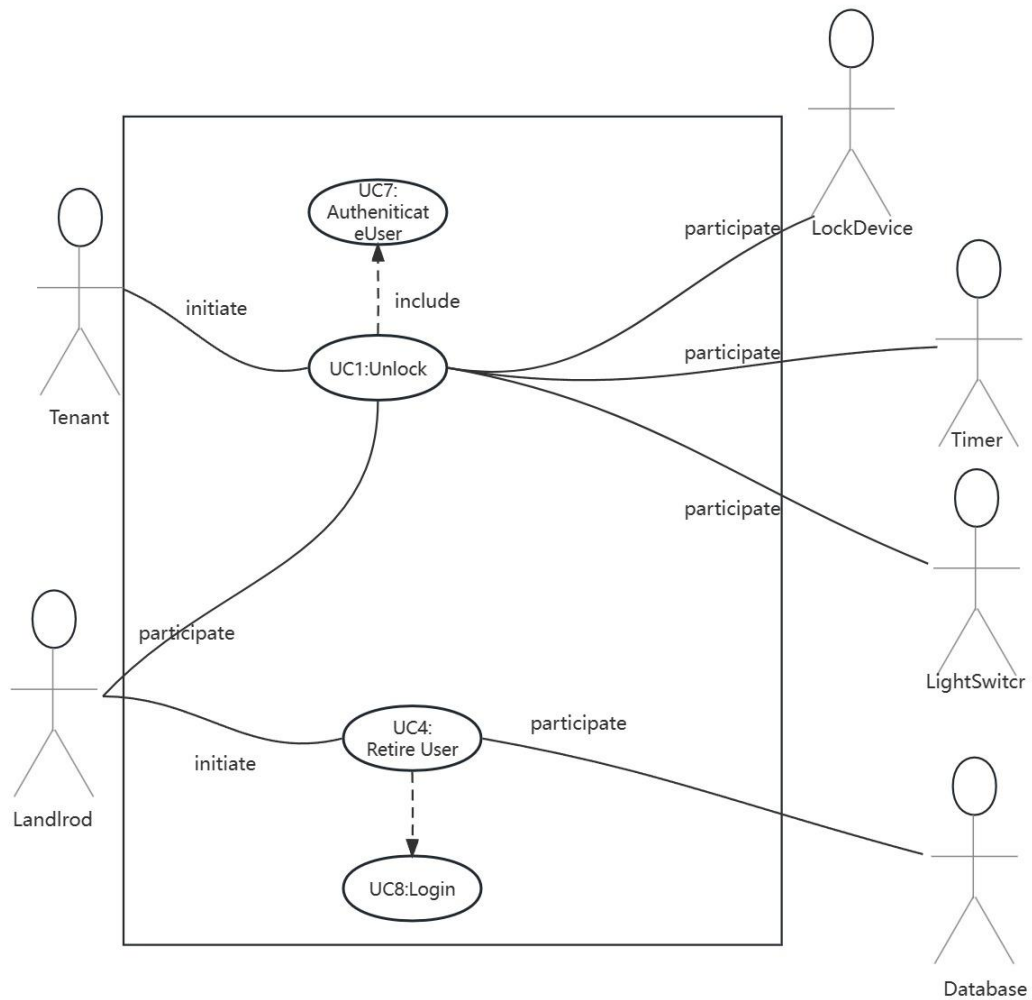# Course Assignment (Mini Project I-1)

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1. Draw use case diagram for UC-1 (Unlock) and UC-4 (RetireUser)

2. Write the use case schemas of UC-1 and UC-4

Use Case UC-1:	Unlock
Related Requirem'ts:	REQ1, REQ3, REQ4, and REQ5 stated in the table in the file lab_3 User cases.pdf
Initiating Actor:	Any of: Tenant,Landlord
Actor's Goal:	To disarm the lock and enter, and get space lighted up automatically
Participating Actors:	LockDevice, LightSwitch, Timer,Database
Preconditions:	• The set of valid keys stored in the sysytem database is non-empty
	• The system displays the menu of available functions; at the door keyppad the menu choices are "Lock" and "Unlock"
Postconditions:	• If the user is valid in authentication, the door will be unlocked. The auto-lock timer has started countdown from autoLockInterval. • Otherwise, the door will NOT be unlocked. If the user failed too many times in authentication, block his phone in Bluetooth.
Flow of Event for Main Success Scenario:	
→	1. **Tenant/Landlord** arrives at the door and selects the menu item "Unlock"
	2. include: AuthenticateUser(UC-7)
←	3. **System** (a) signals to the **Tenant/Landlord** the lock status, e.g. "disarmed," (b) signals to **LockDevice** to disarm the lock, and (c) signals to **LightSwitch** to turn light on.
←	4. **System** signals to the **Timer** to start the auto-lock timer countdown
→	5. **Tenant/Landlord** opens the door, enters the home [and shuts the door and locks]

Use Case UC-4:	RemoveUser
Related Requirem'ts:	REQ3, REQ7 stated in the table in the file lab_3 User cases.pdf
Initiating Actor:	Landlord
Actor's Goal:	To retire a user's access authentication.
Participating Actors:	Database
Preconditions:	• The set of valid keys stored in the system database is non-empty
	• The target user is existed in database
Postconditions:	• The modified data is stored into the database
	• The target users' access is vanished
Flow of Event for Main Success Scenario:	
→	1. **Landlord** wants to remove a **Tenant** and enters the **System**
	2. **Landlord** identification : Include Login (UC-8)
←	3. **System** (a) display the options of activities available to the **Landlord** (including "Remove User", and (b) prompts the **Landlord** to make selection
←	4. **Landlord** selects the user to remove
→	5. **System** (a) stores the new data on a persistent storage, and (b) signals completion

3. Write the acceptance tests of UC-1 and UC-4

Test-case Identifier:	TC-1
Use Case Tested:	UC-1, main success scenario, and UC-7
Pass/fail Criteria:	• The test passes if the user enters a key that is contained in the database, any key that is not contained will NOT open the door, times of attempts not exceed a predetermined limit value, the user will be blocked if he tried too many times.
	• If any statement above is not met , then the test fails.
Input Data:	Numeric keycode, door identifier

Test Procedure:	Expected Result:
Step 1. Type in the correct keycode and door identifier	• System flashes a green light to indicate success; records successful access in the database; disarms the lock device.
Step 2. Type in an incorrect keycode and door identifier	• System beeps to indicate failure; records unsuccessful attempt in the database; prompts the user to try again.
Step 3. Type in the incorrect keycode for too many times	• System beeps to indicate failure; records offensive access record in the database; block the user.

Test-case Identifier:	TC-4	
Use Case Tested:	UC-4, main success scenario, and UC-8	
Pass/fail Criteria:	• The test passes if: The landlord logins correctly, and successfully retires an existed tenant. After that, the target tenant should no longer be able to unlock the lock. • If the retired user could still unlock a lock, the test fails.	
Input Data:	System login info, target tenant	
Test Procedure:		Expected Result:
Step 1. Landlord is successfully identified		• The System indicates success and record the access, showing the user panel to the landlord.
Step 2. Try to retire an existed user		• The target user will no longer be able to unlock, and get deleted in DB.
Step 3. Try to retire a not existed user		• The System will prompt landlord the user is not existed
Step 4. Type in the incorrect login info once		• The System indicates fail and record the access.