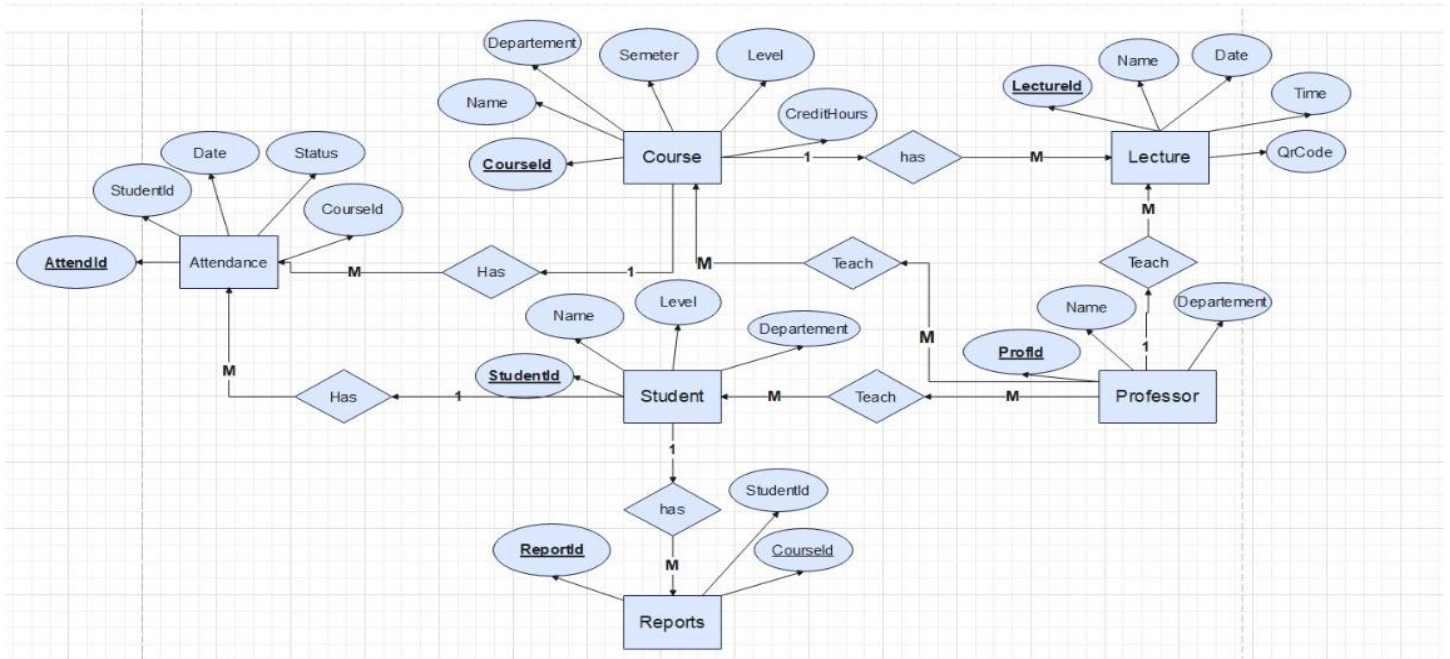# 4. System Features

4.1. ER-Diagram:

Fig (27): ERD

4.2. Use case diagram:
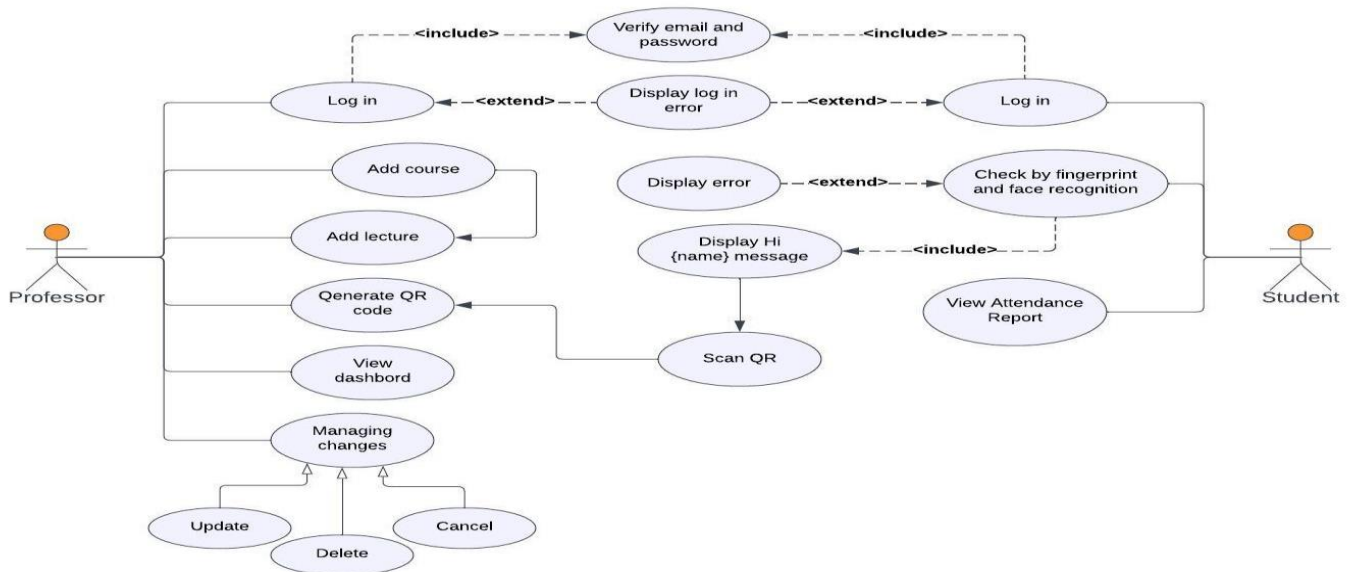

Fig (28): Use case diagram

4.3. Use Case Scenarios:

4.3.1. Sign up Use case scenarios:

Use case Name	Sign up	
Goal	Create account	
Primary actors	User (Professor or Teaching Assistan or Student)	
Secondary actors		
preconditions	Connect to the internet User has E-mail	
Post conditions		
Triggers		
Main Flow	Step	Actions
	1	Turn on data or WIFI
	2	Open the system (app, web)
	3	Click on the sign up
	4	Enter information Requirements
Extensions	4.1	Check about email and password valid or invalid

