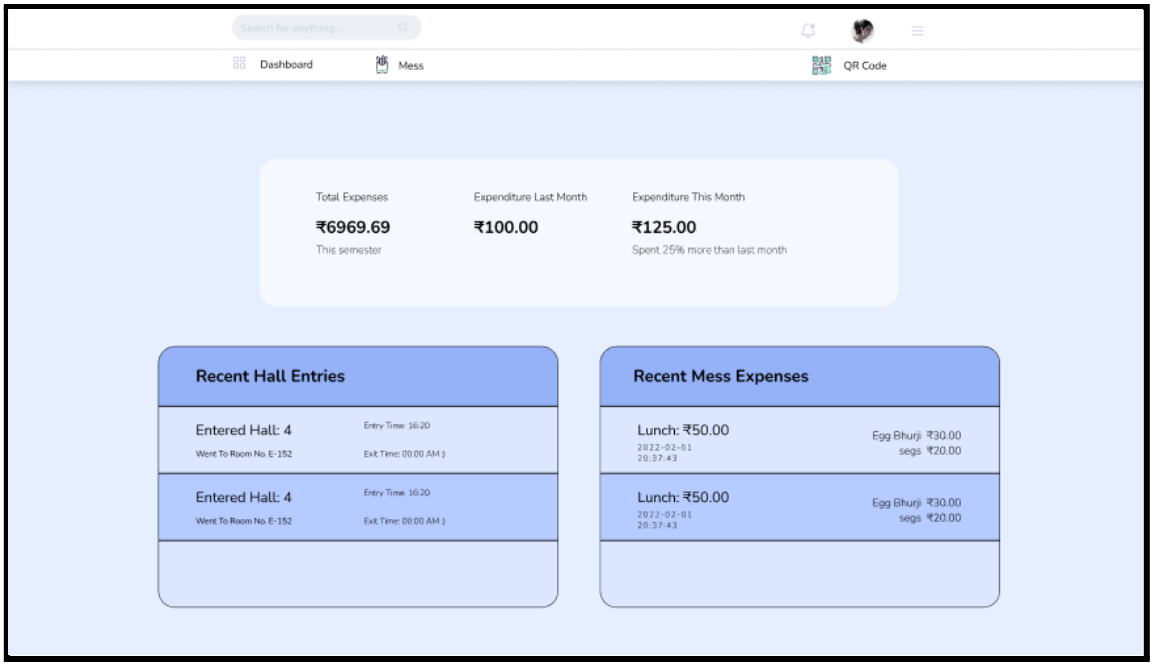
- **Mess Menu and Extras**



- **Confirmation Page**

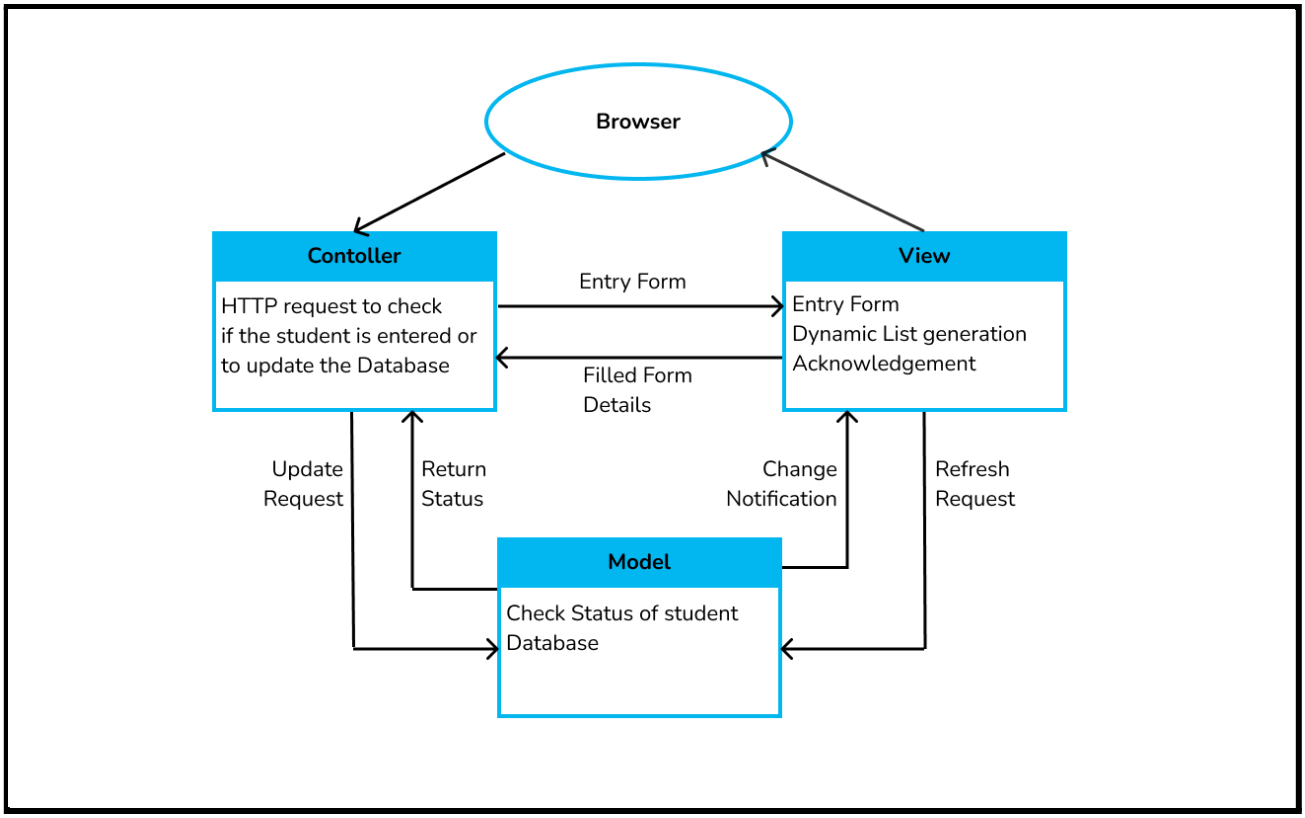


- **Student Dashboard**



2 Architecture Design

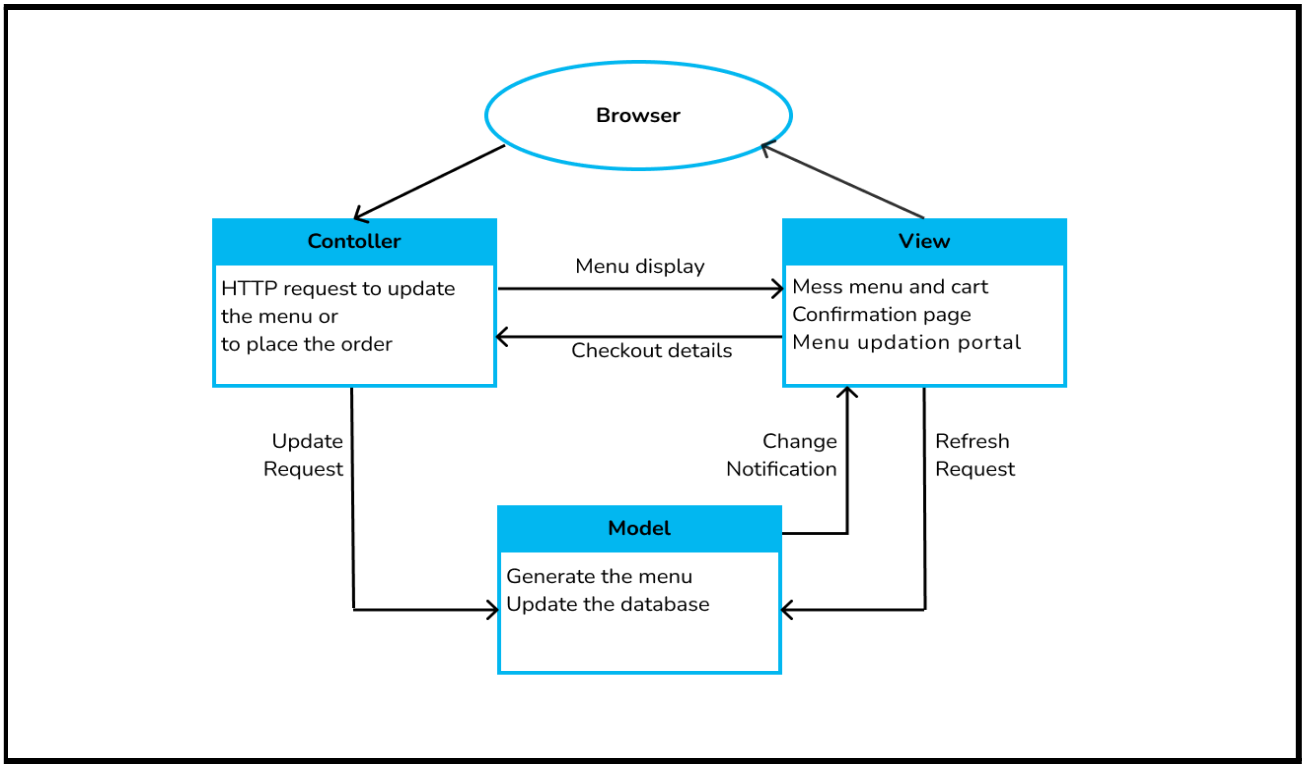
- **For Entry/Exit :**



The student scans the QR code ⟶ Control goes to the Controller which makes a request to check if the student is inside or outside ⟶ Request comes to the Model which checks for a student in the Database ⟶ If present, the student is given the exit acknowledgment and the dynamic database is manually updated / Else, Student is given entry form ⟶ Student fills entry form and details go to Controller which sends it to Model ⟶ Model updates the Student database marking student present inside.

