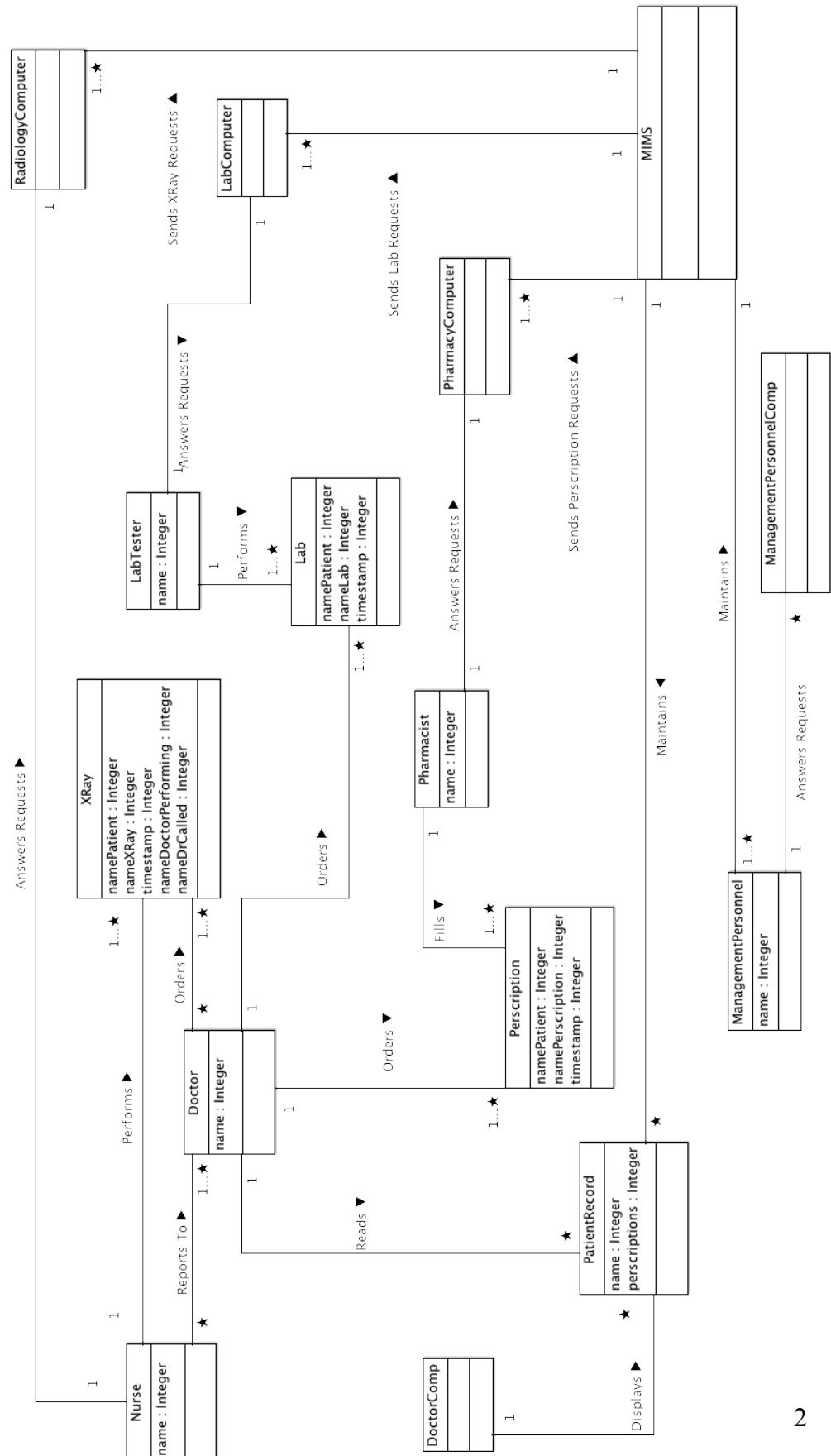


1) A one-page concept statement along with a conceptual domain model in terms of a UML class diagram that records the classes (problem domain concepts), relevant attributes, and associations.

