Ministry of Education
University of Jeddah
Collage of Computer Science and Engineering

CCSW 437 – Software Design and Architecture (Fall 2022)

Final Project

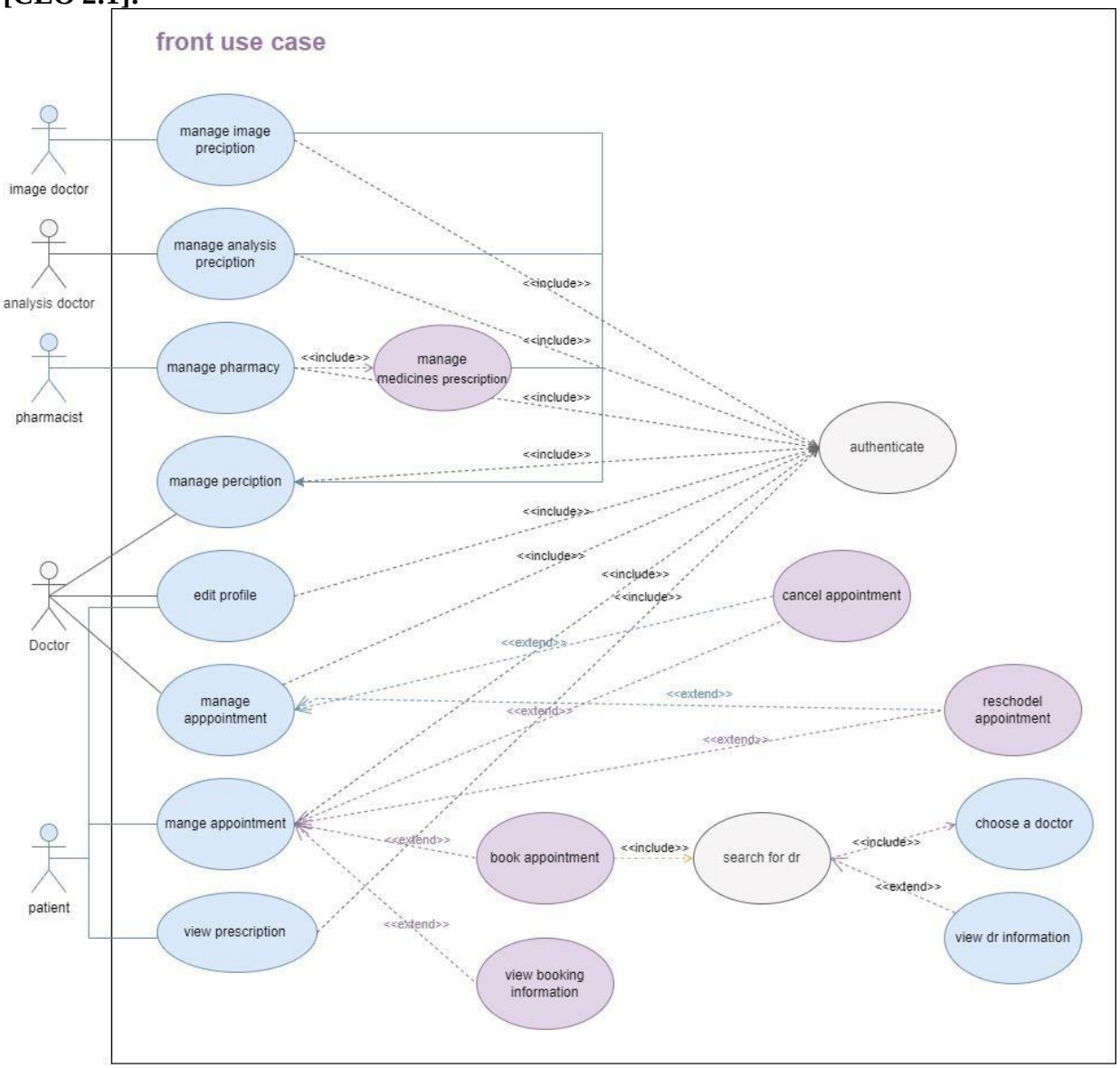
Project Definition:

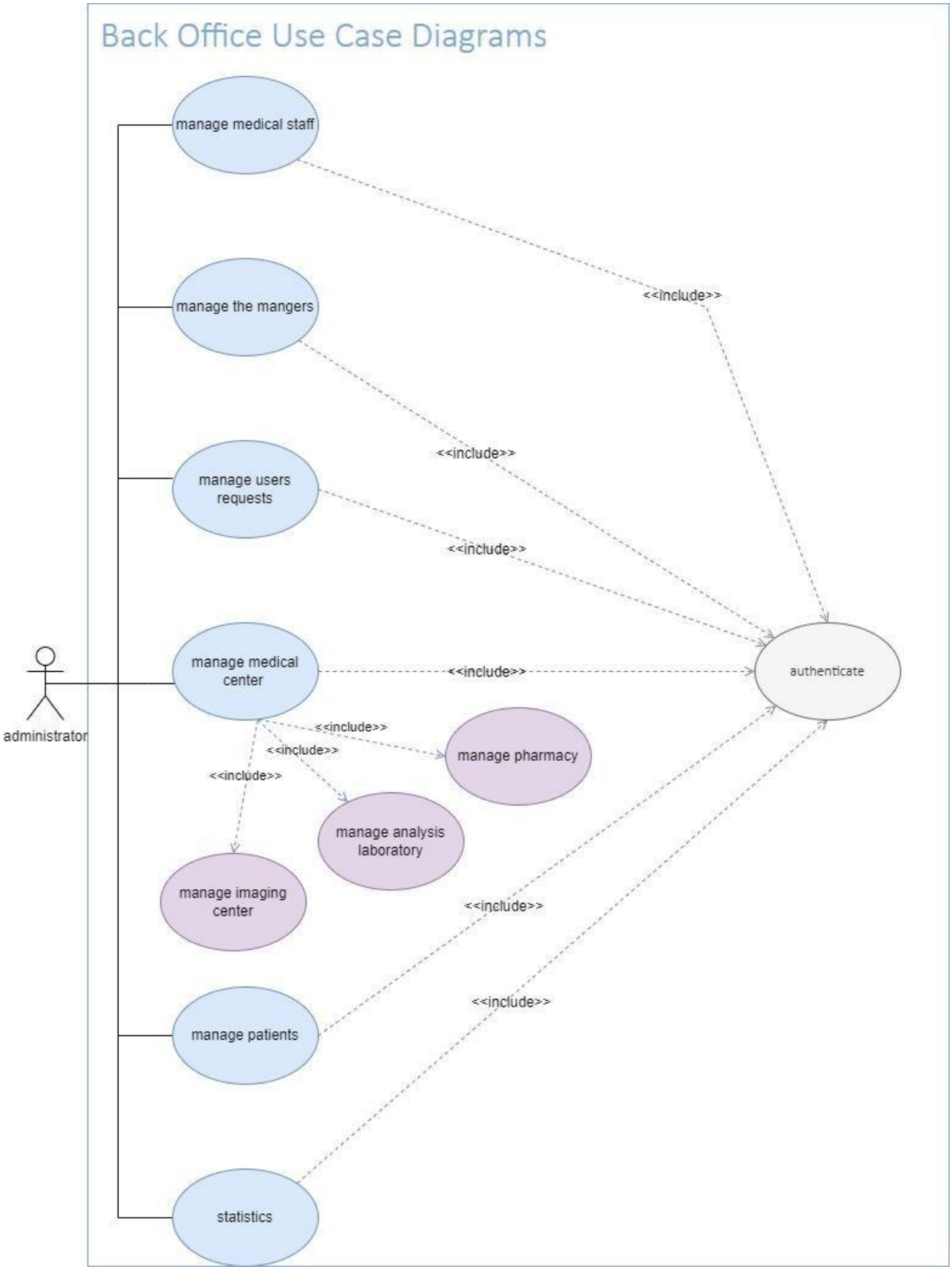
The Ministry of Education wants to improve the efficiency of the management of Medical centers. The ministry will provide all the needed informations. The web application will have two parts; One for the Administrator (Back Office) and another for all the other End-Users (Front Office).