The Dynamic List Generation makes it simpler for us to refresh the Student Database manually once the Entry/Exit of any student is done.

- **For Mess :**



Here we have two functionalities :

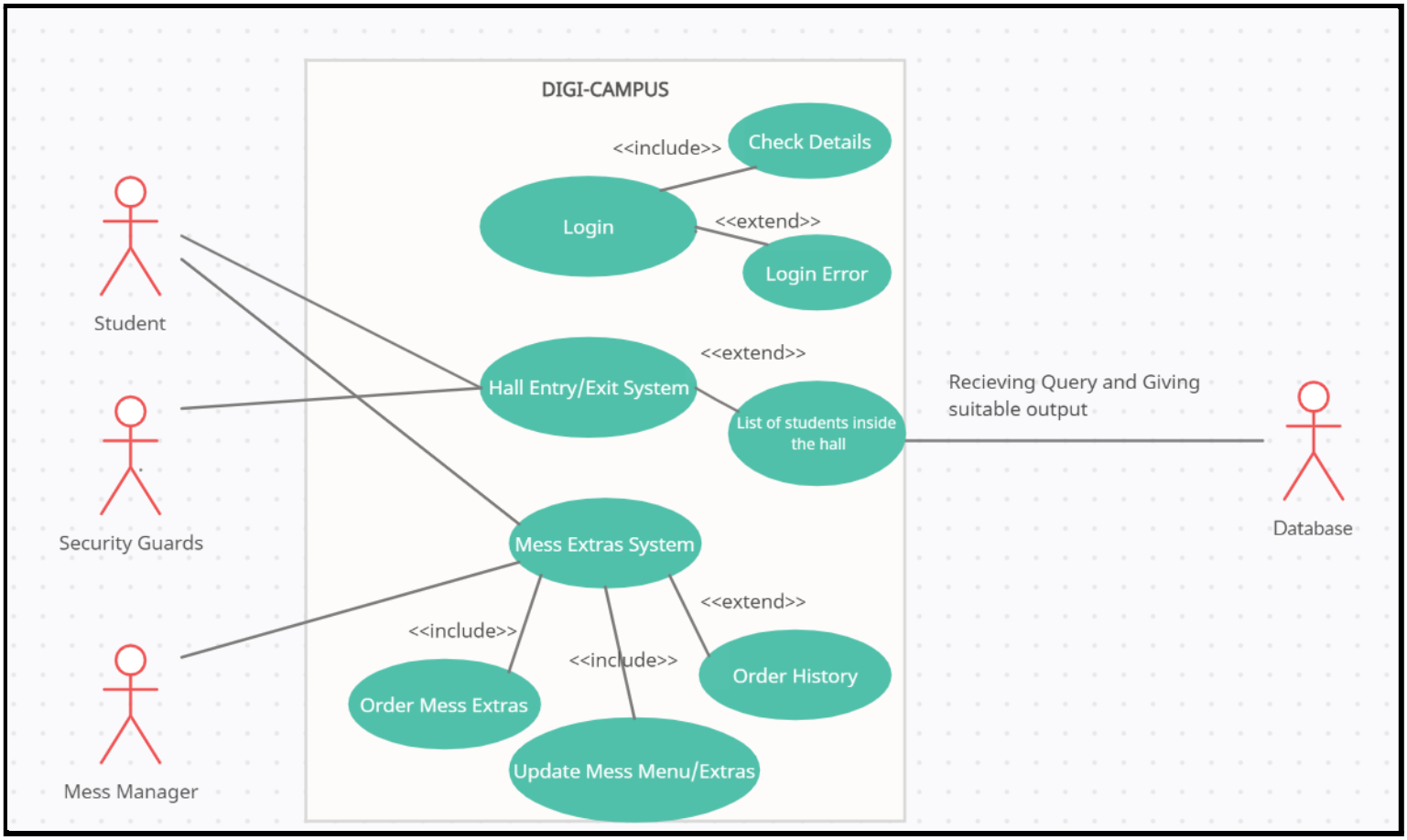
1. For Mess Manager: Mess manager sends an HTTP request to update the mess menu ⟶ Control goes to Model to Generate the menu ⟶ New menu is updated ⟶ Menu updation portal is displayed with an updated menu.

2. For Students: Student sends HTTP request to place an order ⟶ Control goes to view where mess menu and cart is displayed ⟶ Students place order in the cart and go to confirmation page ⟶ Change notification request is sent which updates student database ⟶ Checkout details is displayed to be shown at the mess.

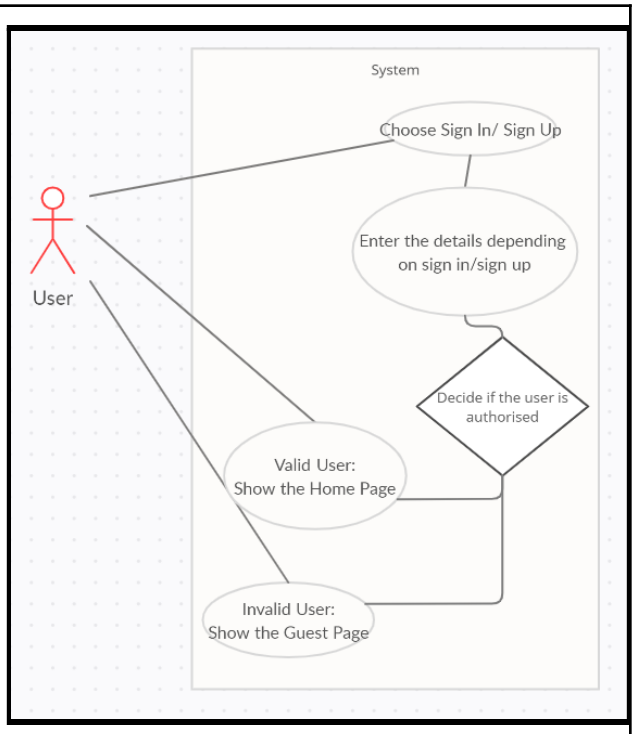
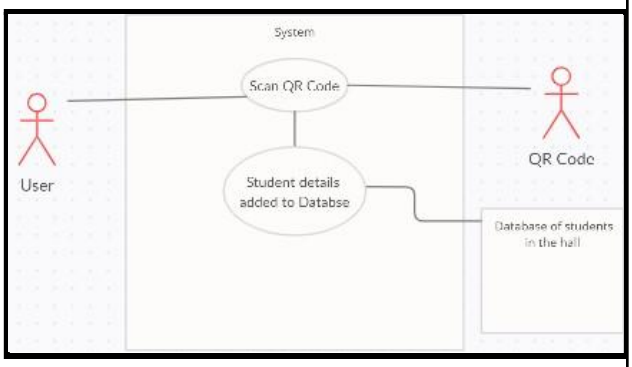
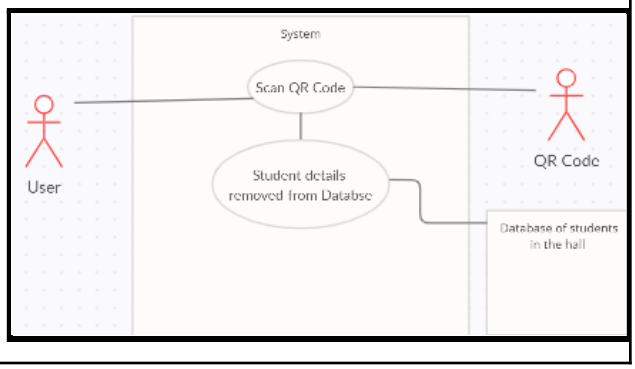
3 Object Oriented Design