4.3.2. Log in Use case scenarios:

Use case Name	Log in	
Goal	Log in to app	
Primary actors	User (Professor or Teaching Assistant or Student)	
Secondary actors		
preconditions	Connect to the internet User has E-mail	
Post conditions		
Triggers		
Main Flow	Step	Actions
	1	Turn on data or WIFI
	2	Open the system (app, web)
	3	Click on the login
	4	Enter email and password
Extensions	4.1	Invalid email or password Enter again

4.3.3. Verification of fingerprint

Use case Name	Verification of fingerprint	
Goal	Verify the student's fingerprint	
Primary actors	Student	
Secondary actors	None	
preconditions	Log in or sign up	
Post conditions		
Triggers	Authorization click Mobile fingerprint	
Main Flow	Step	Actions
	1	Log in or sign up
	2	Take fingerprint authorization
Extensions		

4.3.4. Verification of Face recognition

Use case Name	Verification of Face recognition	
Goal	Verify the student's face recognition	
Primary actors	Student	
Secondary actors	None	
preconditions	Log in or sign up	
Post conditions	Click on button	
Triggers	Authorization face recognition of student	
Main Flow	Step	actions
	1	Log in or sign up
	2	Take Face recognition authorization
	3	Update database
Extensions		

4.3.5. Scan QR code

Use case Name	Scan QR code	
Goal	Scan QR code to register attendance	
Primary actors	Student	
Secondary actors	None	
preconditions	Log in to the system and Verification of fingerprint or Face recognition	
Post conditions		
Triggers	Click to the button to scan	
Main Flow	**Step**	**actions**
	1	Verification of fingerprint or Face recognition
	2	Click to button
	3	Scan the QR code
Extensions	**1.1**	2.1 If confirmation is not confirmed by fingerprint or face

4.3.4. Show dashboard (Student)

Use case Name	Show dashboard	
Goal	To see how many times student is absent and present	
Primary actors	Student	
Secondary actors	None	
preconditions	Student registered attendance	
Post conditions		
Triggers	Scan QR code	
Main Flow	**Step**	**actions**
	1	After scan QR code
	2	System save in database
	3	Only show dashboard Attendance
Extensions		

4.3.5. Add course

Use case Name	Add course	
Goal	Add a new course to the system	
Primary actors	Professor	
Secondary actors	None	
preconditions	Log in the system	
Post conditions	None	
Triggers	Professor clicks on "Add Course" button	
Main Flow	**Step**	**actions**
	1	Click on "Add Course" button
	2	System prompts the owner to fill out Course details
	3	System validates new course information
	4	System creates a new course
	5	Update database
	6	Display Successful Message
Extensions	3.1	Course Details are incorrect. Display The message "Unsuccessful" and display Course management option.

4.3.8. Add lecture

Use case Name	Add lecture	
Goal	Add lecture to a course	
Primary actors	Professor	
Secondary actors	Teaching Assistant	
preconditions	Log in the system	
Post conditions	None	
Triggers	Professor clicks on "Add Lecture" button	
Main Flow	**Step**	**actions**
	1	Click on "Add Lecture" button
	2	System prompts the owner to fill out Lecture details
	3	System validates new lecture information
	4	System creates a new Lecture
	5	Update database
	6	Display Successful Message
Extension	3.1	Lecture Details are incorrect. Display The message "Unsuccessful" and display Lecture management option.

4.3.9. Generate OR code

Use case Name	Generate OR code	
Goal	How generate OR code to scan by student	
Primary actors	Professor	
Secondary actors		
preconditions	Add lecture	
Post conditions		
Triggers	Professor clicks on "Generate" button.	
Main Flow	**Step**	**actions**
	1	Professor select the course or create course
	2	Click on " Generate " button
	3	View QR code
	4	Professor share QR code with student
Extensions		

4.3.10. Show dashboard

Use case Name	Show dashboard	
Goal	To see how many times student is absent and present	
Primary actors	Professor	
Secondary actors	Teaching Assistant	
Preconditions	Student registered attendance	
Post conditions		
Triggers	Student scan QR code	
Main Flow	**Step**	**actions**
	1	After scan QR code
	2	System save in database
	3	Professor can show, update and delete dashboard Attendance
Extensions		

4.3.11. Update Course

Use case Name	Update Course	
Goal	Update course properties	
Primary actors	Professor	
Secondary actors		
preconditions	Log in the system	
Post conditions	None	
Triggers	Professor clicks on "Update Course" button.	
Main Flow	**Step**	**actions**
	1	Click on "Update Course" button
	2	System prompts professor to select course
	3	Professor select the course
	4	System display course properties
	5	Professor update course properties
	6	Update from database
	7	Display Successful Message
Extensions		

4.3.12. Update Lecture

Use case Name	Update Lecture	
Goal	Update lecture properties	
Primary actors	Professor	
Secondary actors		
preconditions	Log in the system	
Post conditions	None	
Triggers	Professor clicks on "Update Lecture" button.	
Main Flow	**Step**	**actions**
	1	Click on "Update Lecture" button
	2	System prompts professor to select lecture
	3	Professor select the lecture
	4	System display lecture properties
	5	Professor update lecture properties
	6	Update from database
	7	Display Successful Message
Extensions		

4.3.13. Delete Course

Use case Name	Delete Course	
Goal	Delete course properties	
Primary actors	Professor	
Secondary actors		
preconditions	Log in the system	
Post conditions	None	
Triggers	Professor clicks on "Delete Course" button.	
Main Flow	**Step**	**actions**
	1	Professor select the course
	2	Click on "Delete Course" button
	3	System display options (yes or no)
	4	Professor delete course (yes) or cancel (no)
	5	Delete from database
	6	Display Successful Message
Extensions		

4.3.14. Delete Lecture

Use case Name	Delete Lecture	
Goal	Delete lecture properties	
Primary actors	Professor	
Secondary actors		
preconditions	Log in the system	
Post conditions	None	
Triggers	Professor clicks on "Delete Lecture" button.	
Main Flow	**Step**	**actions**
	1	Professor select the lecture
	2	Click on "Delete Lecture" button
	3	System display options (yes or no)
	4	Professor delete lecture (yes) or cancel (no)
	5	Delete from database
	6	Display Successful Message
Extensions		