1- Propose a suitable Software Architecture for this application. **[CLO 2.2]:**

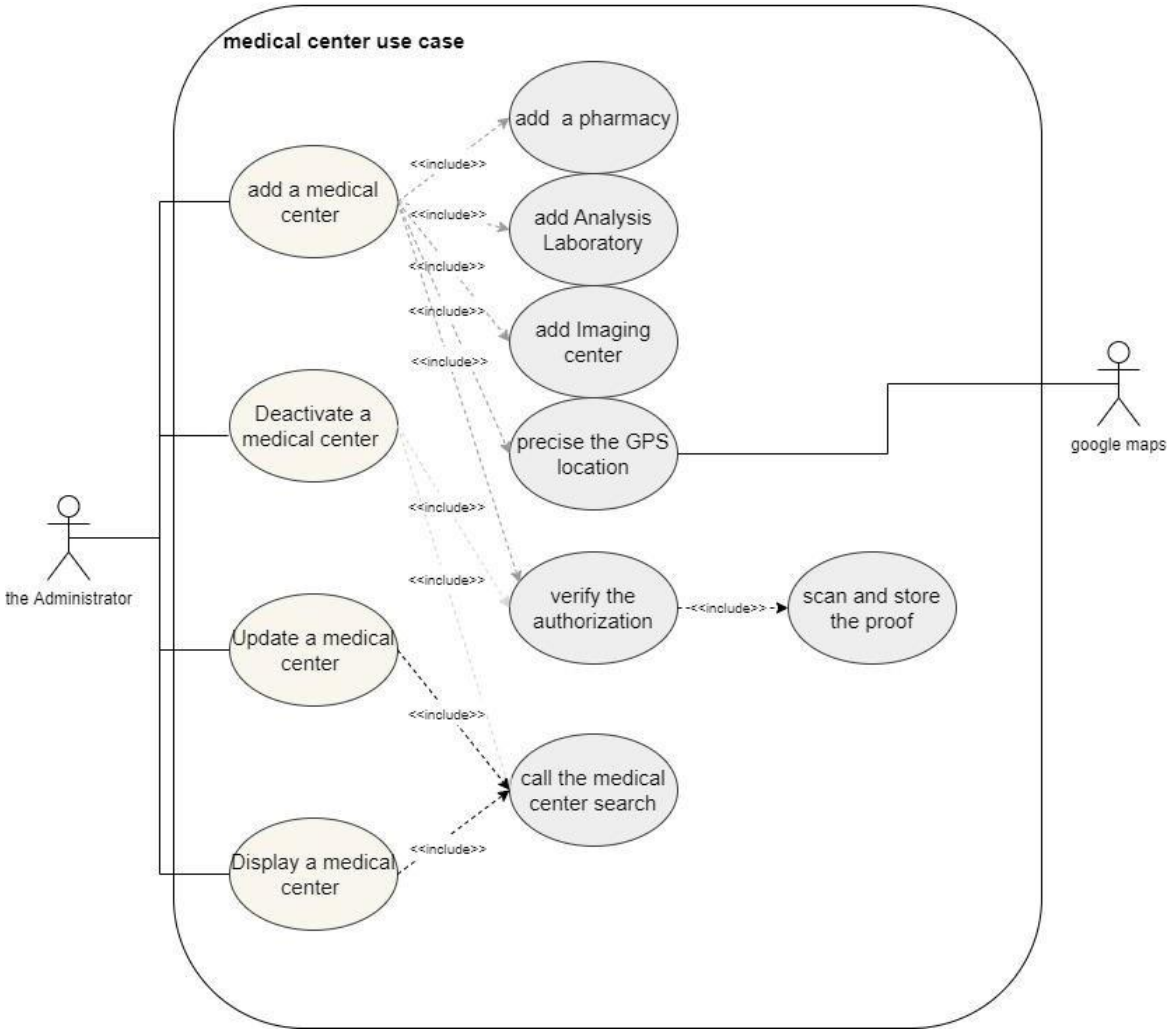
The best and most appropriate software structure for this application is the **multi-layer structure** because it helps and facilitates the partition of the system, especially if the system is large and complex and you need to divide it into several sections and you have several layers as our system for example UI, client, user and employee and also in terms of splitting it into front and back office For managers, patients, medical staff, etc., and you can easily modify and change

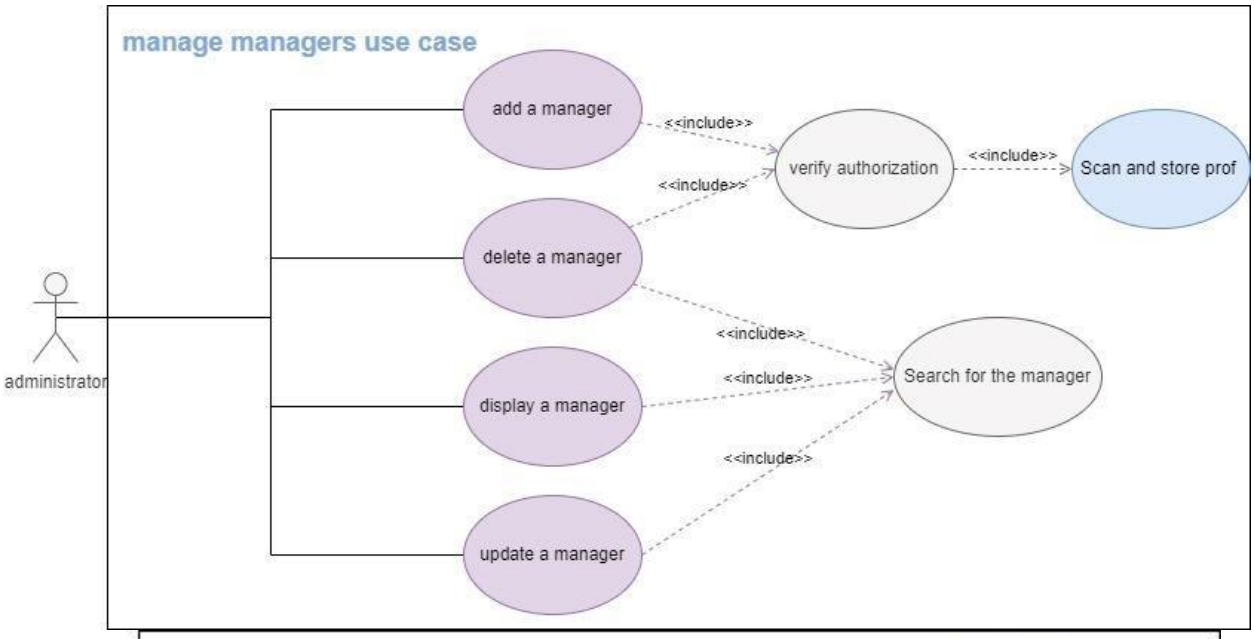
2- Design the Global use case diagrams for the Front-Office part and the Back-Office part. **[CLO 2.1]:**

