Part I

1. Roles
   - Customer
     - Unauthorized customer
     - Authorized customer
   - Employee
     - Trainee
     - Senior
     - Manager

   *Part-time will have access role as Trainee

2. Services (Facilities)

I would like to partition zones for ease of access assigning
   - Common facilities
     - Bathroom
     - Coffee service area
   - Authorized customer facilities
     - Table and Chairs
   - Unauthorized customer facilities
     - waiting chair
     - Front door
   - Common employee facilities
     - Coffee service area (where staffs serve customer drinks)
     - Coffee making tools
     - Cashier + POS device
   - Delicate employee facilities
     - Store room
     - Admin PC (monitor ERP, stock)

3. access resource
   - Customer: every customer enter coffee shop are Unauthorized customer until register with **CU student card** or **entering registration form**. After the registration customer will become Authorized customer by getting authorized by using face recognition system for Chula member type or authorized by using **face recognition** + entrance fee charging for Non-Chula member type. *I assume coffee member type is separate from high-level security policy
   - Employee: every people occupying valid **(RFID) Employee badge** are Trainee, Senior, Manager depend on **Employee badge type**.

4. ACL

   Use ACL by
   - for customer side: putting poster/sign to identify which facilities are only for Authorized customer.
   - for employee side: Put color-coded sign to identify accessibility for each employee type on facilities + on IT device require RFID on employee badge to authorize.

Role/facility group	Common facilities	Authorized customer facilities	Unauthorized customer facilities	Common employee facilities	Delicate employee facilities
Customer					
Unauthorized customer	-	-	U	-	-
Authorized customer	U	U	-	-	-
Employee					
Trainee	U/M	M	M	U	-
Senior	U/M	M	M	U/M	U
Manager	U/M	M	M	U/M	U/M
U = use					
M = maintanance/edit config					

Part II

1. Roles(User)
   - Academic
     - Student [S]
     - Graduated Student [S]
     - Instructor in charge of course [C]
     - Advisor in charge of student [S]
   - Moderator
     - Registration staff of faculty [F]
     - Main Registration staff

   *[] is variable

2. Objects
   - Course [C] for faculty [F]
   - Request enroll entry on course [C]
   - Enroll entry on course [C]
   - Request withdraw/cancel entry on course [C]
   - Withdraw/cancel entry on course [C]
   - Grade for student [S] in course [C]
   - Academic Account
   - GPAX/GPA report of student [S]

3. Functions
   - C/R/U/D for each objects

4.

Role/object	Course [C] for faculty [F]				Request enroll entry on course [C] in faculty [F] for student [S]				Enroll entry on course [C] in faculty [F] for student [S]				Request withdraw/cancel entry on course [C] in faculty [F] for student [S]				Withdraw/cancel entry on course [C] in faculty [F] for student [S]			
	C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D	C	R	U	D
Academic																				
Student [s] in faculty [f] in course [c]	-	any	-	-	F=f	S=s	-	S=s	-	S=s	-	-	F=f	S=s	-	S=s	-	S=s	-	-
Graduated Student [s]	-	any	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Instructor [c]	-	C=c	C=c	-	-	C=c	-	-	-	C=c	-	-	-	C=c	-	-	-	C=c	-	-
Advisor [s]	-	any	-	-	-	-	-	-	-	S=s	-	-	-	-	-	-	-	S=s	-	-
Moderator																				
Registration Staff [f]	F=f	F=f	-	F=f	-	F=f	-	-	F=f	F=f	-	F=f	F=f	F=f	-	F=f	-	F=f	-	-
Main Registration Staff	any	any	-	any	any	any	-	any	any	any	-	any	any	any	-	any	any	any	-	any

Role/object	Grade for student [S] in course [C] in faculty [F]				Academic Account		GPAX/GPA report of student [S]			
	C	R	U	D	C	D	C	R	U	D
Academic										
Student [s] in faculty [f] in course [c]	-	-	-	-	-	-	-	S=s	-	-
Graduated Student [s]	-	-	-	-	-	-	-	S=s	-	-
Instructor [c]	C=c	C=c	-	-	-	-	-	-	-	-
Advisor [s]	-	-	-	-	-	-	-	S=s	-	-
Moderator										
Registration Staff [f]	-	F=f	F=f	-	-	-	F=f	any	F=f	-
Main Registration Staff	any	any	-	any	any	any	any	any	-	any