4.4. Activity Diagram

4.4.4. Sign up user (web - app)
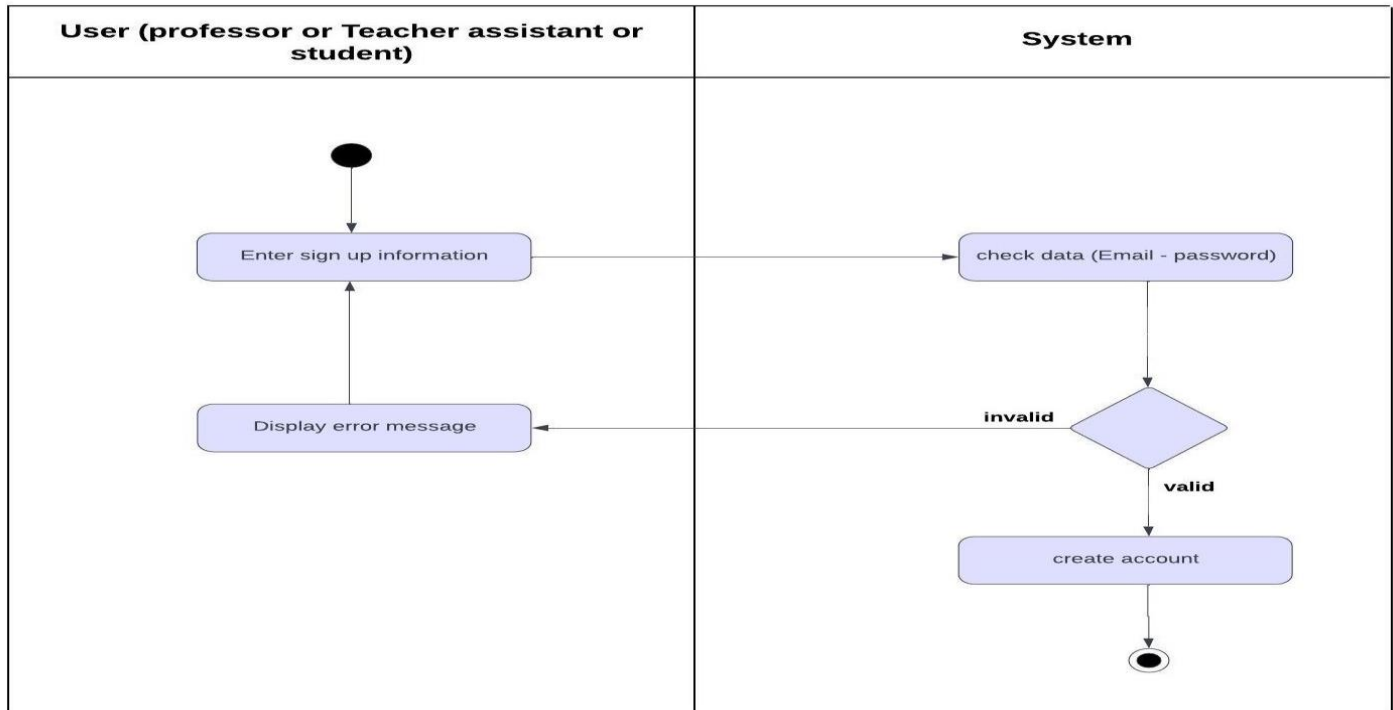
Fig (29): Sign up

4.4.2. Log in user (web - app)
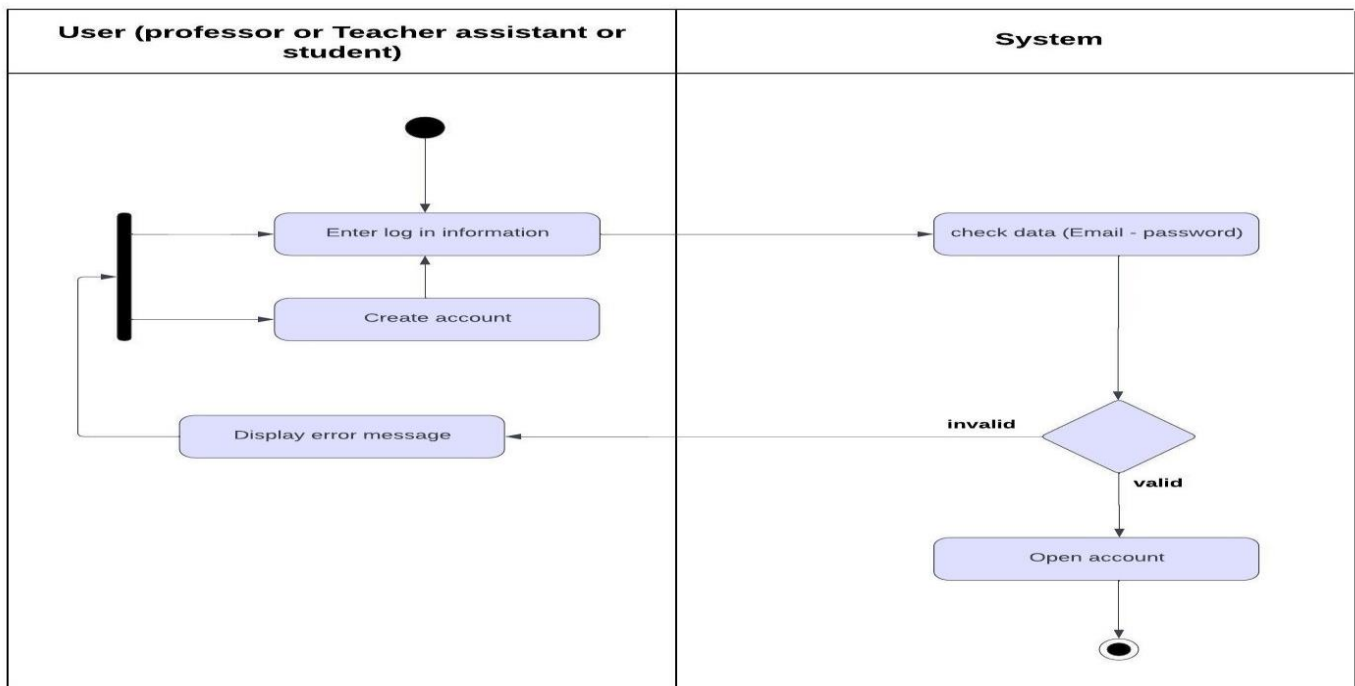
Fig (30): Log in