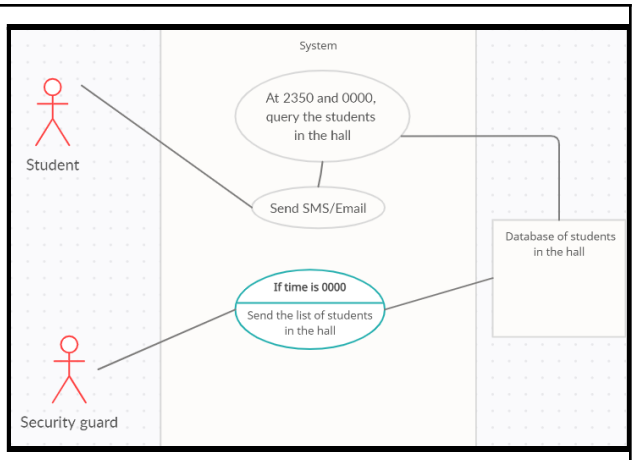
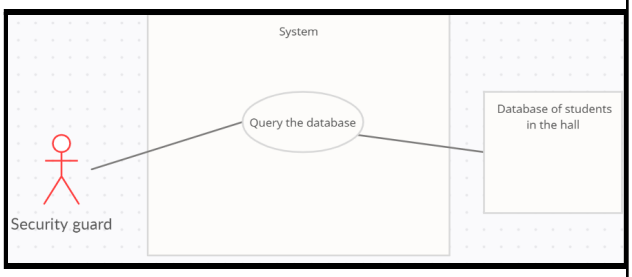
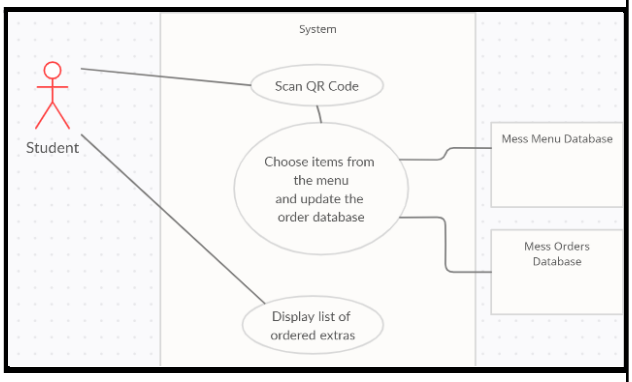
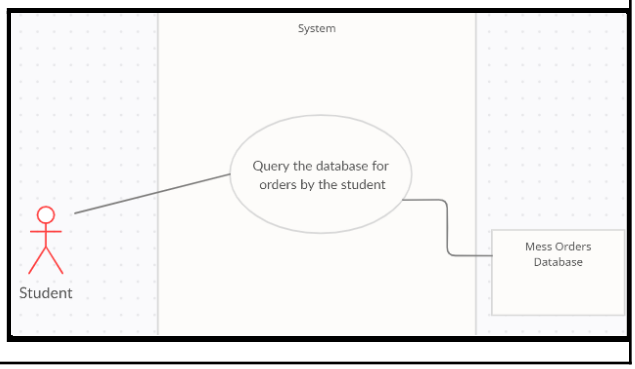
3.1 Use Case Diagrams

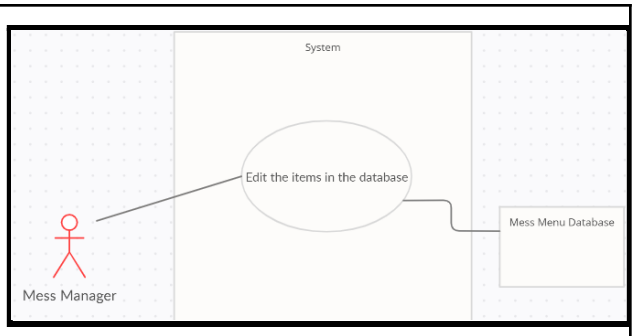
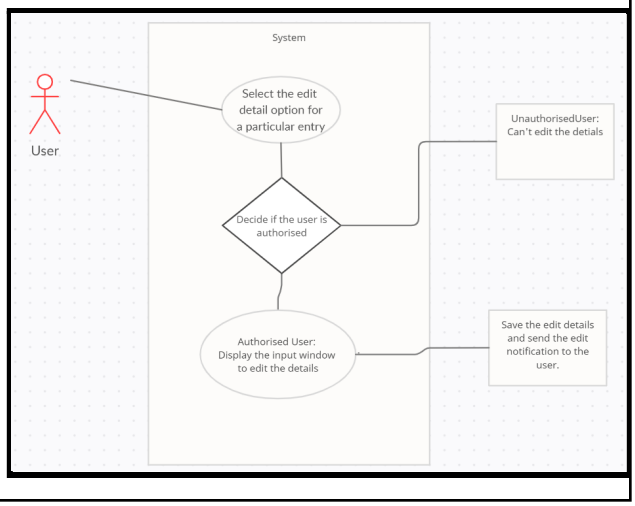
Use Case Diagram for the entire System:



USE CASE DIAGRAMS FOR VARIOUS FUNCTIONALITIES:

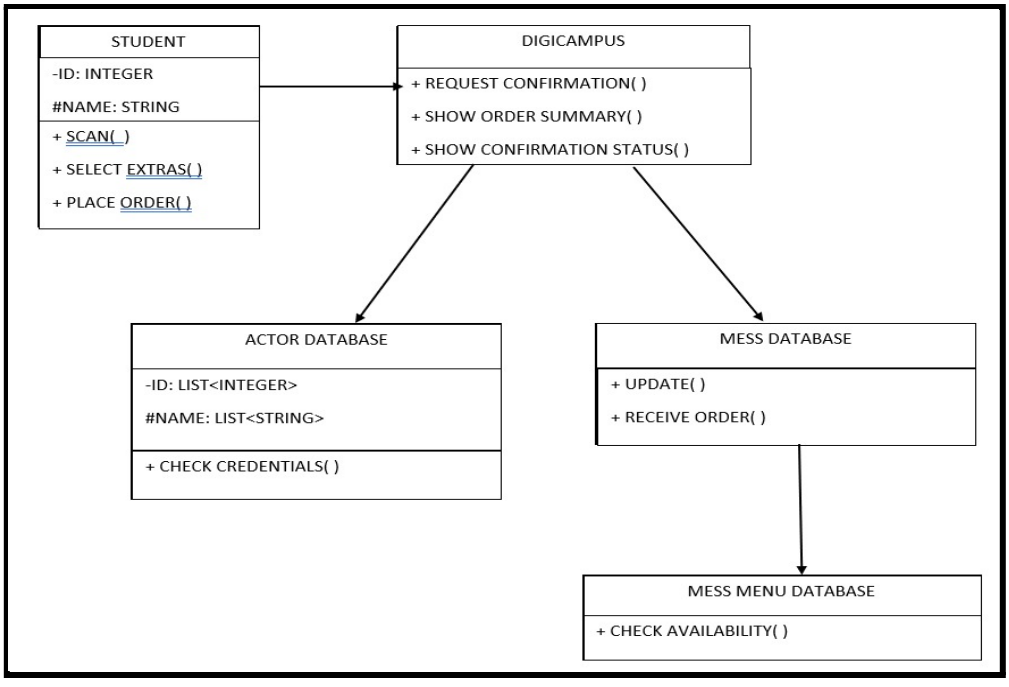
USER CONFIGURATION	
ENTERING A HALL	
EXITING A HALL	

NOTIFICATION	
QUERY OF STUDENTS INSIDE THE HALL	
ORDERING MESS EXTRAS	
ORDER HISTORY	

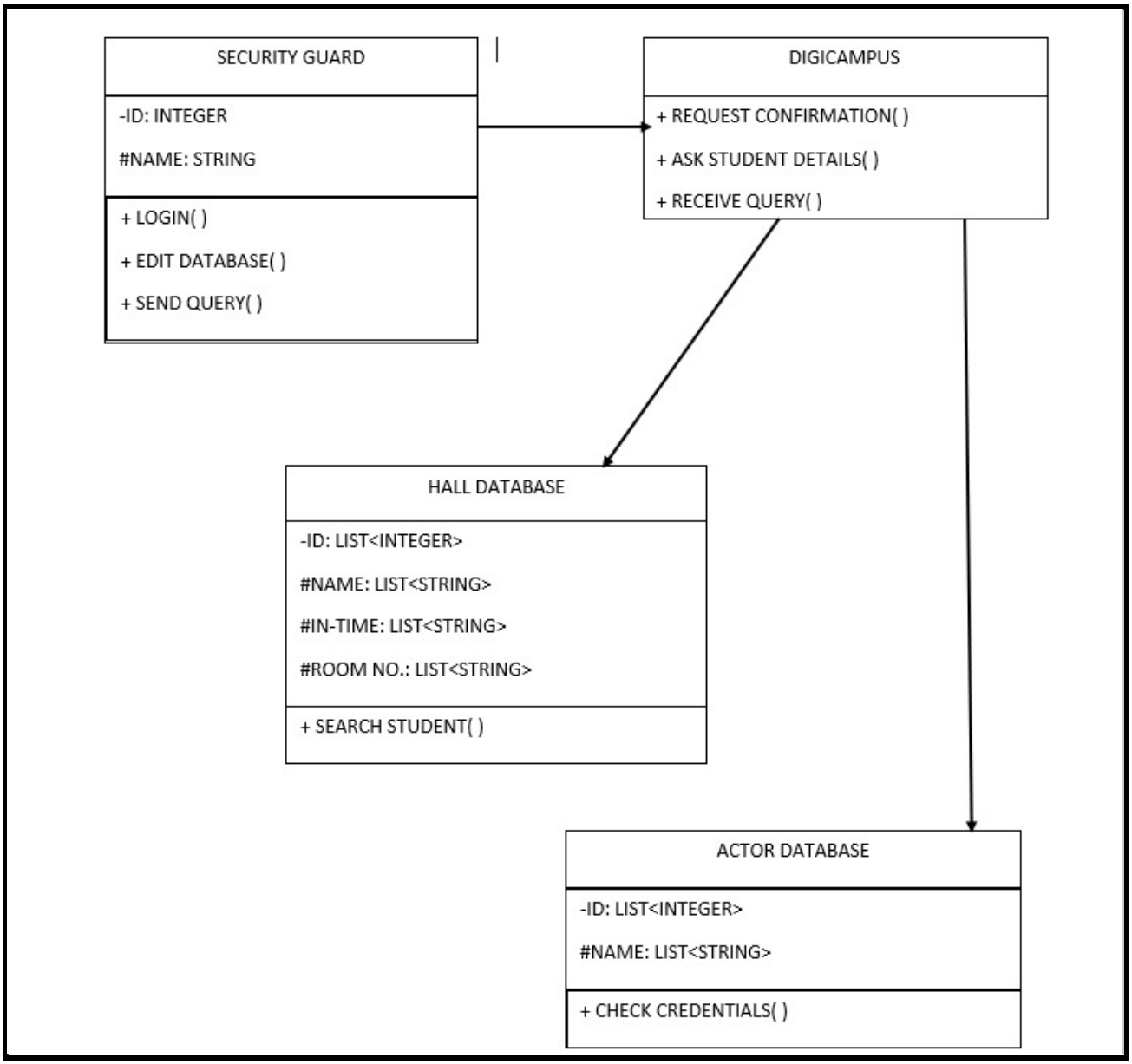
MENU UPDATION	
EDITING HALL ENTRY/EXIT DETAILS	