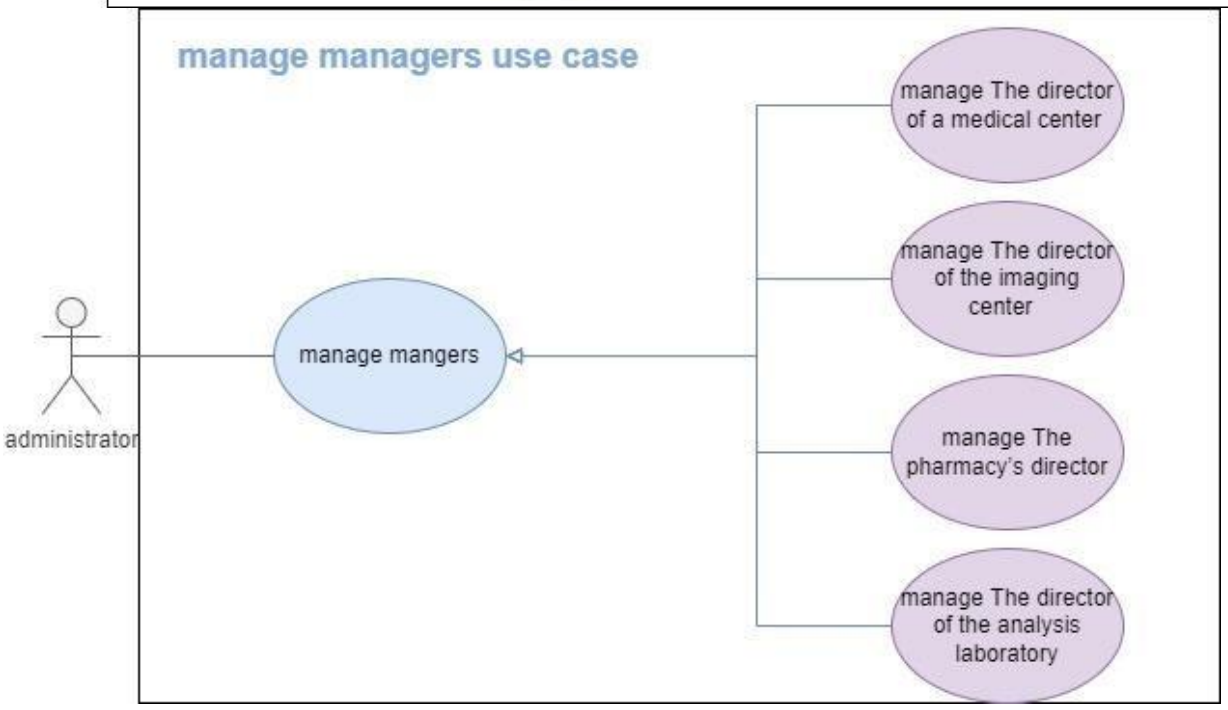


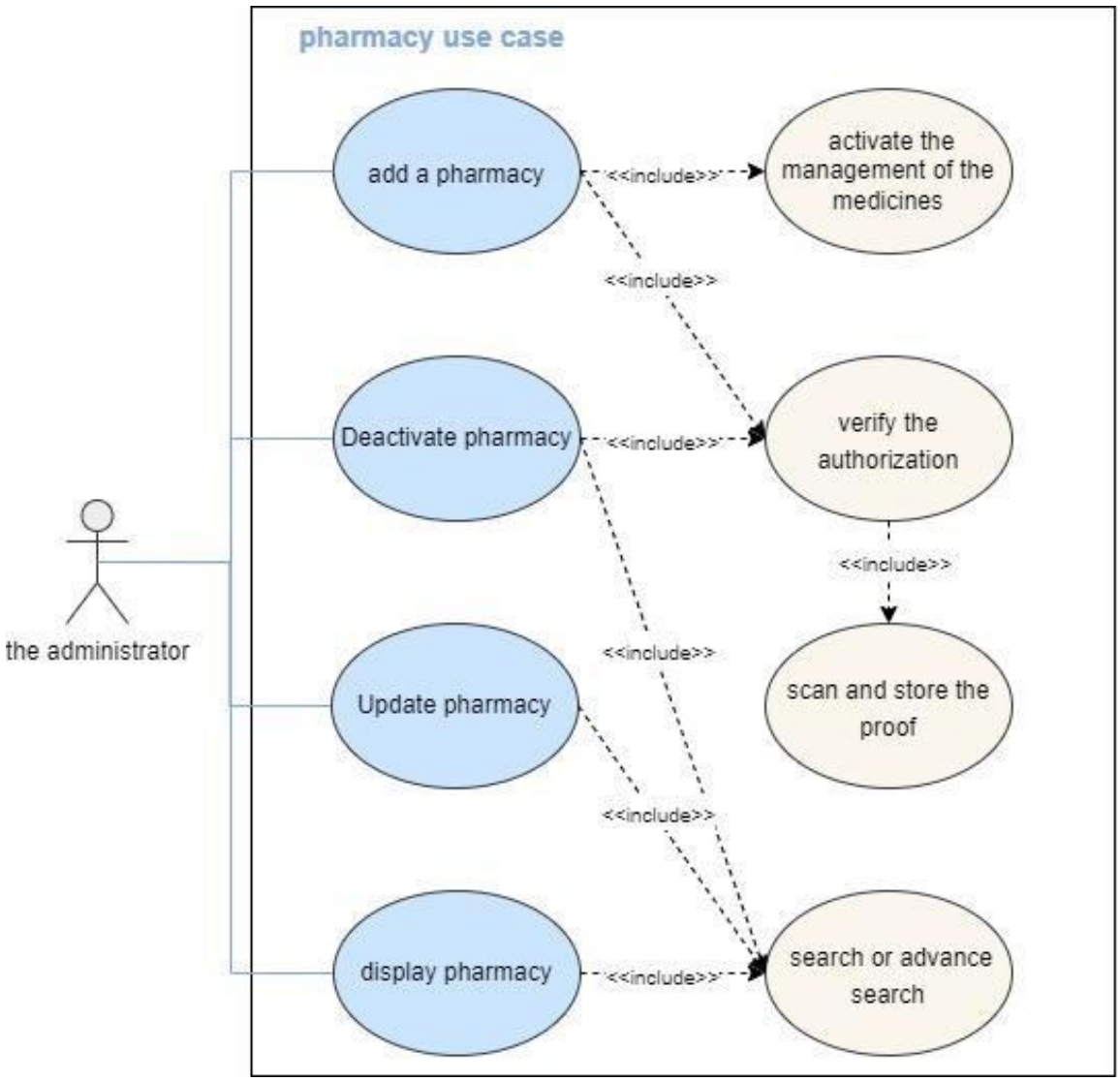

Back Office Use Case Diagrams
manage medical staff
manage the mangers
manage users requests
manage medical center
manage pharmacy
manage analysis laboratory
manage imaging center
manage patients
statistics
authenticate
administrator
<<include>>
<<include>>
<<include>>
<<include>>
<<include>>
<<include>>
<<include>>
<<include>>
<<include>>

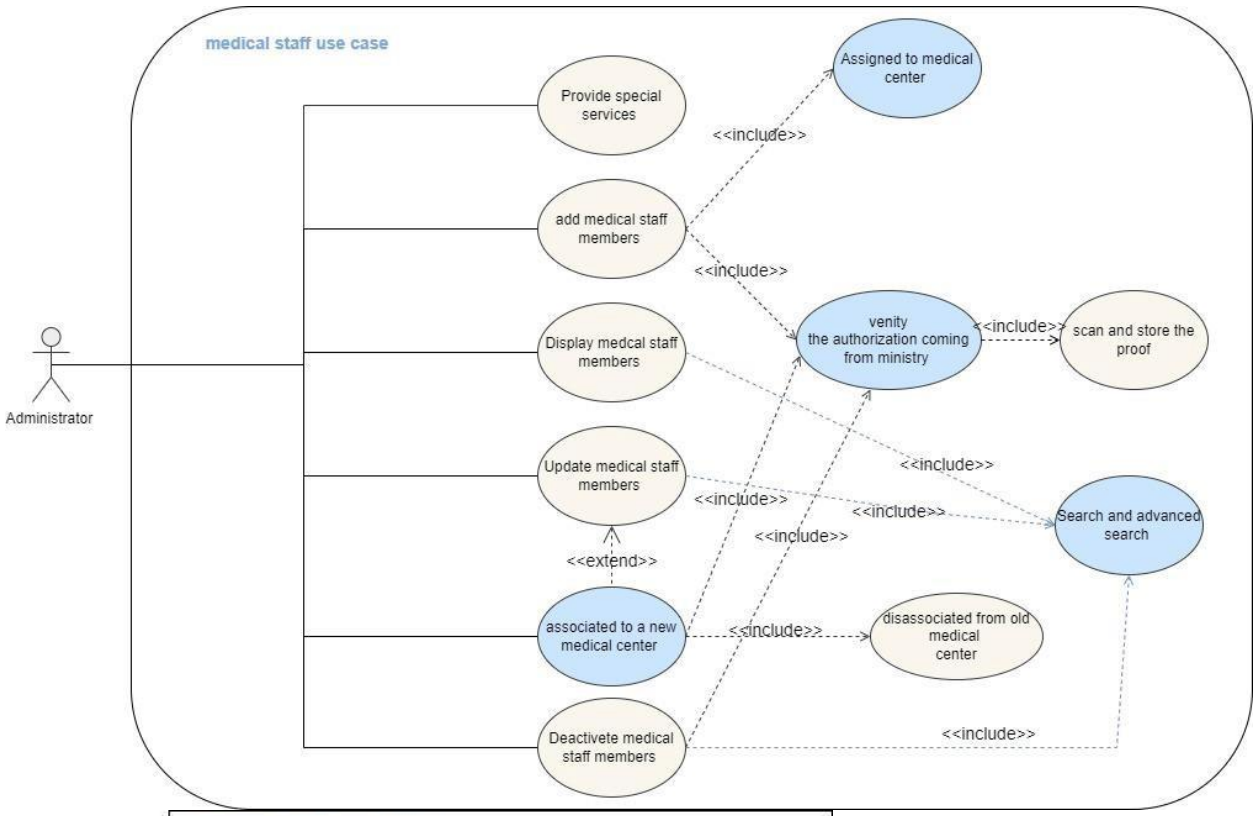
3- Design all the detailed use case diagrams of the Back-Office Part. **[CLO 2.1]:**