4.4.3. Professor add course
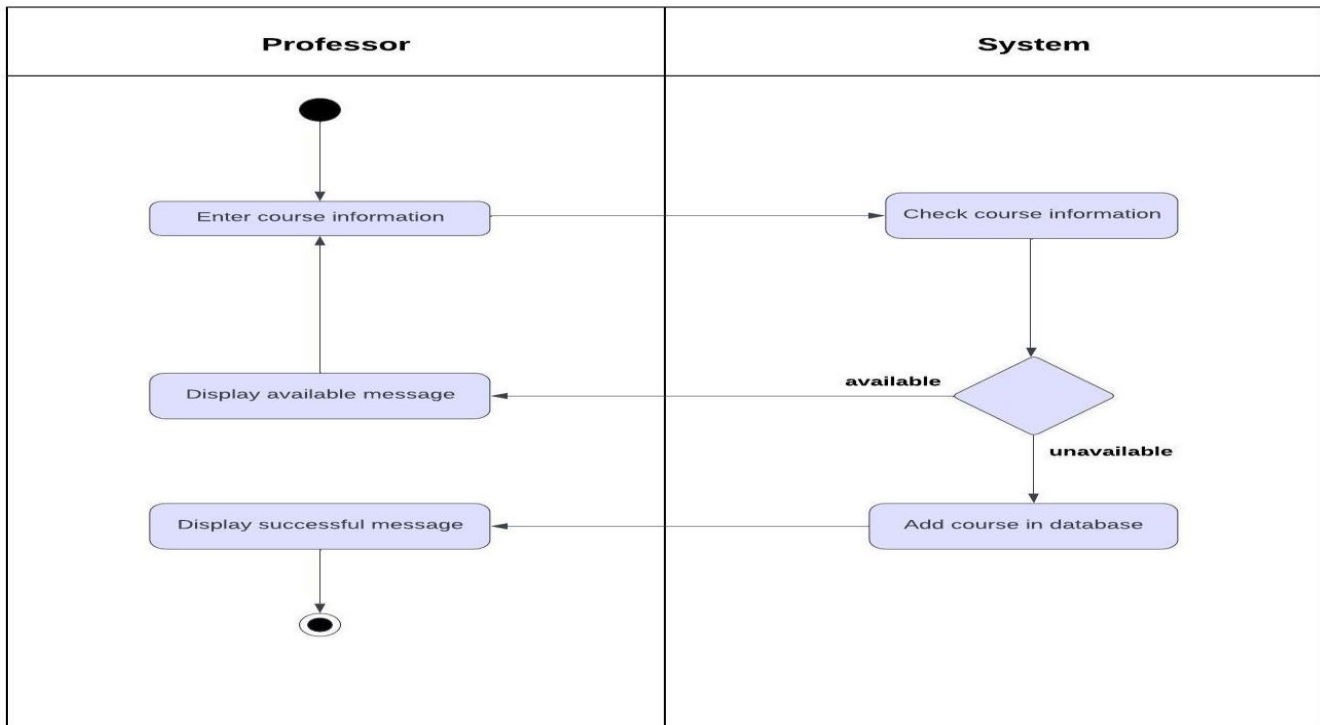
Fig (31): Add course

4.4.4 Professor add lecture
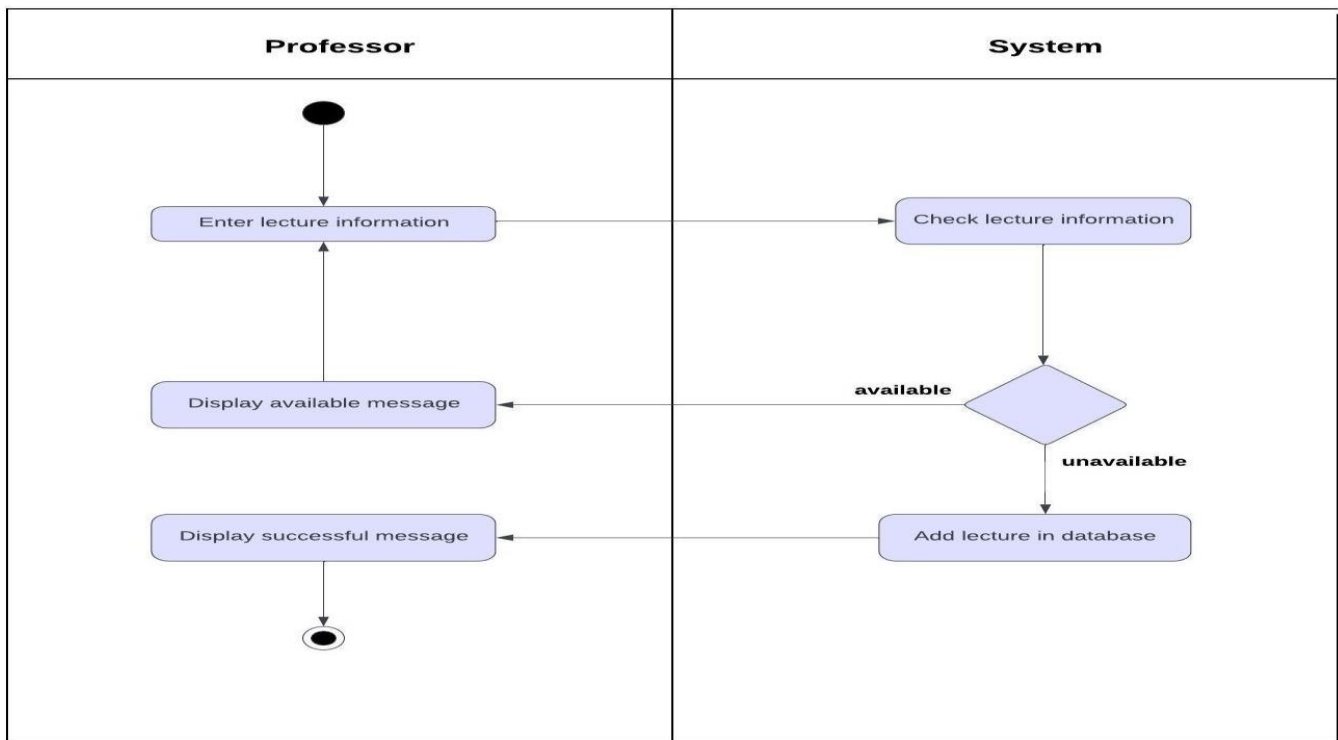
Fig (32): Add lecture

4.4.5. Professor update course