3.2 Class Diagrams

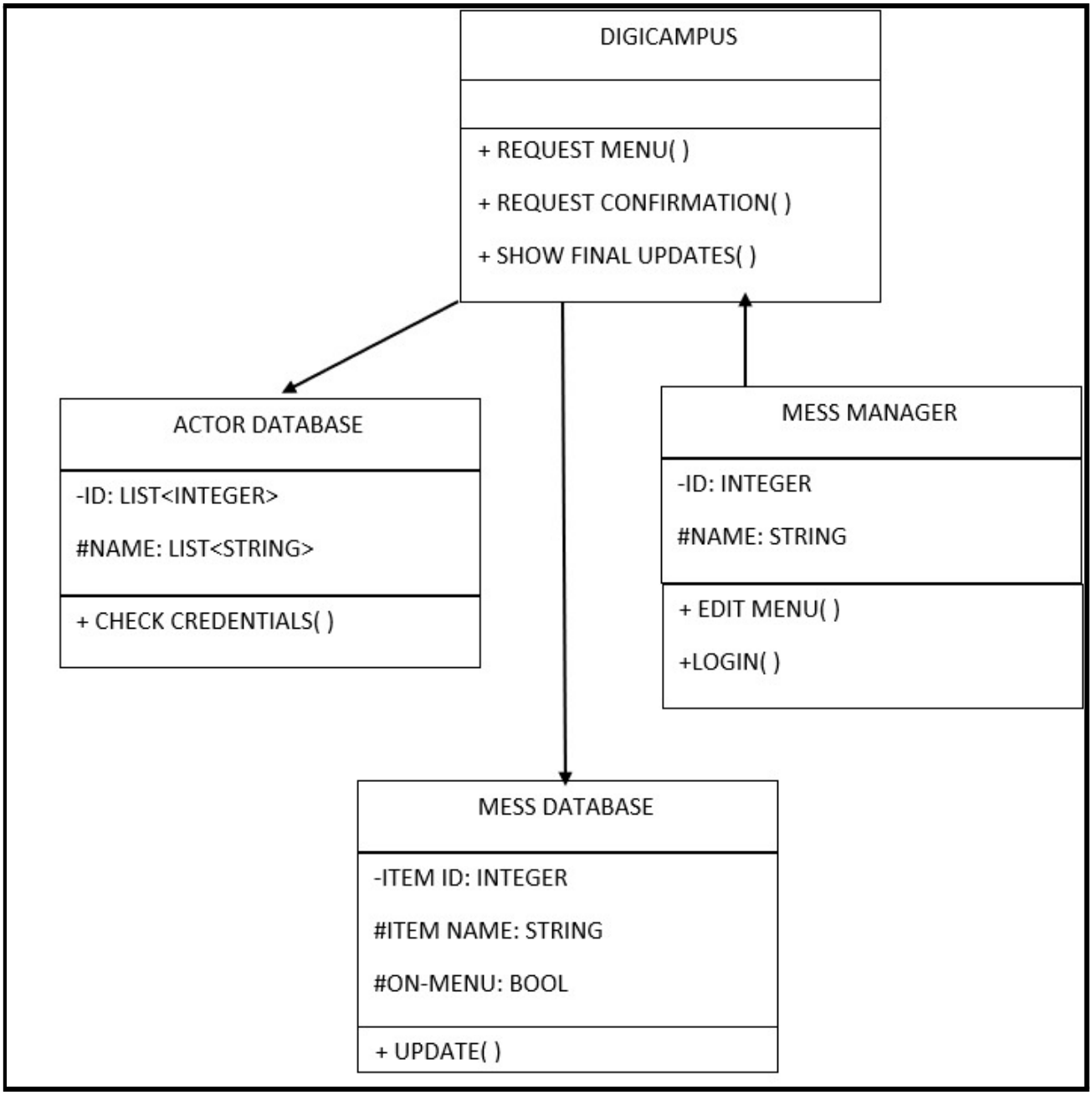
(A) FOR STUDENT:



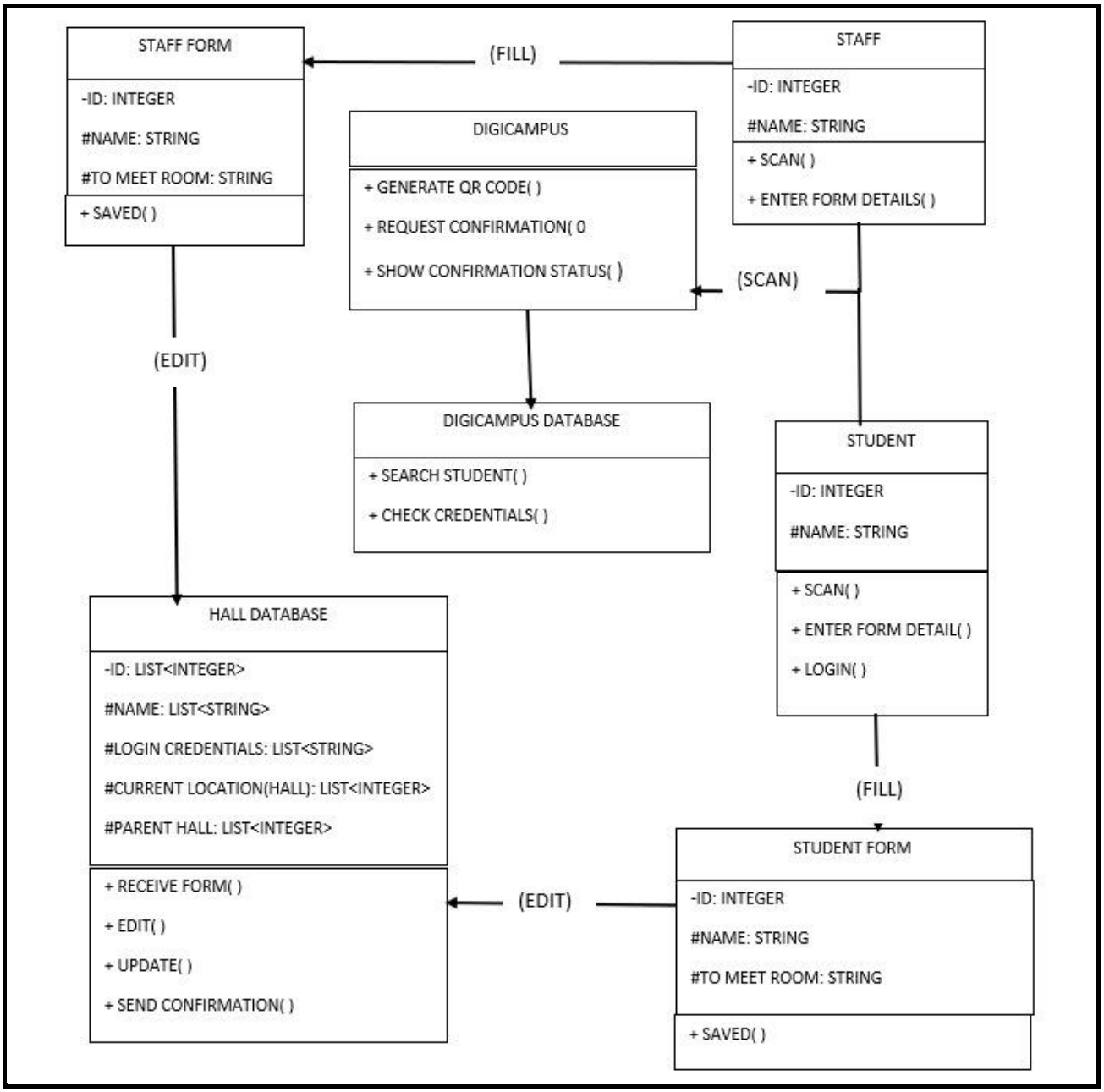
(B) FOR SECURITY GUARDS:



(C) MENU EXTRAS SYSTEM:

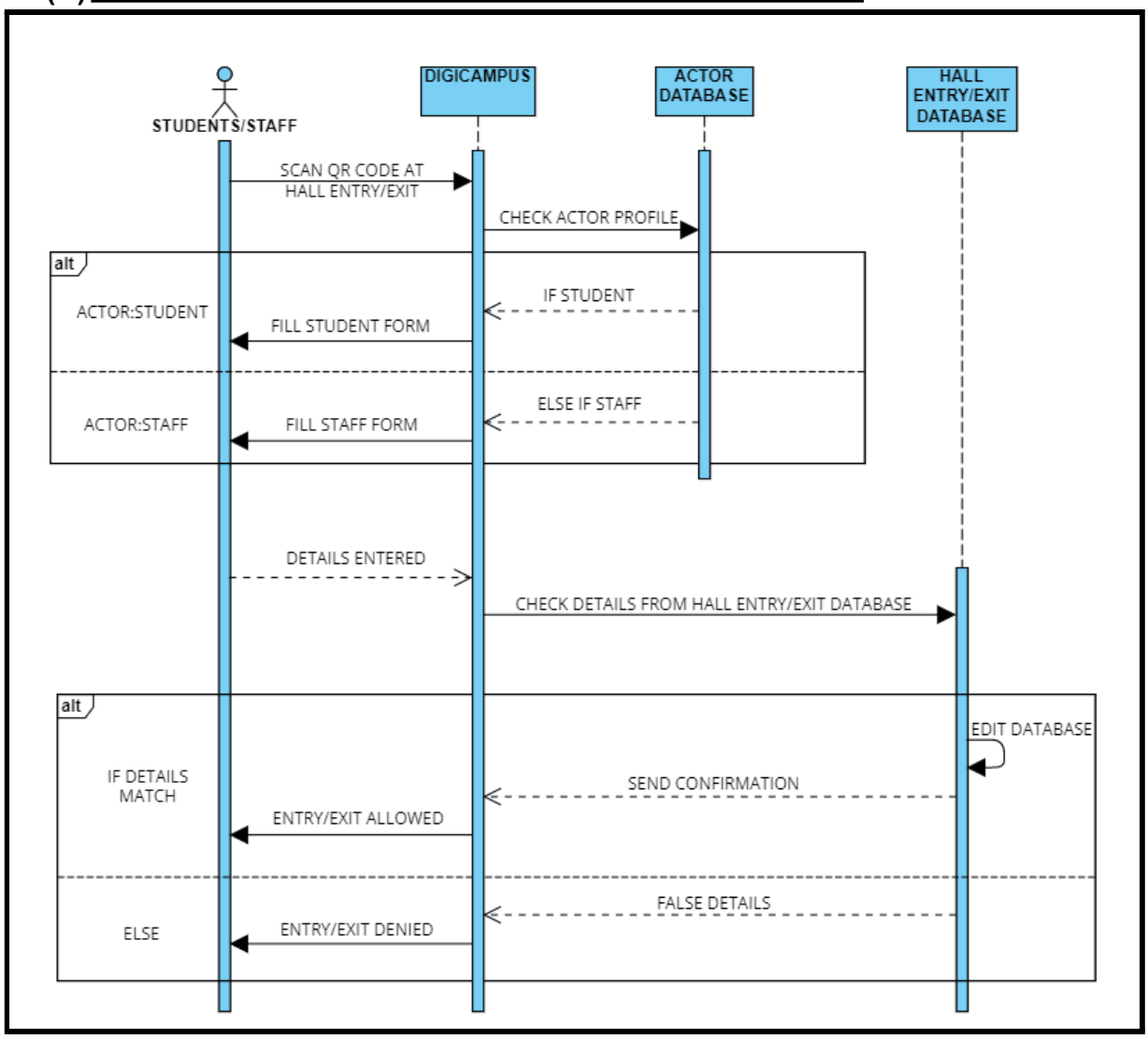


(D) HALL ENTRY SYSTEM:

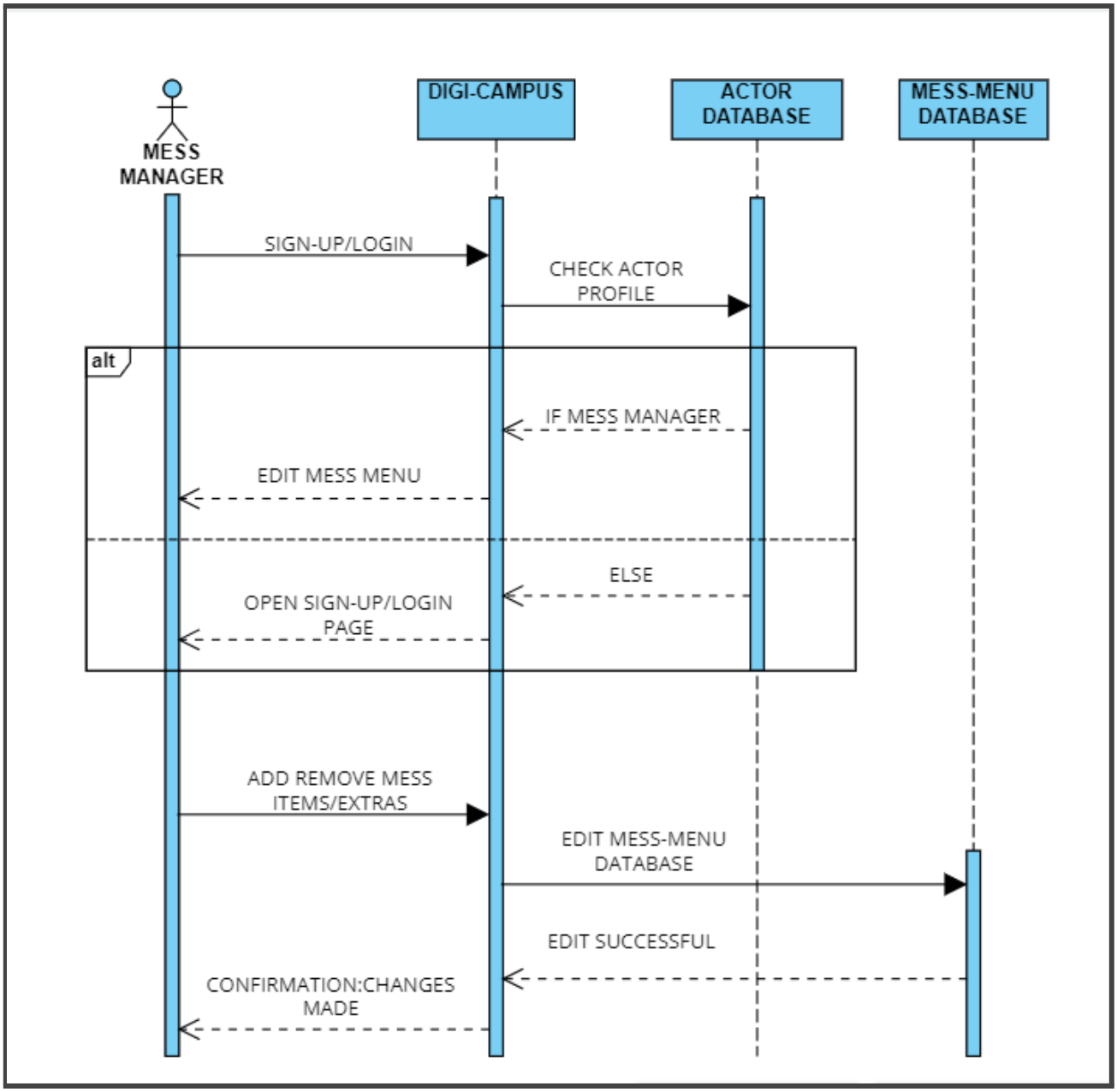


3.3 Sequence Diagrams

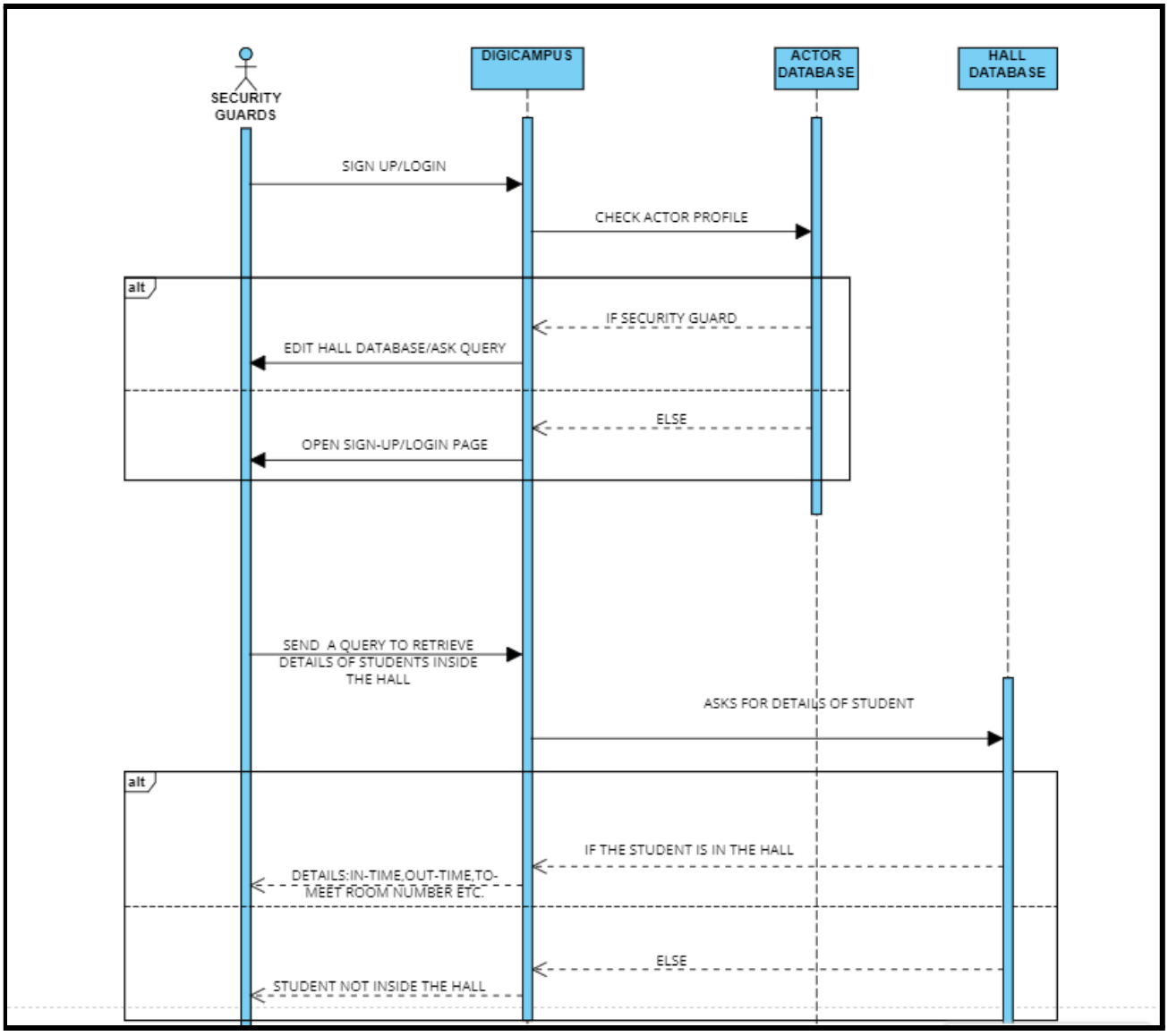
(A) ACTOR: STUDENT/STAFF-HALL/ENTRY-EXIT SYSTEM