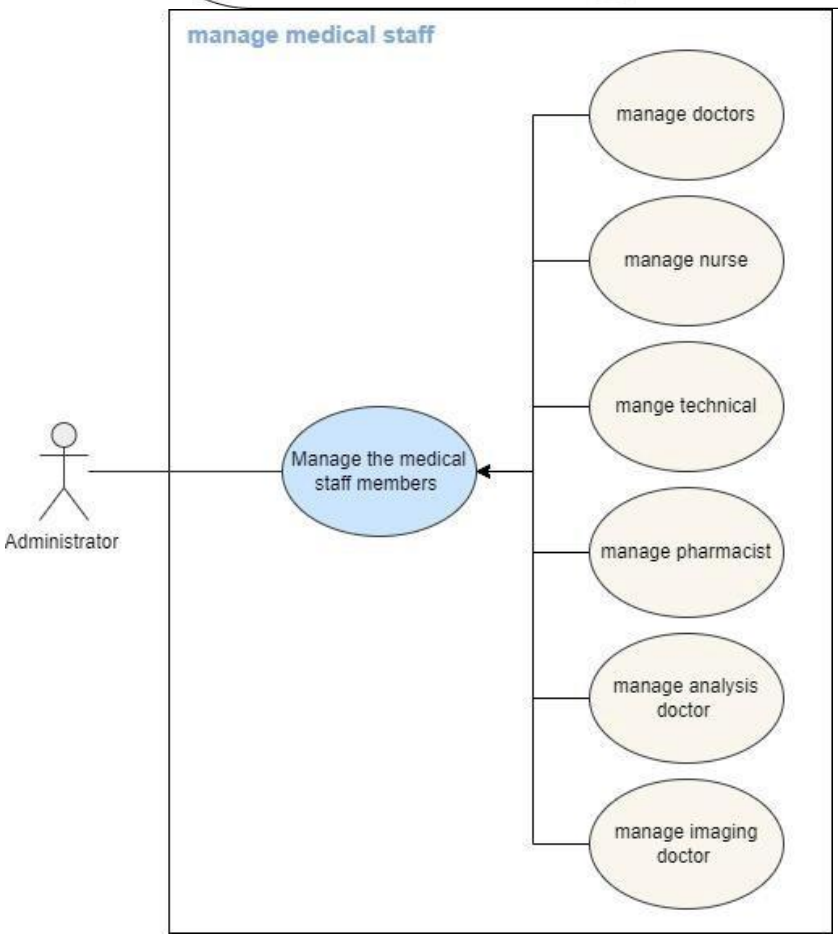


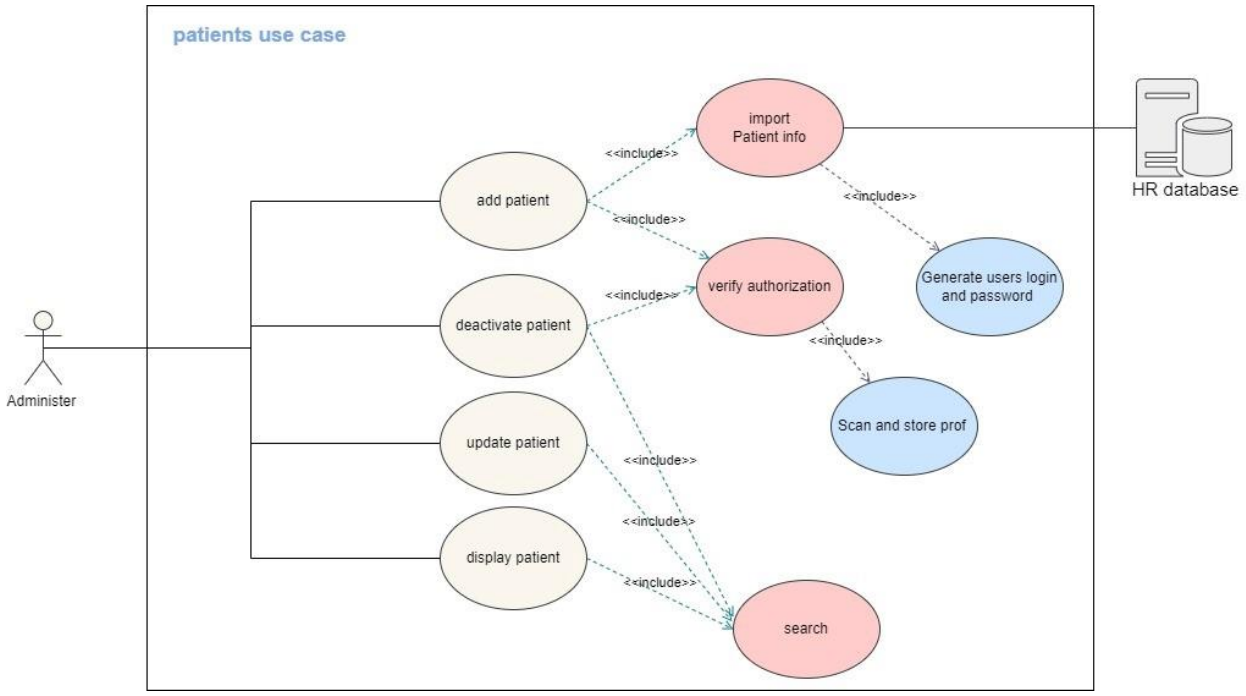

manage managers use case
add a manager
delete a manager
display a manager
update a manager
verify authorization
Scan and store prof
Search for the manager
<<include>>
<<include>>
<<include>>
<<include>>
<<include>>
<<include>>
administrator

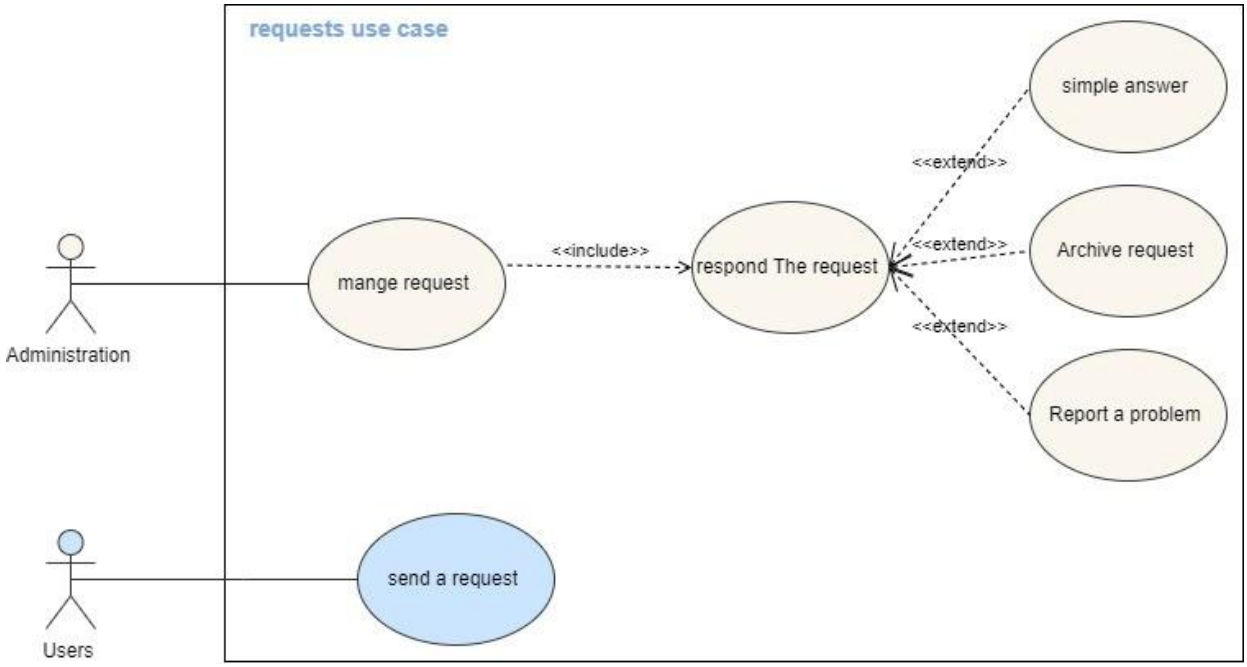

manage managers use case
manage mangers
manage The director of a medical center
manage The director of the imaging center
manage The pharmacy's director
manage The director of the analysis laboratory
administrator