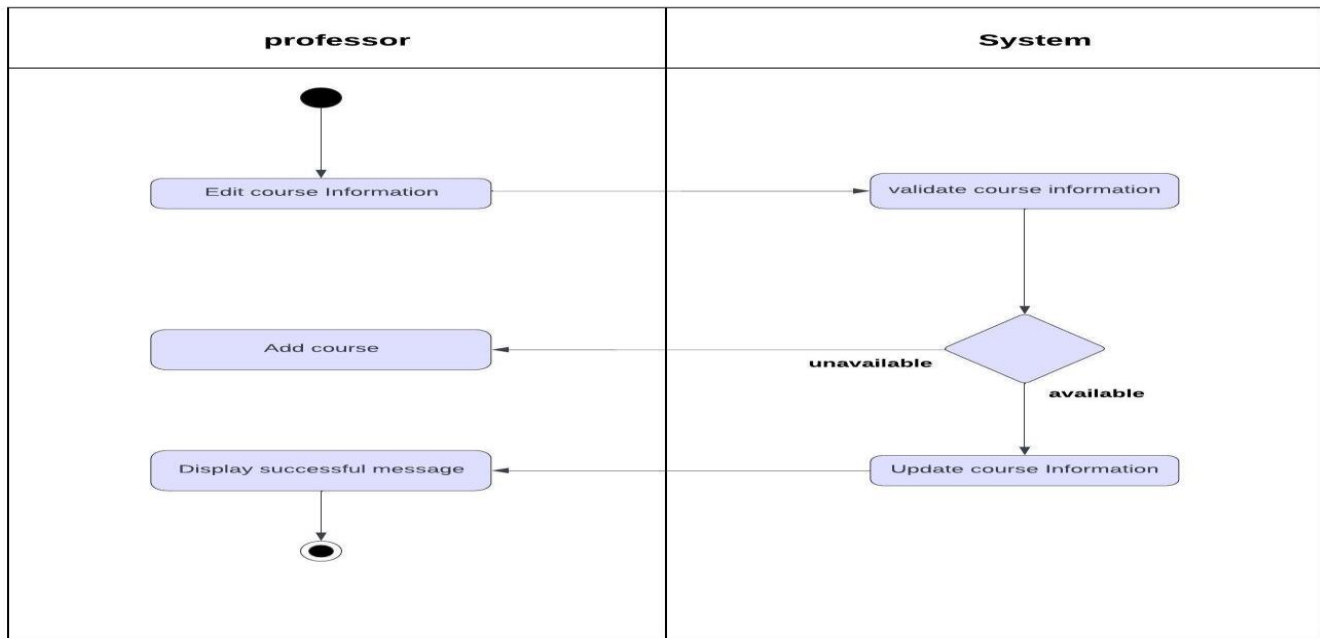
Fig (33): Update course

4.4.6. Professor update lecture
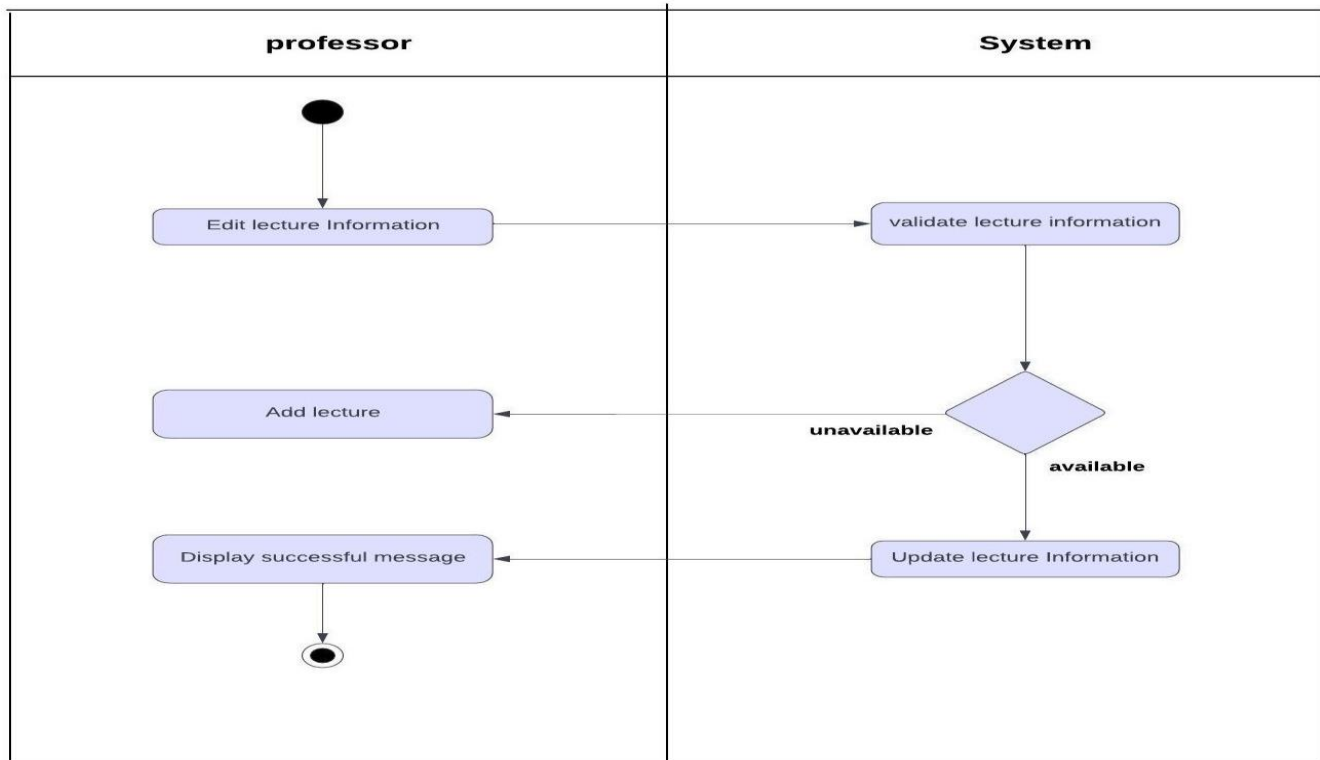
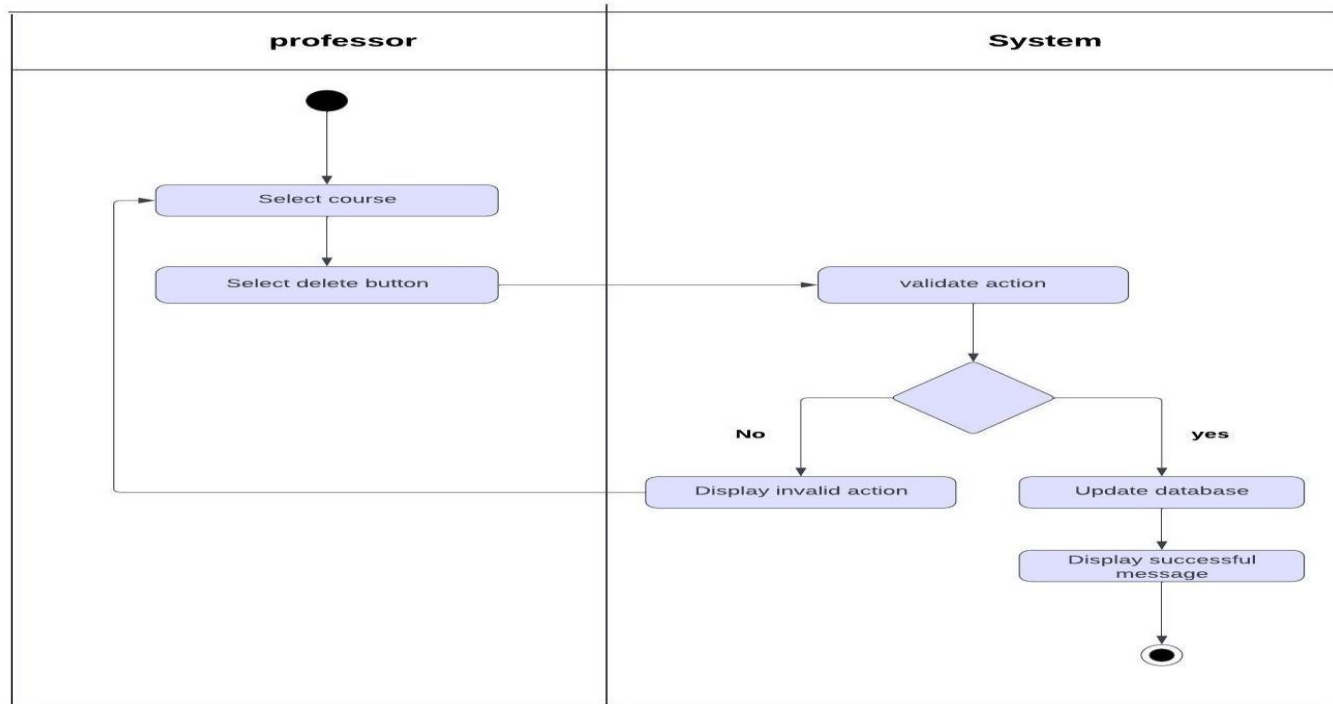Fig (34): Update lecture