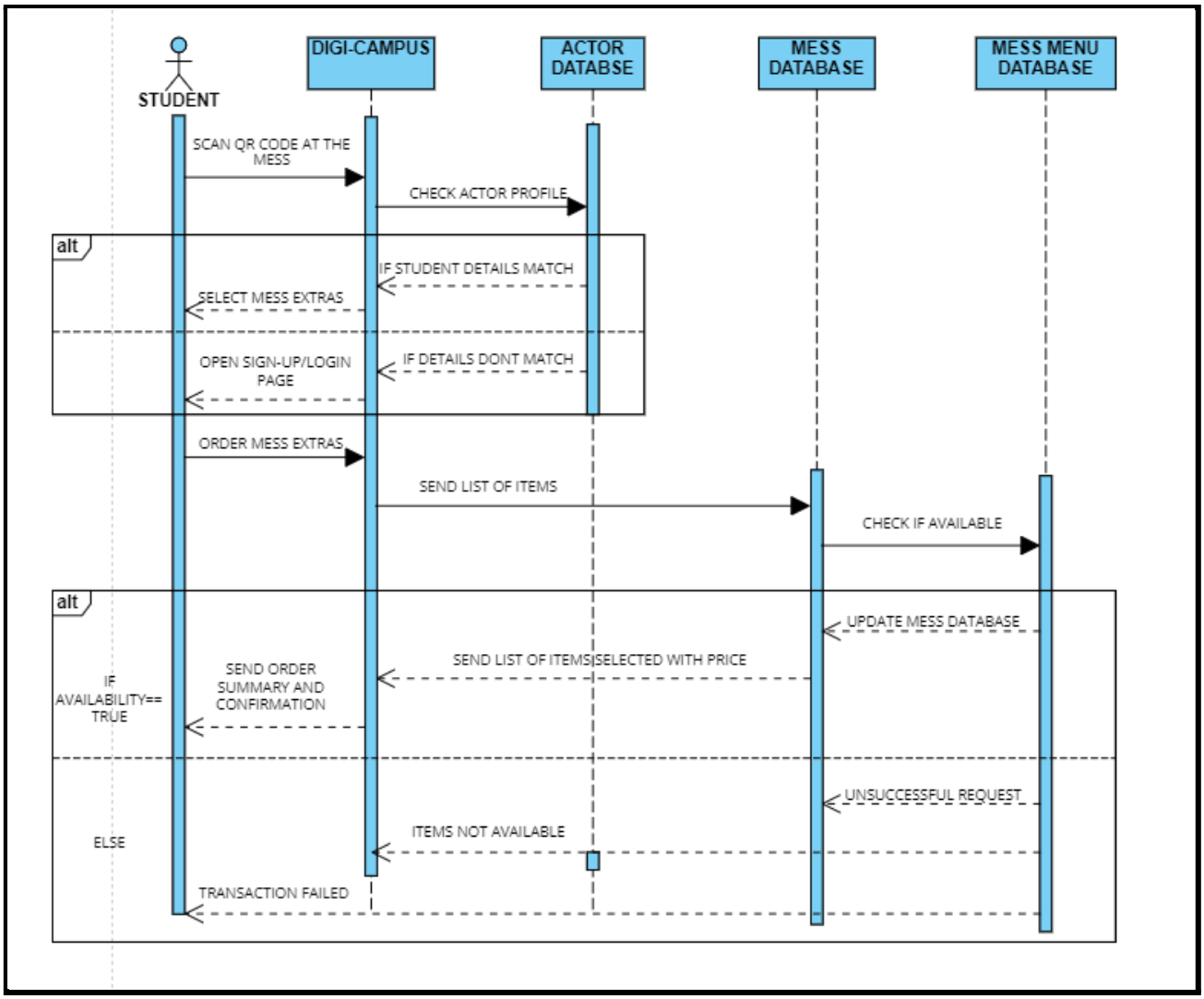
(B) ACTOR: MANAGER



(C)ACTOR: SECURITY GUARDS

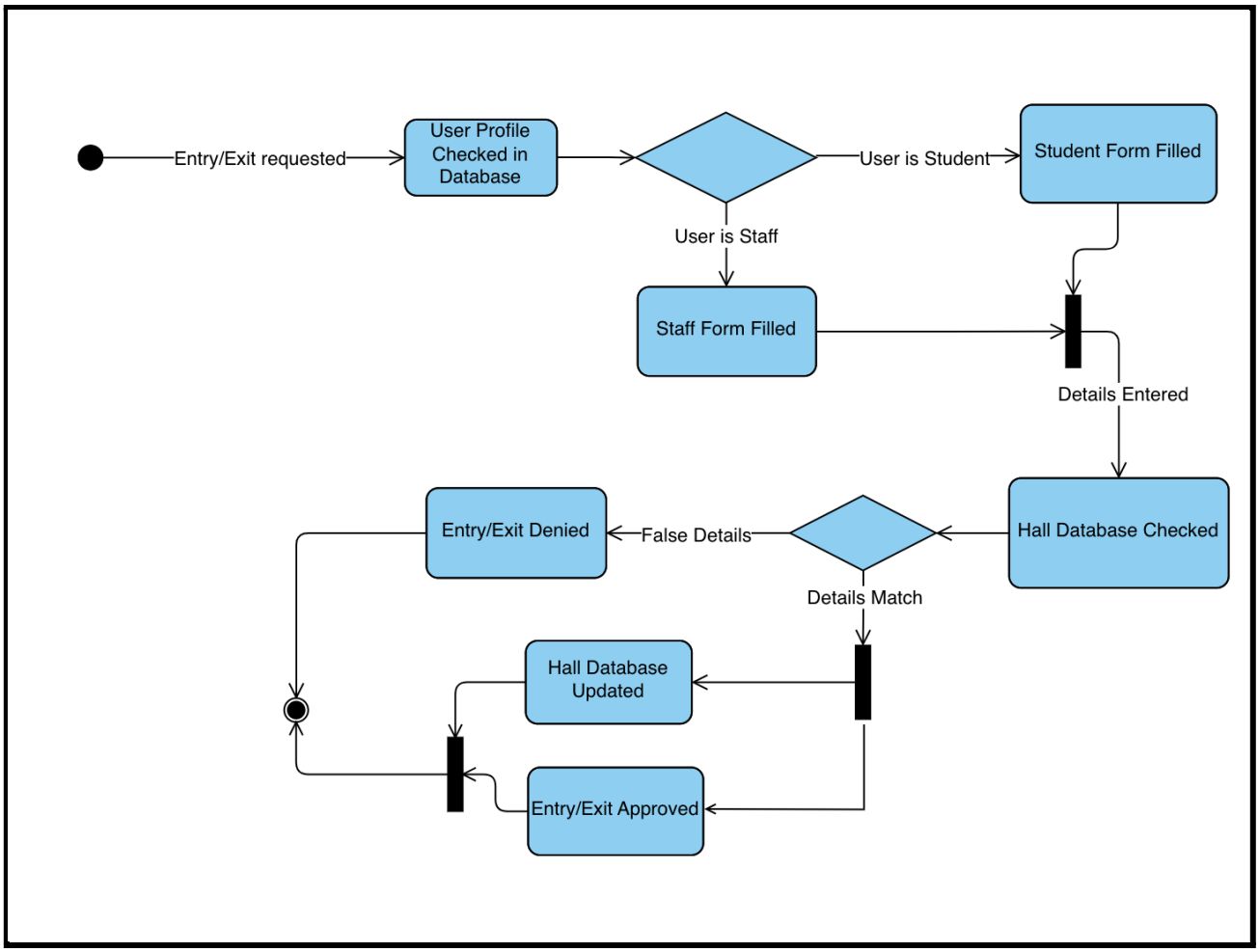


D)ACTOR: STUDENTS-MESS EXTRAS SYSTEM

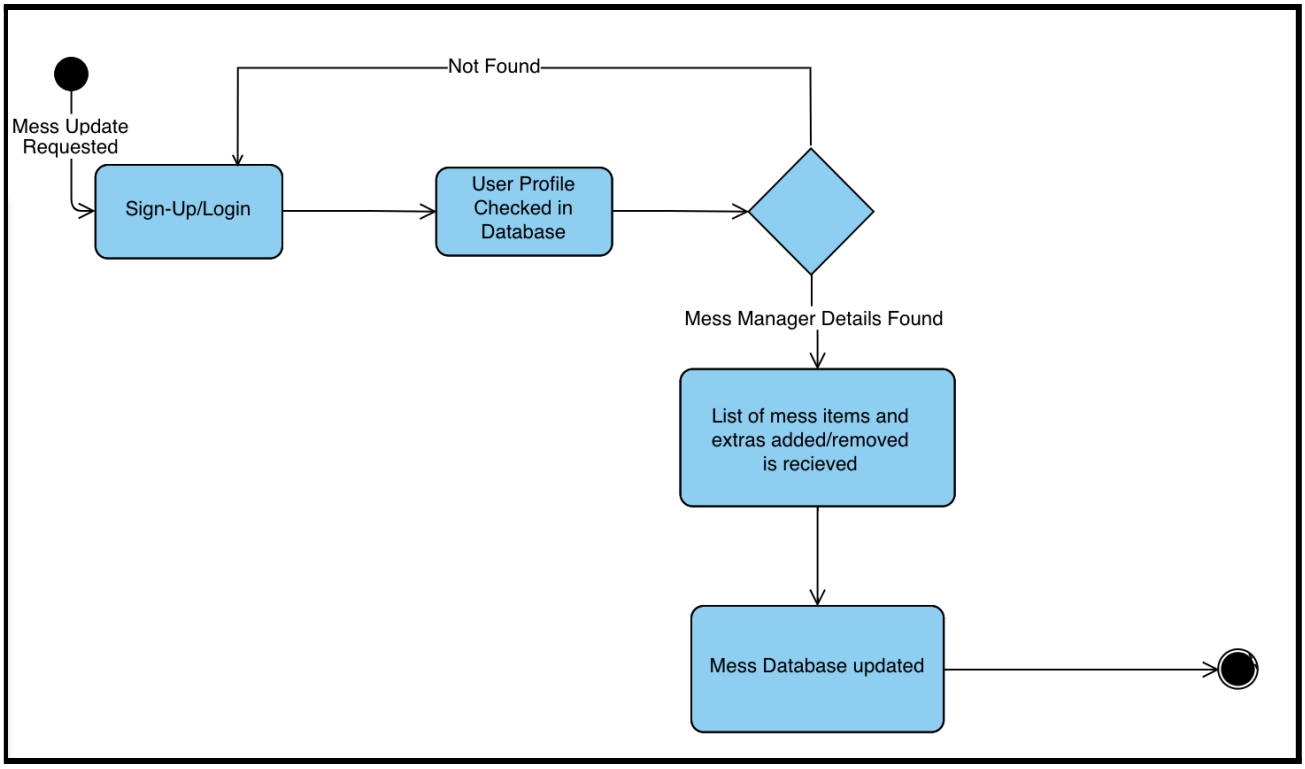


3.4 State Diagrams

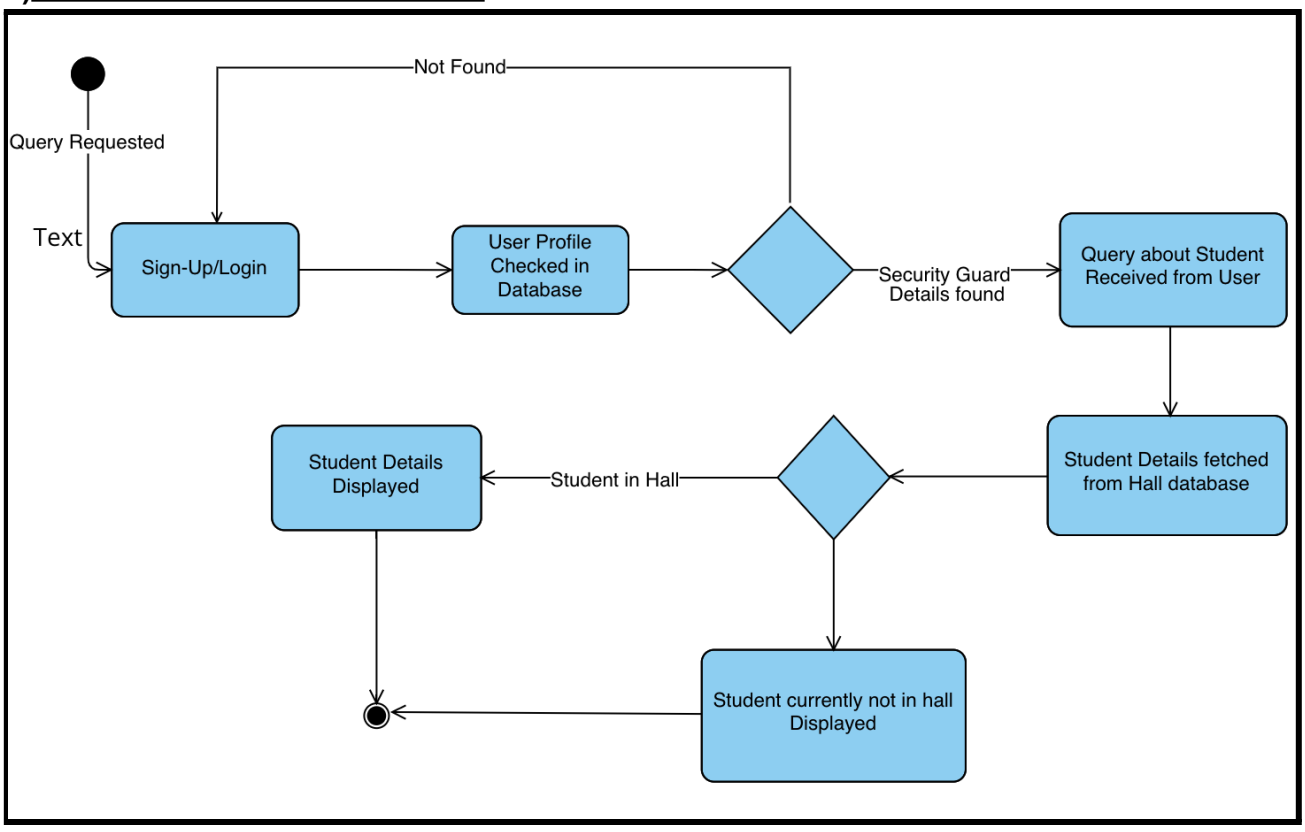
(A) ACTOR: STUDENT/STAFF-HALL/ENTRY-EXIT SYSTEM