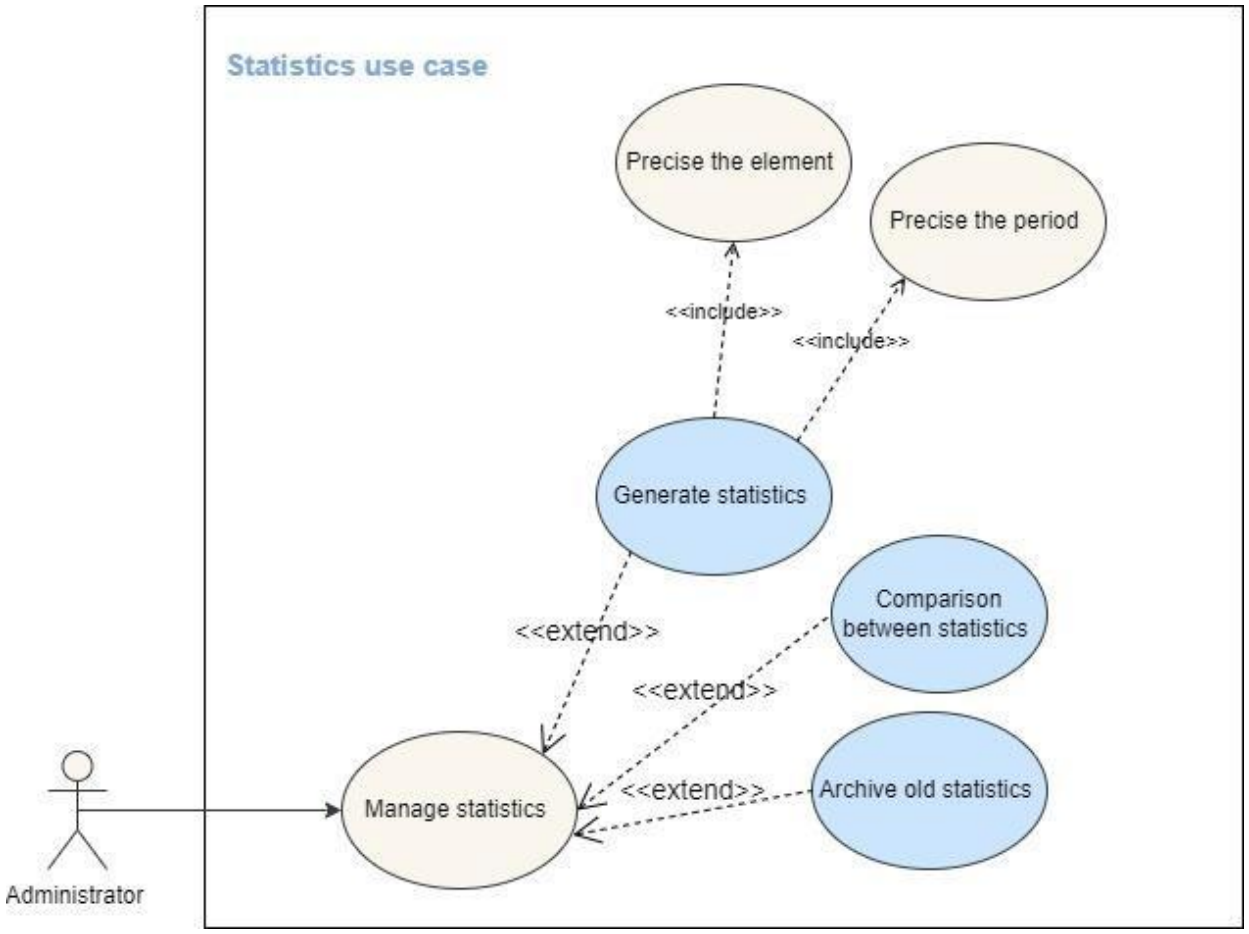

pharmacy use case
add a pharmacy
activate the management of the medicines
<<include>>
<<include>>
Deactivate pharmacy
verify the authorization
<<include>>
<<include>>
the administrator
Update pharmacy
scan and store the proof
<<include>>
<<include>>
display pharmacy
search or advance search
<<include>>


medical staff use case
Provide special services
Assigned to medical center
<<include>>
add medical staff members
<<include>>
Display medcal staff members
venity the authorization coming from ministry
<<include>>
scan and store the proof
Administrator
Update medical staff members
<<include>>
<<include>>
<<include>>
Search and advanced search
<<extend>>
associated to a new medical center
<<include>>
disassociated from old medical center
Deactivete medical staff members
<<include>>

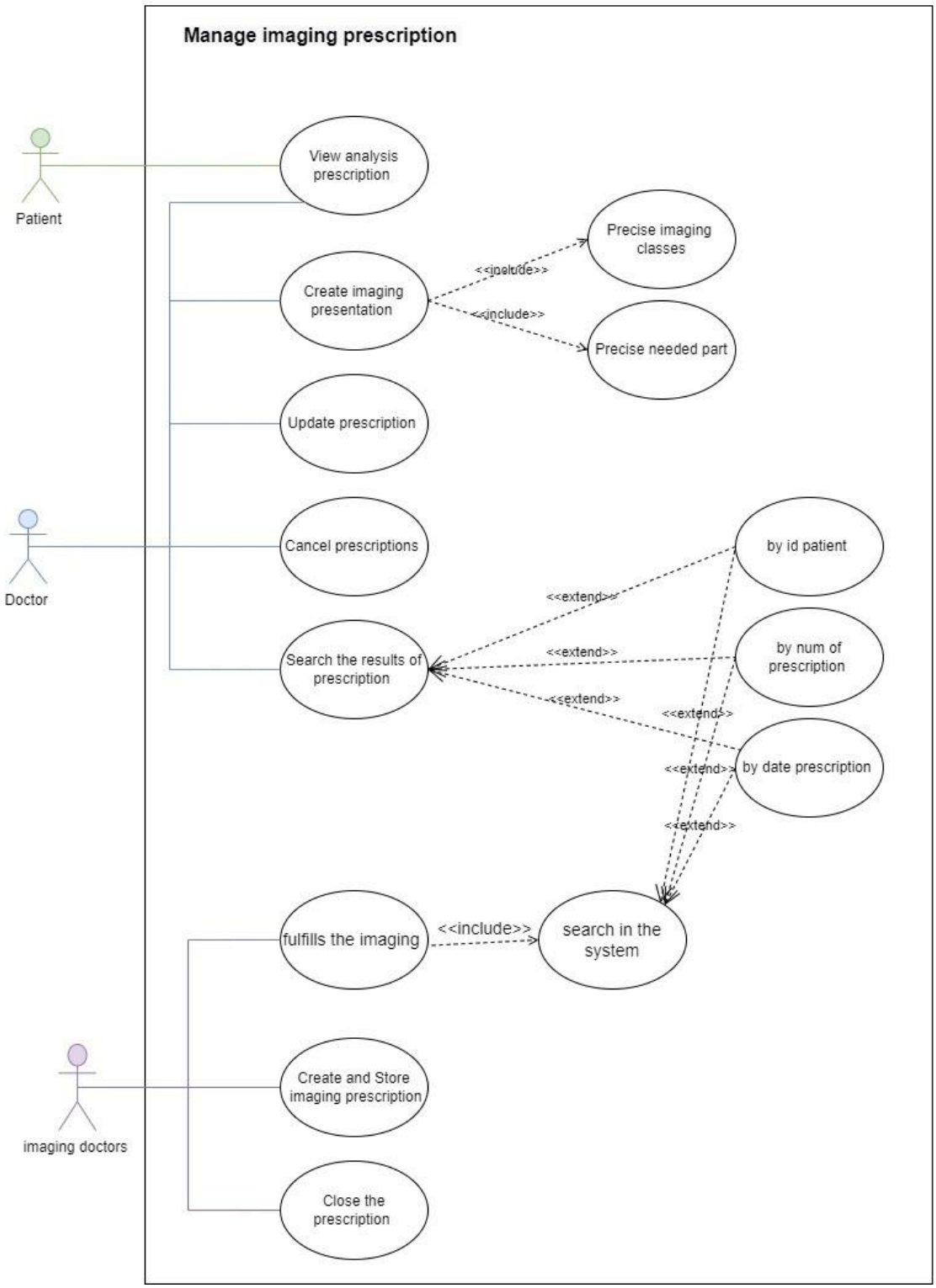

manage medical staff
manage doctors
manage nurse
mange technical
Manage the medical staff members
Administrator
manage pharmacist
manage analysis doctor
manage imaging doctor