4.4.7. Professor delete course

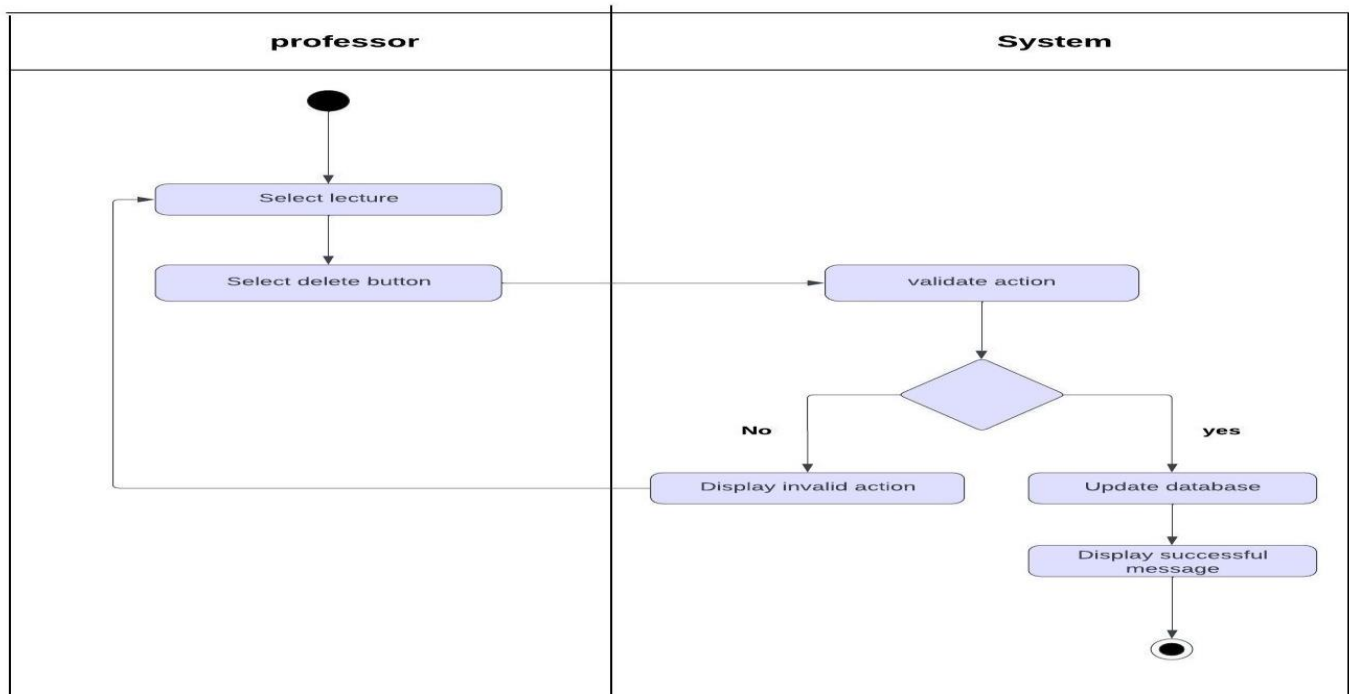
Fig (35): Delete course

4.4.8. Professor delete lecture

Fig (36): Delete lecture

