Course Assignment (Mini Project I-1)

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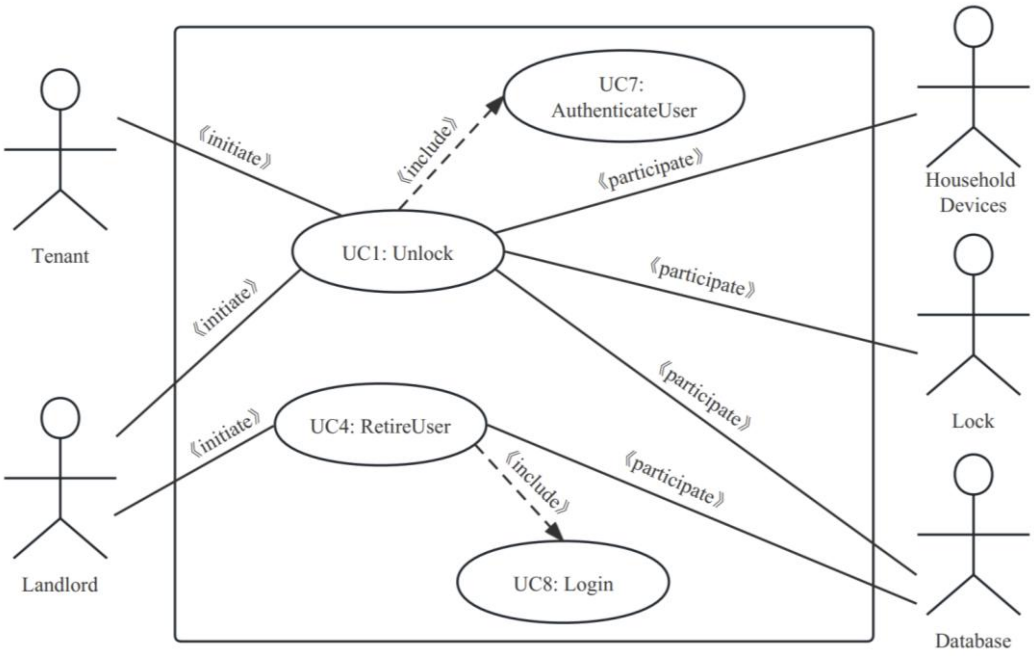
1) Draw use case diagram for UC-1 (Unlock) and UC-4 (RetireUser)



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

Use Case UC-1: Unlock	
Related Requirem'ts:	REQ1, REQ2, REQ3, REQ4 and REQ5 stated in the table of REQs*
Initiating Actor:	Any of: Tenant, Landlord
Actor's Goal:	To disarm the lock and enter, and get space lighted up automatically. The door will be locked after unlocking in few minutes.
Participating Actors:	Lock, Household Devices, Database
Preconditions:	• The set of valid keys stored in the system database is non-empty. • The system displays the menu of available functions; at the door keypad 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 Events for Main Success Scenario:	
→	1. **Tenant/Landlord** arrives at the door and selects the menu item "Unlock" 2. include::AuthenticateUser (UC-7)
←	3. **System** authenticates the **Tenant/Landlord**'s verification. If it's valid, signal the **Lock** to be disarmed, and open the **Household Devices**. Otherwise, notify the failure information. Moreover, if the user tried too many times, ban him.
←	4. **System** signals to the **Timer** to start the auto-lock timer countdown.
→	5. **Tenant/Landlord** opens the door, enters [and shuts the door and locks].

*The table of REQs is recognized as page 3 in file *lab_3 User cases.pdf*.

Use Case UC-4: RetireUser		
Related Requirem'ts:	REQ2, REQ3 stated in the table of REQs*	
Initiating Actor:	Landlord	
Actor's Goal:	Retire a user's access authentication. For example, if a tenant's contract is expired, his access should be revoked.	
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:	• Target user's access vanished.	
Flow of Events for Main Success Scenario:		
→	1. The **Landlord** wants to revoke a **Tenant**'s access, enters the **System**.	
←	2. The **System** requires login to make sure it is the **Landlord** own.	
←	3. If the **Landlord** logins correctly, **System** will revoke the target **Tenant**'s access. Otherwise, **System** will require another valid login.	
→	4. The **Landlord** ensures the target **Tenant**'s access is revoked and gets satisfied.	

*The table of REQs is recognized as page 3 in file *lab_3 User cases.pdf*.

3) Write the acceptance tests for 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, with less than a maximum allowed number of unsuccessful attempts, and any key that is not contained will NOT open the door, and the user will be blocked if he tried too many times. • If any statement above is broken, then the test fails.
Input Data:	Password, door identifier

Test Procedure:	**Expected Result:**
Step 1. Type in the correct keycode and door identifier Step 2. Type in an incorrect keycode and door identifier Step 3. Type in many incorrect keycodes and door identifiers	• System indicates success; records successful access in the database; disarms the lock device. • System beeps to indicate failure; records unsuccessful attempt in the database; prompts the user to try again. • 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 needs to login correctly, and then try to retire an existed tenant. After that, the target tenant will no longer be able to unlock the lock. • This is a strict serial process. If the user could login the System with wrong info, or the user retired could still unlock a lock, the test fails.
Input Data:	System login info, target tenant

Test Procedure:	**Expected Result:**
Step 1. Type in the correct login info to enter the System Step 2. Try to retire an existed user Step 3. Try to retire a not existed user Step 4. Type in the incorrect login info once	• The System indicates success and record the access, showing the user panel to the landlord. • The target user will no longer be able to unlock, and get deleted in DB. • The System will tell landlord it's not existed • The System indicates fail and record the access.