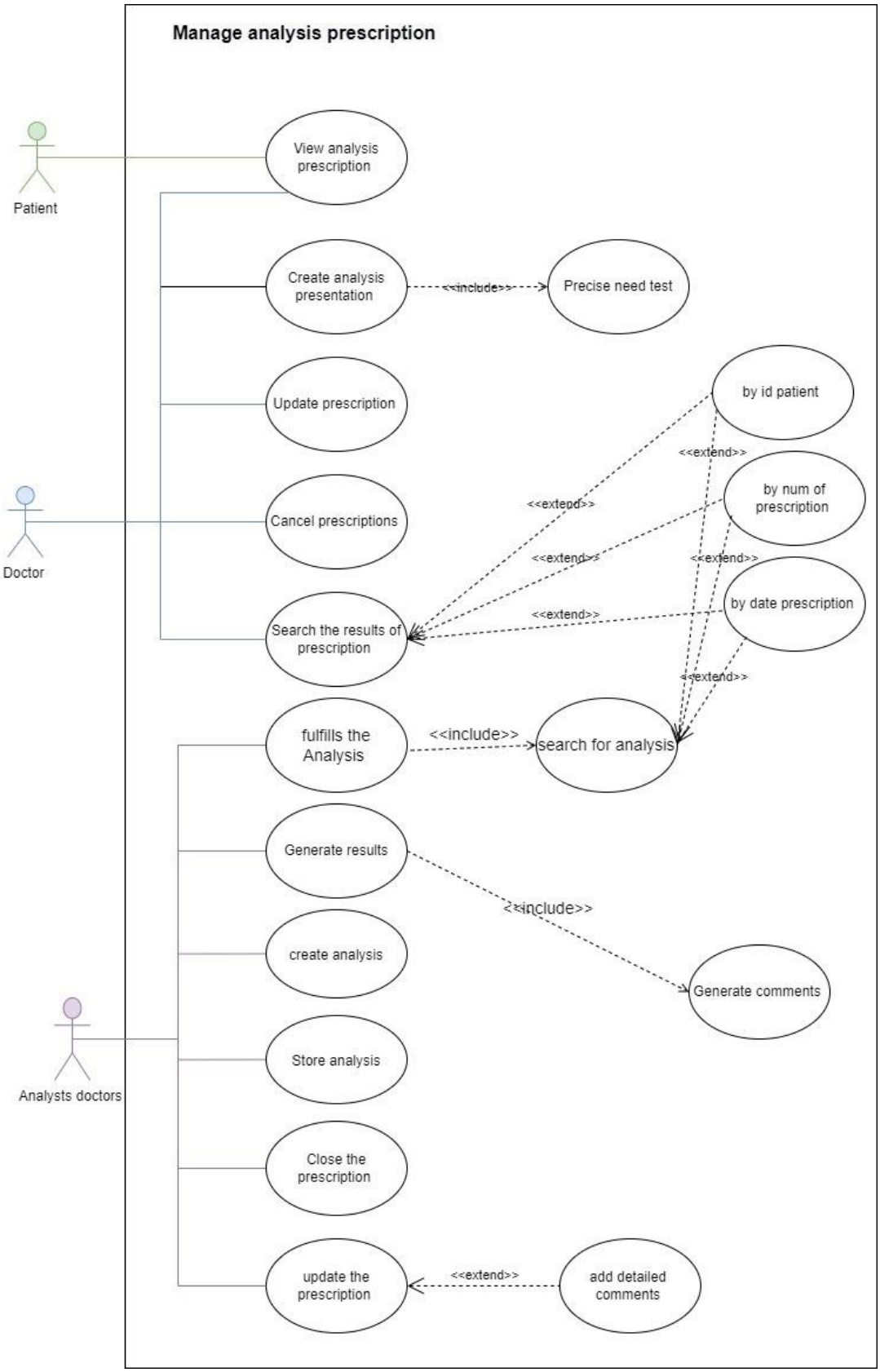

patients use case
import
Patient info
HR database
add patient
<<include>>
<<include>>
<<include>>
deactivate patient
verify authorization
Generate users login
and password
<<include>>
<<include>>
Administer
update patient
Scan and store prof
<<include>>
<<include>>
display patient
<<include>>
search

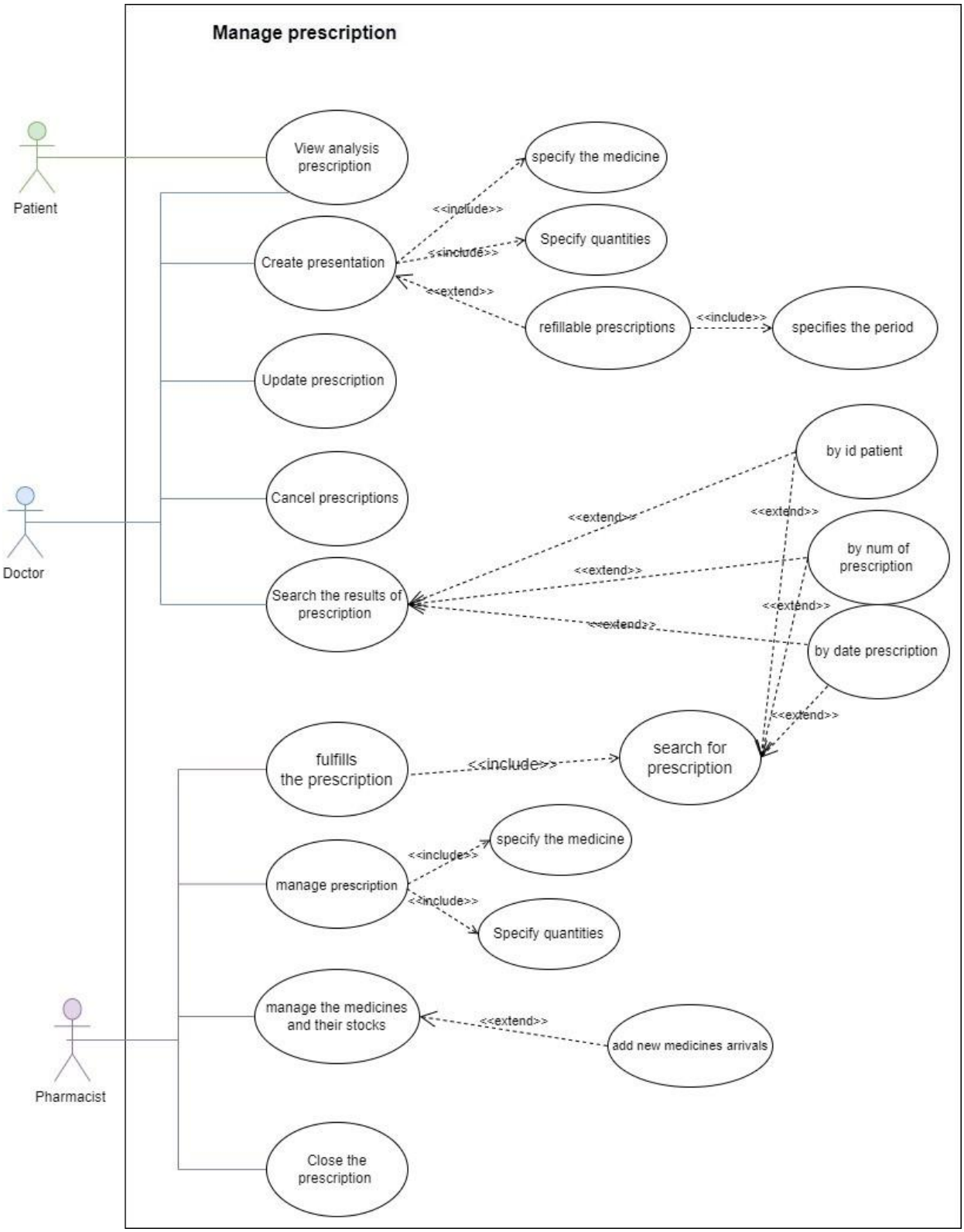

requests use case
simple answer
<<extend>>
<<include>>
mange request
respond The request
<<extend>>
Archive request
Administration
<<extend>>
Report a problem
send a request
Users


Statistics use case
Precise the element
Precise the period
<<include>>
<<include>>
Generate statistics
Comparison between statistics
<<extend>>
<<extend>>
<<extend>>
Manage statistics
Archive old statistics
Administrator

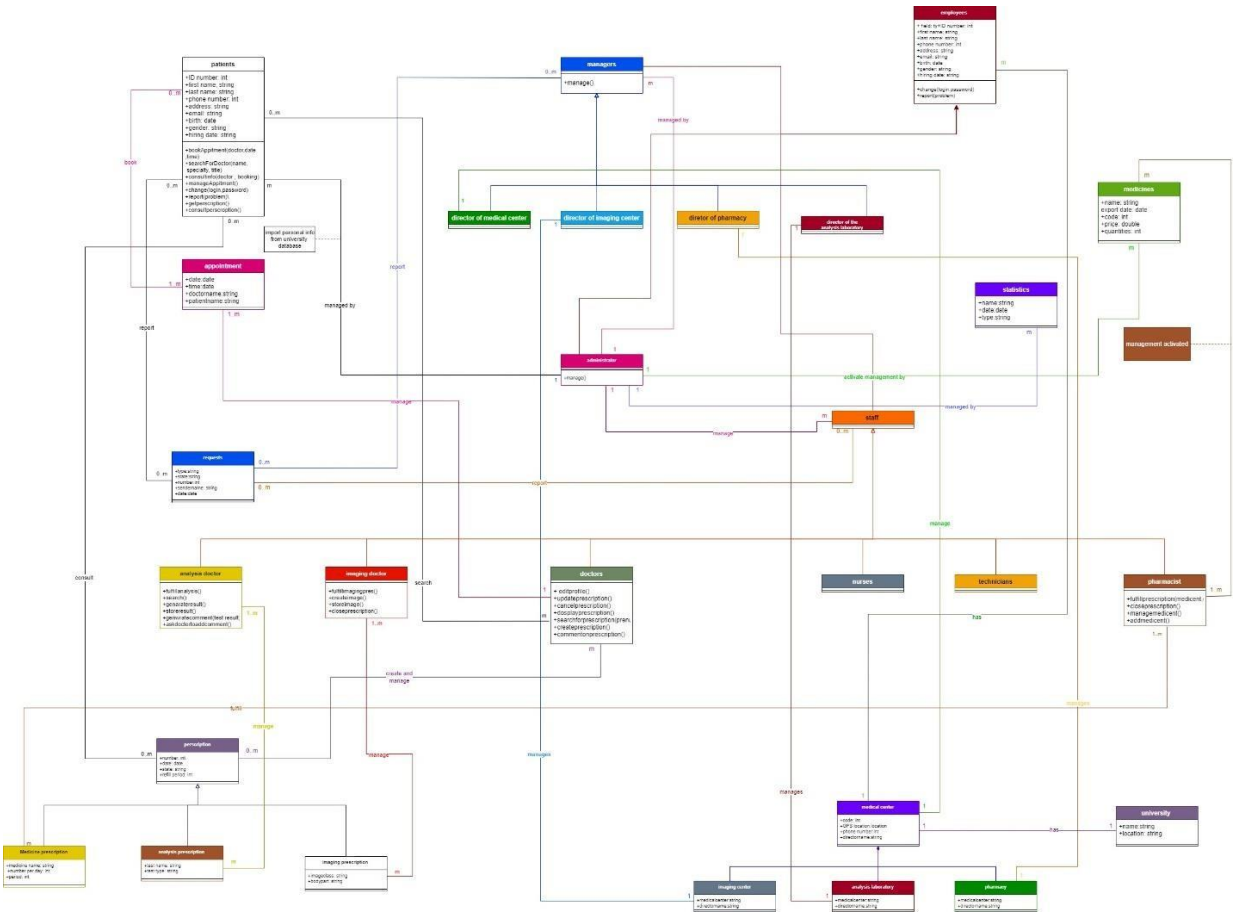
4- Design all the detailed use case diagrams of the Front-Office Part. **[CLO 2.1]:**