4.4.9. Professor generate QR code
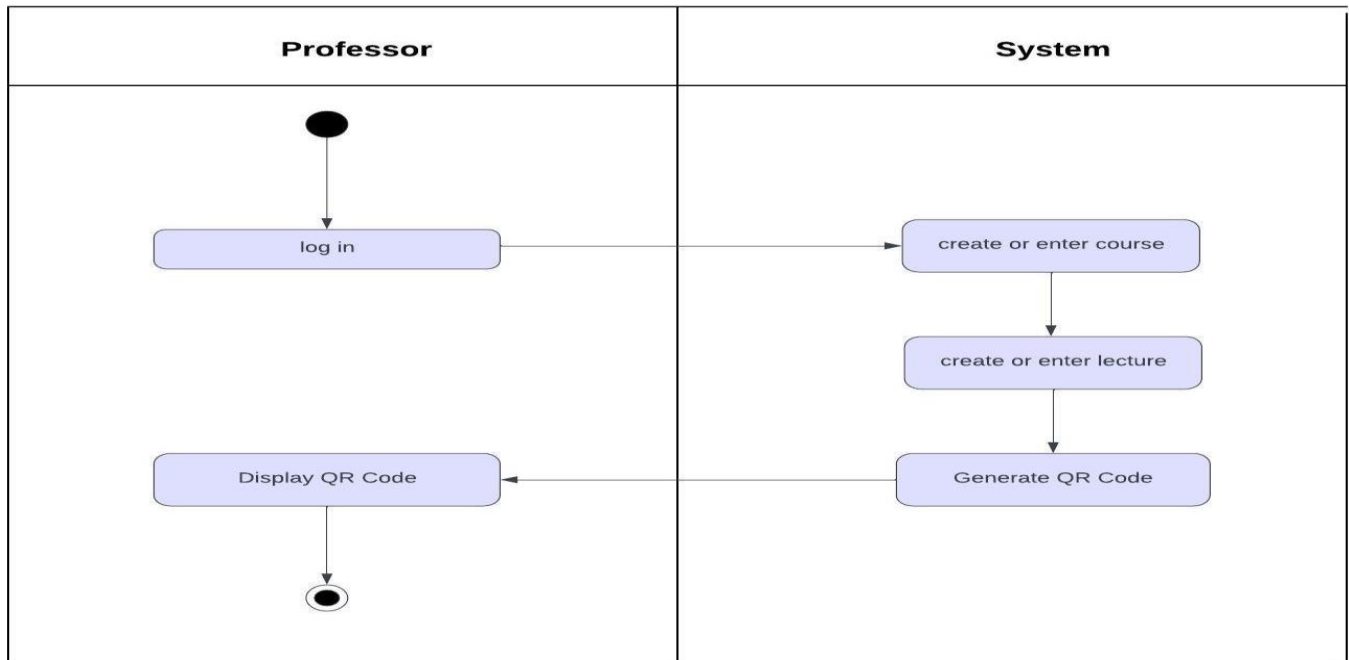
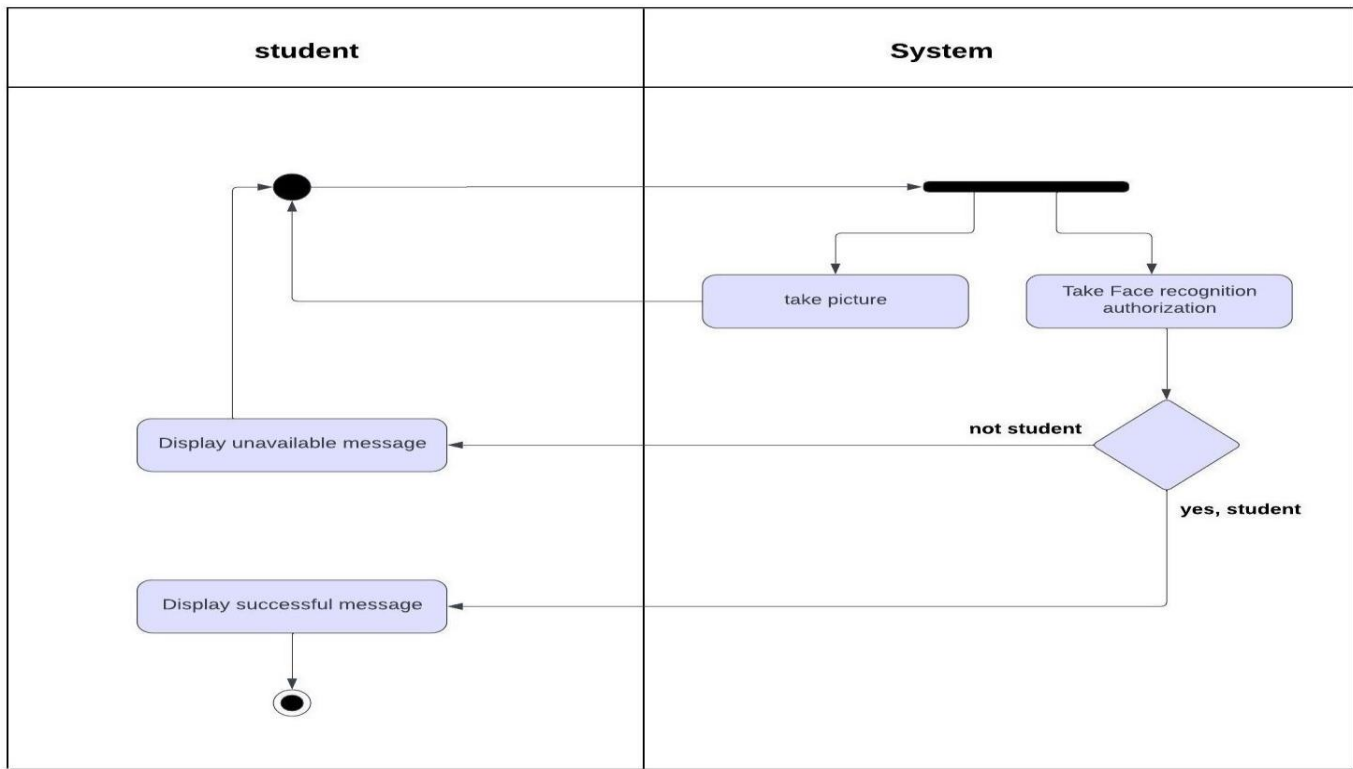
Fig (37): Generate QR code