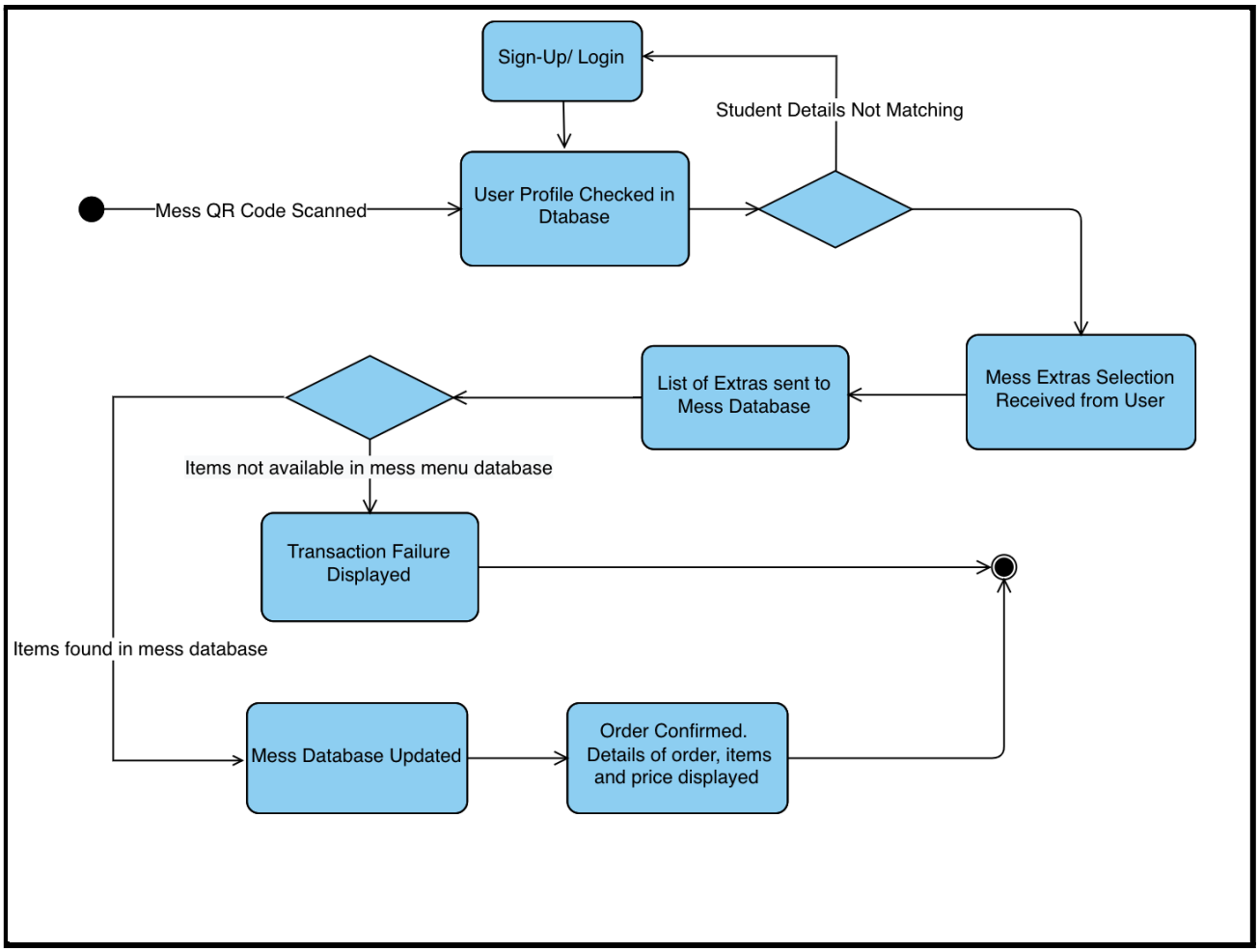
(B) ACTOR: MANAGER



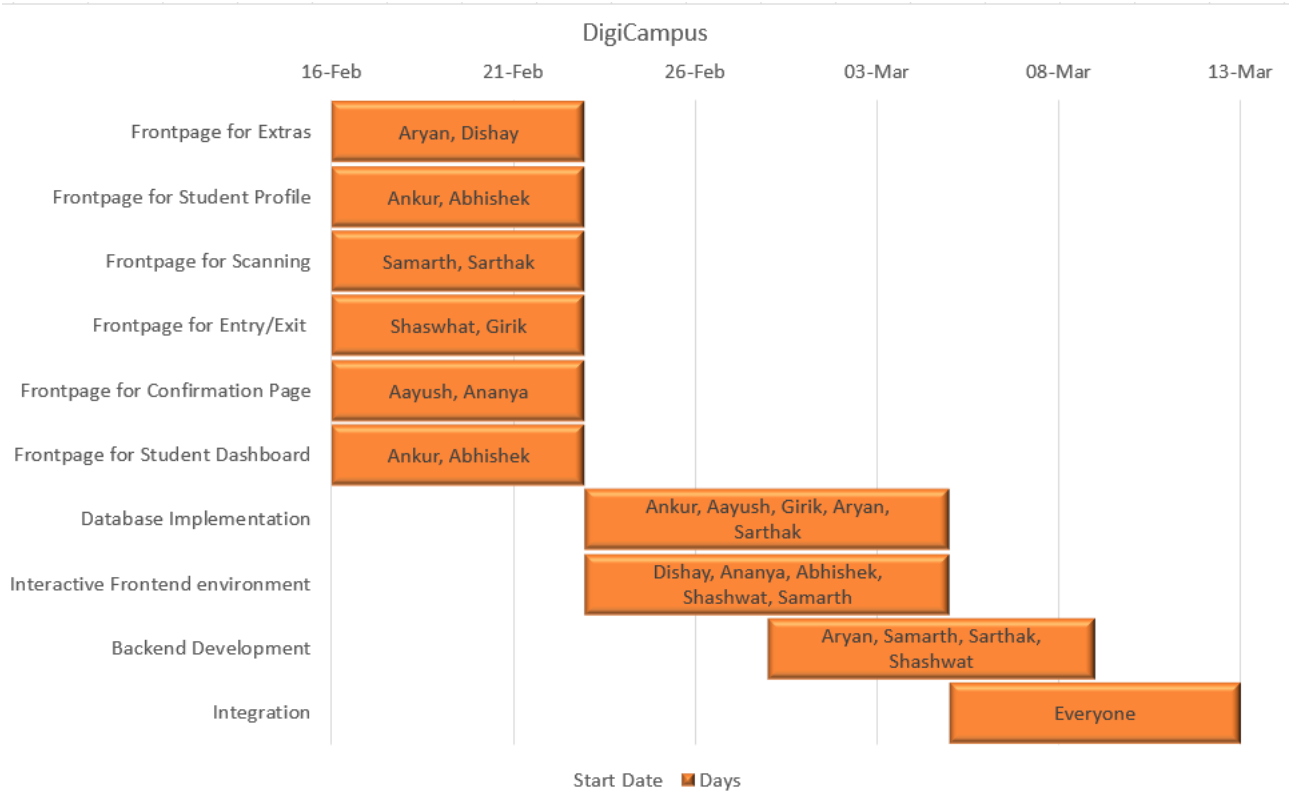
C) ACTOR: SECURITY GUARDS



D)ACTOR: STUDENTS-MESS EXTRAS SYSTEM



4 Project Plan



TEST PLAN FOR OUR SOFTWARE:

- **ANALYZING THE PRODUCT:**
  - ☐ Review the product documentation so as to be fully informed about the product details, target audience, and how the product will function on the ground level.
  - ☐ If any point is unclear, we may interview customers or the target audience and make some changes in the software and documentation if they are needed at all.
- **TEST OBJECTIVES:**
  - ☐ Finding as many software defects as possible.
  - ☐ Creating bug-free software before release.
- **TEST STRATEGY:**
  - ☐ **Defining the Scope of Testing:**
    Defining clearly what things will be tested(hardware, software, integration) and metrics of testing.
  - ☐ **Tentative priority of Testing Type:**
    (A) UNIT TESTING(will be done during the implementation phase as well)
    (B) INTEGRATION TESTING
    (C) SYSTEM TESTING
    (D) API TESTING
    (E) CODE IMPROVEMENT

- ☐ **Creating Test Logistics:**
  - Preliminary tests will be done by our team **(Alpha testing)** in the priority as mentioned earlier.
  - Preparation will be done for the beta testing of other groups' projects.
  - **Beta testing** will be done by peer groups.
  - The Testing will be done in the tentative time frame **14th March,2022-10th April 2022.**
- ☐ **Test Criteria:**
  - Tentatively, the team has decided to choose Exit Criteria as Test Criteria. However, this is subject to change as per the team's requirements.
- ☐ **Test Deliverables:**
  - The Team will submit a Beta Testing Report(of other group's project) and address to Beta testing Feedback.
  - The team will finally submit Final Project Report.

5 Other Requirements

We will be using the IIT Kanpur servers and student databases for implementing the system. The database can be imported from the Pingala servers.

Appendix A - Group Log

6th February: Aryan, Dishay, Sarthak, and Samarth meet to discuss the plan.
6th February: Groups divided to work on each section.
8th February: Aryan and Dishay work on Section 1.
9th February: Abhishek and Ankur completed Architecture Design.
10th February: Abhishek and Ankur completed Human Interface Design.
10th February: Aryan, Dishay, and Shashwat complete Section 1
12th February: Samarth and Sarthak finished Sequence Diagrams.
14th February: Aryan added Gantt Chart
15th February: Sarthak and Samarth made the test plan for the project.
15th February: Sarthak completed Use case diagrams.
15th February: Ananya completed Class diagrams.
15th February: Aayush completed state diagrams.