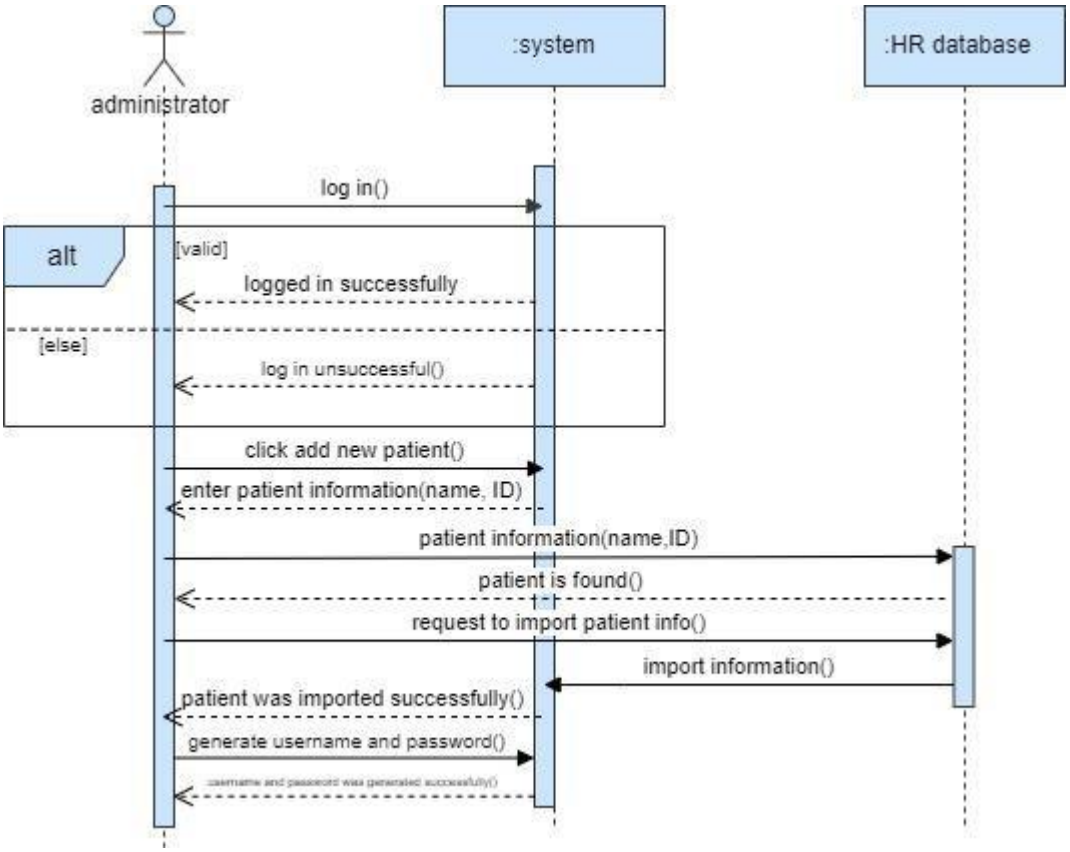

Manage analysis prescription
Patient
Doctor
Analysts doctors
View analysis prescription
Create analysis presentation
<<include>>
Precise need test
Update prescription
Cancel prescriptions
Search the results of prescription
by id patient
by num of prescription
by date prescription
<<extend>>
fulfills the Analysis
<<include>>
search for analysis
Generate results
<<include>>
Generate comments
create analysis
Store analysis
Close the prescription
update the prescription
<<extend>>
add detailed comments

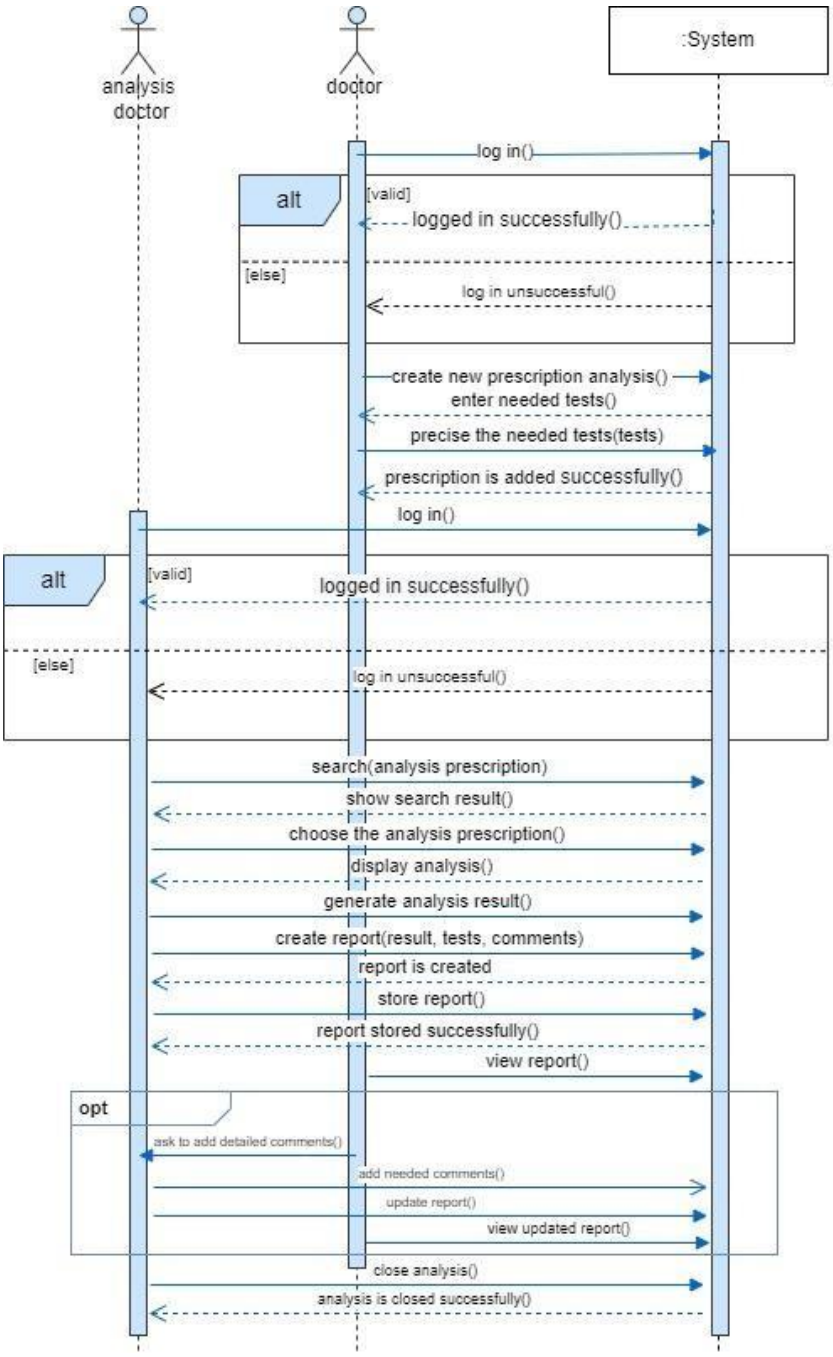

Manage prescription
Patient
Doctor
Pharmacist
View analysis prescription
Create presentation
Update prescription
Cancel prescriptions
Search the results of prescription
fulfills the prescription
manage prescription
manage the medicines and their stocks
Close the prescription
specify the medicine
Specify quantities
refillable prescriptions
specifies the period
by id patient
by num of prescription
by date prescription
search for prescription
add new medicines arrivals
<<include>>
<<extend>>