4.4.10. Face recognition (student)

Fig (38): Face recognition
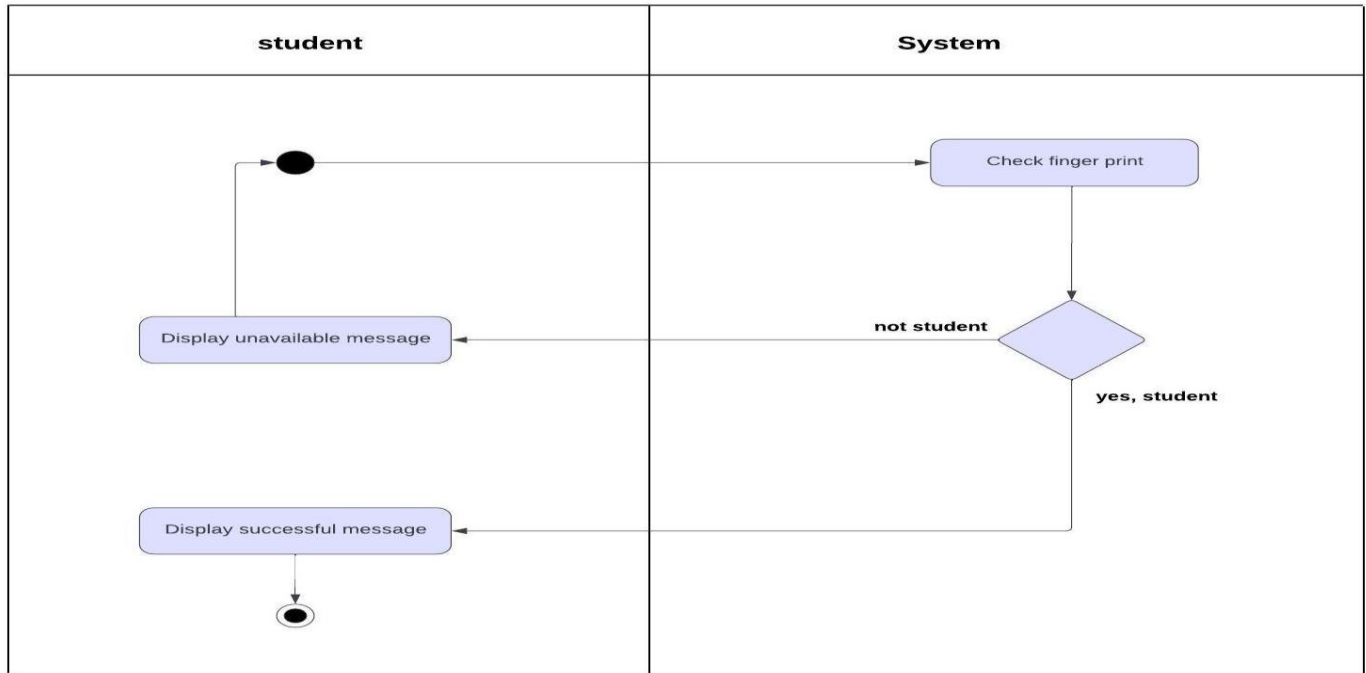
4.4.11. finger print (student)
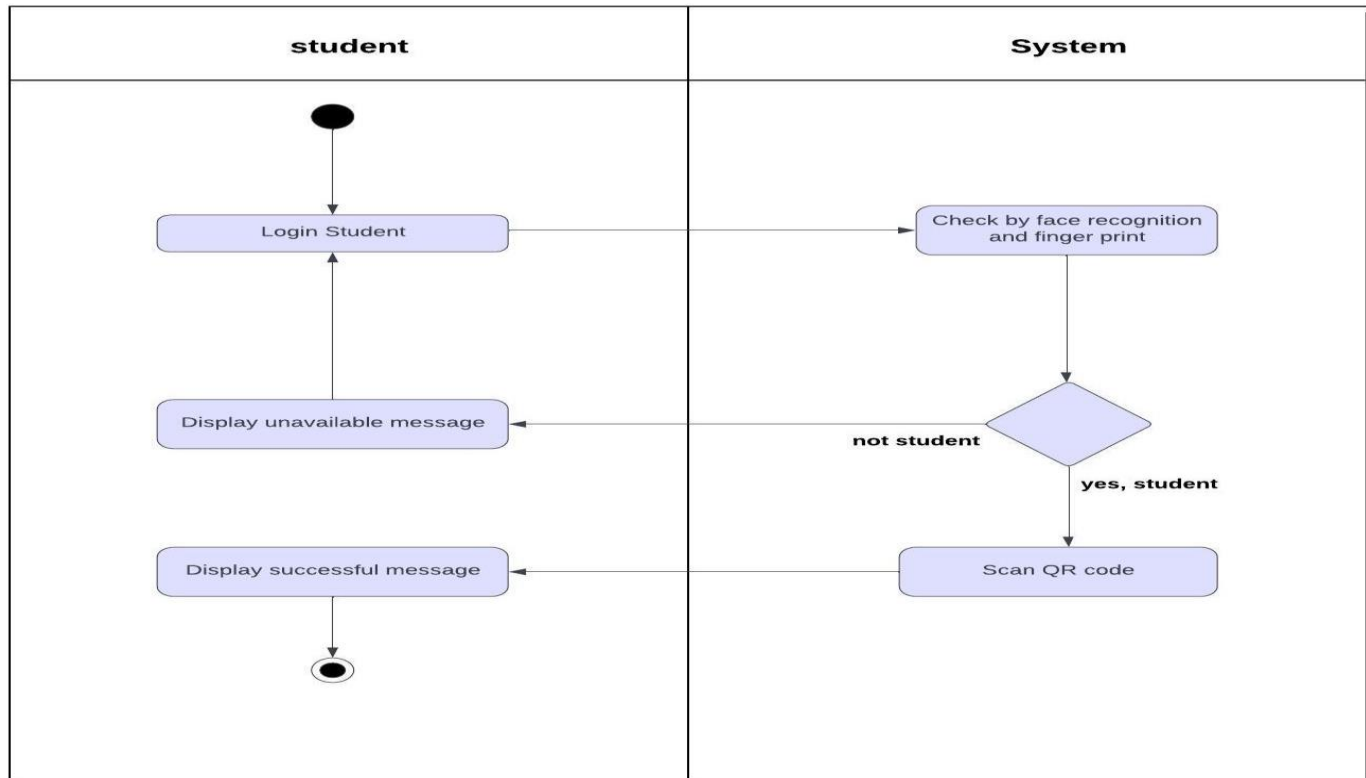

Fig (39): Finger print

4.4.12 Student scans QR code

Fig (40): Scan QR code