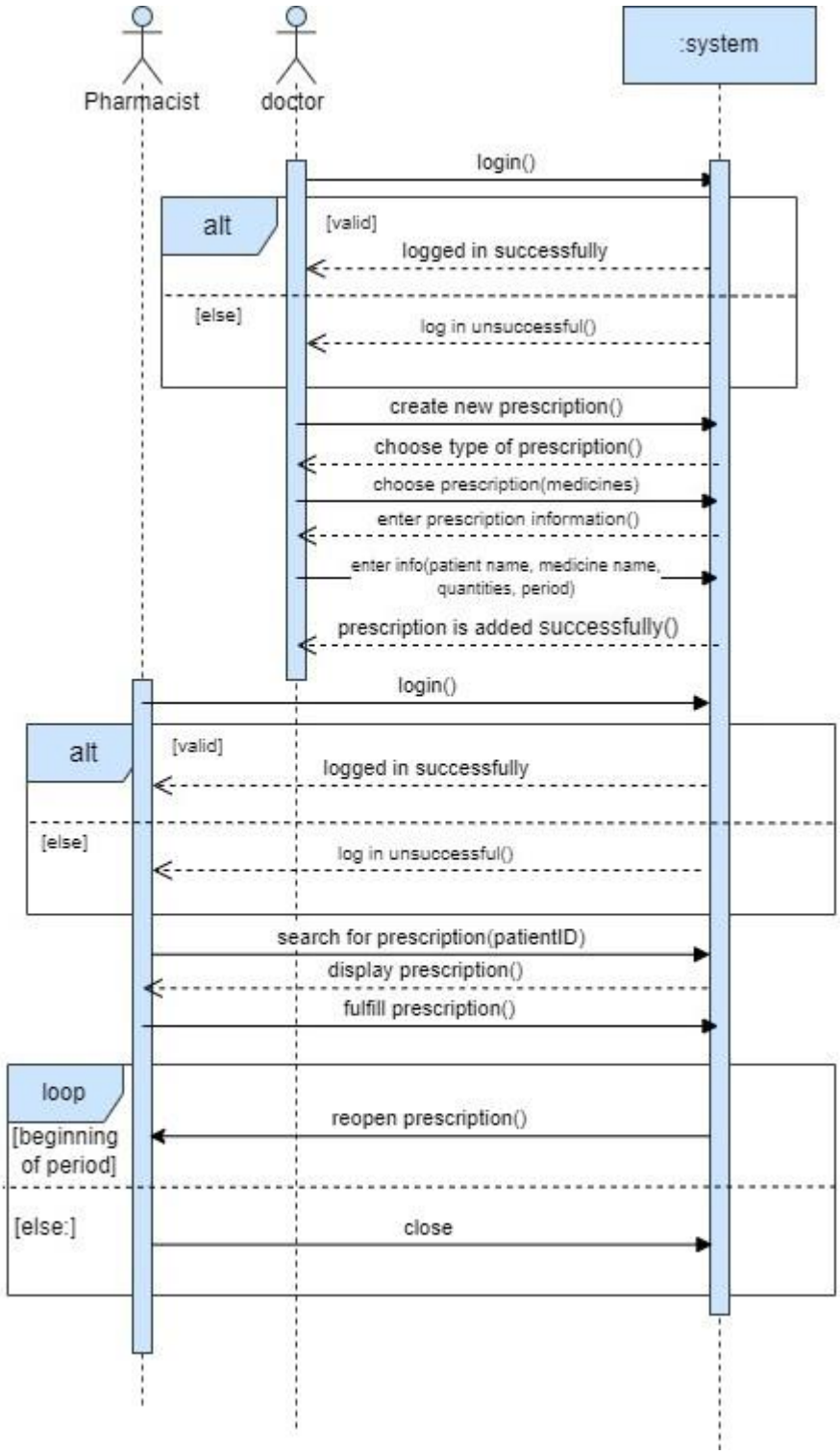
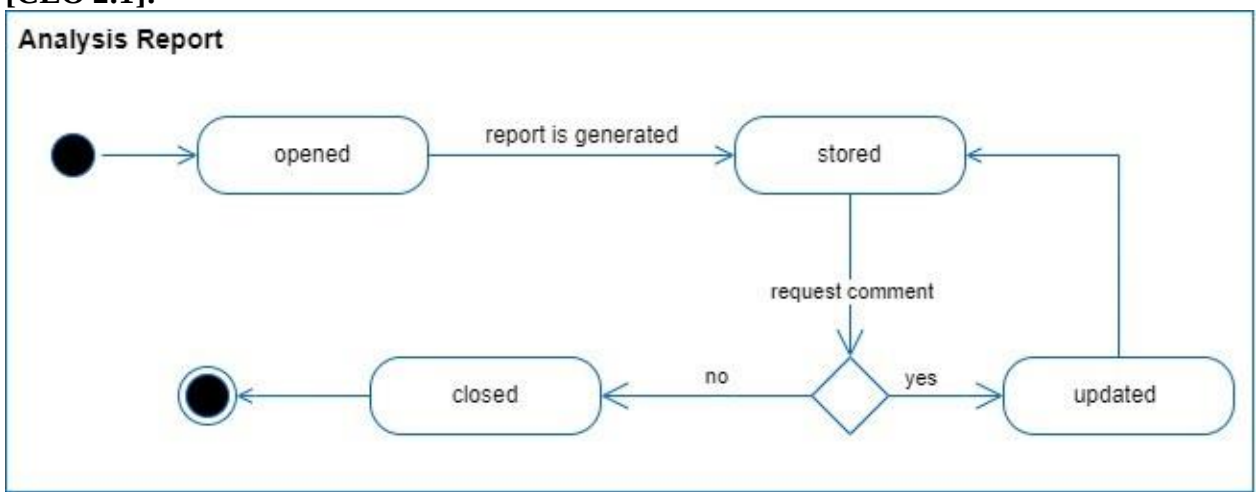
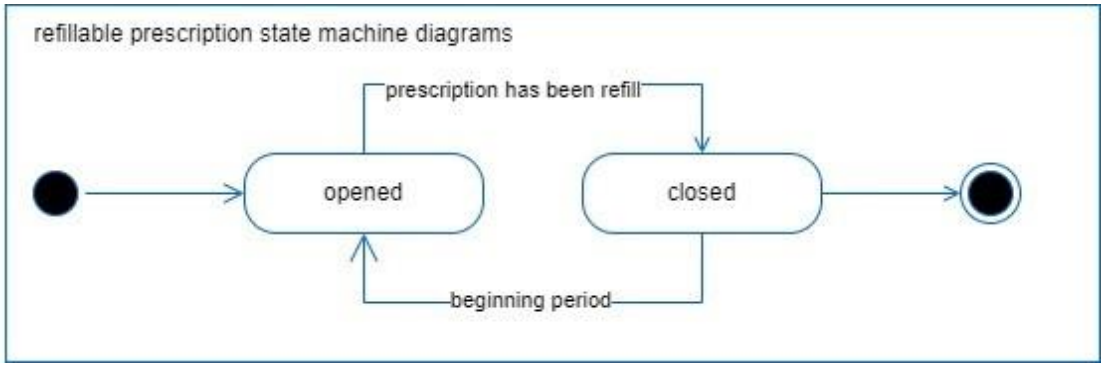
5- Design the class diagram. **[CLO 2.1]:**



6- Design the functional sequence diagrams of "Import personal informations of the patients", "create analysis prescription" and "create refillable prescription". **[CLO 2.1]:**




analysis doctor
doctor
:System
log in()
alt
[valid]
logged in successfully()
[else]
log in unsuccessful()
create new prescription analysis()
enter needed tests()
precise the needed tests(tests)
prescription is added successfully()
log in()
alt
[valid]
logged in successfully()
[else]
log in unsuccessful()
search(analysis prescription)
show search result()
choose the analysis prescription()
display analysis()
generate analysis result()
create report(result, tests, comments)
report is created
store report()
report stored successfully()
view report()
opt
ask to add detailed comments()
add needed comments()
update report()
view updated report()
close analysis()
analysis is closed successfully()


Pharmacist
doctor
:system
login()
alt
[valid]
logged in successfully
[else]
log in unsuccessful()
create new prescription()
choose type of prescription()
choose prescription(medicines)
enter prescription information()
enter info(patient name, medicine name, quantities, period)
prescription is added successfully()
login()
alt
[valid]
logged in successfully
[else]
log in unsuccessful()
search for prescription(patientID)
display prescription()
fulfill prescription()
loop
[beginning of period]
reopen prescription()
[else:]
close

7- Design the state machine diagrams of "Analysis Report" and "refillable prescription". **[CLO 2.1]:**