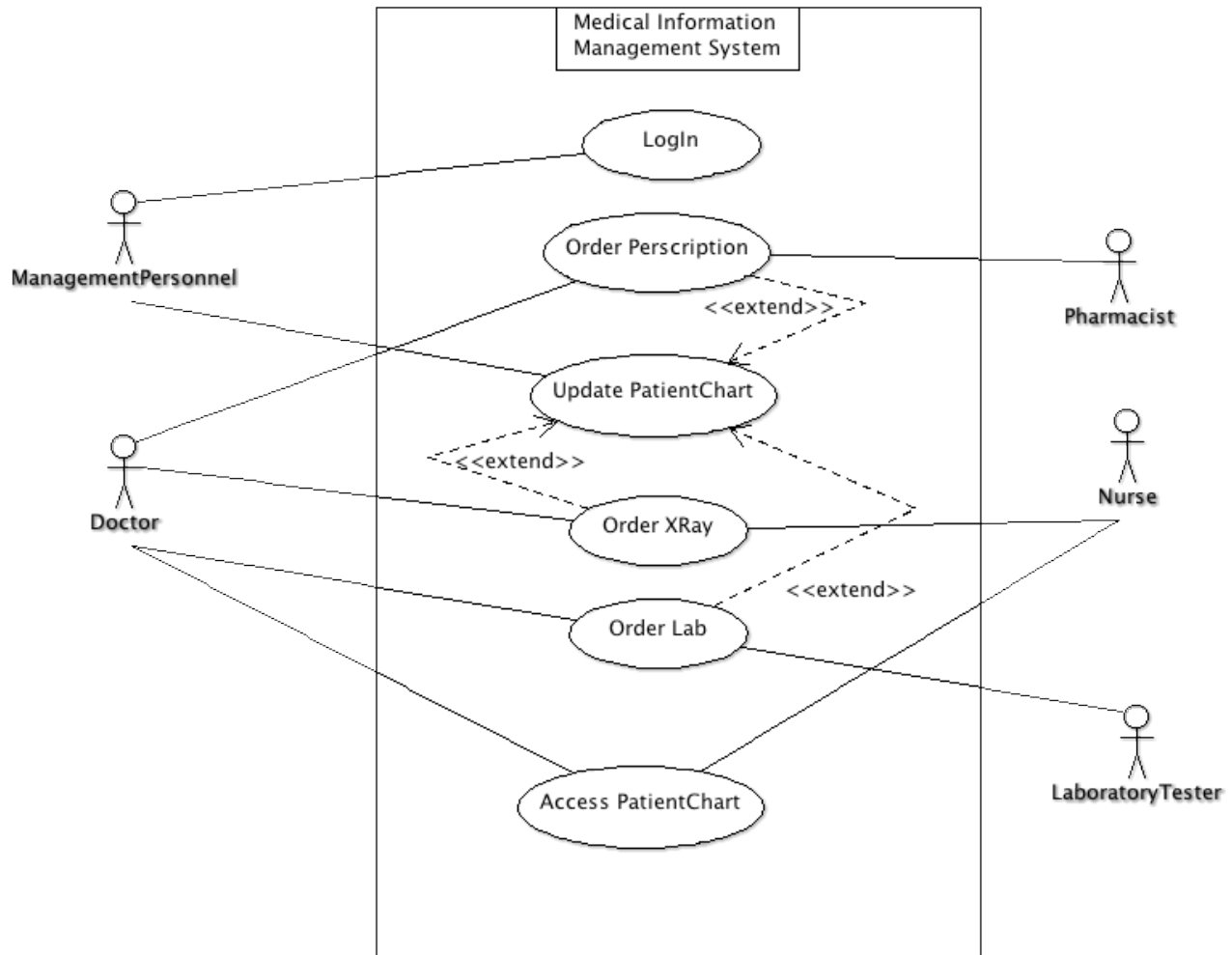
Design the software to support a medical information system. This medical information system will be database management system that provides the capabilities for doctors, nurses, laboratory testers, pharmacists and management personnel to access patient records and provide services. These services include ordering patients prescriptions, ordering different laboratory tests for patients, and ordering X Rays to be taken of patients. As soon as the requests are completed by the appropriate department, the system updates the patient's chart with the current prescription information, or the results of the ordered test(s). The system interacts with other ancillary computers in the network system across the nation. Each Doctor's Office, Hospital, and any other facility running the program will provide their own computers. Links are provided to existing computer systems, such as those used by the pharmacy, laboratory, and radiology departments. The medical staff communicates electronically with these systems from MIMS and views appropriate actions taken on their behalf. For example, prescriptions generated in MIMS are instantly time-stamped and routed to the pharmacy computer system for dispensing. When the order is processed, the pharmacy computer system routes the information back to MIMS and the patient's electronic chart is updated. In this manner, MIMS provides seamless communication between health care providers and ancillary service areas across the network system.

UML Class Diagram



2) A UML use-case diagram that depicts the boundary, actors, and 5 use cases for the system. You need to present the associations between the actors and the use cases, as well as (when applicable) the relations (i.e., includes, extends, uses) among the use-cases.

Use-Case Diagram



3) For each use-case develop a detailed text description in terms of sequence of actions that the system and actors perform to yield observable results of value to the actors involved in the use-case. Make sure that each section of the use-case is explicitly represented (i.e., name, list of participants, precondition, flow of events, postcondition).

Name:

Login

List of Participants:

ManagementPersonnel

MIMS

ManagementPersonnelComp

PreCondition:

ManagementPersonnel must be registered in the system.

ManagementPersonnel Comp must be connected to the system.

FlowOfEvents:

1) The ManagementPersonnelComp displays the login screen.

1) The management personnel is prompted for his username and password.

2) Management personnel enters his user name password into the system.

3) The MIMS checks that it is a valid combination.

4) If valid, the user is logged into the system.

[Otherwise, the ManagementPersonnelComp displays an invalid error message and re-prompts the ManagementPersonnel for his username and password.]

PostCondition:

The ManagementPersonnelComp displays the MIMS main menu.

Name:

Order Prescription

List of Participants:

Doctor

MIMS

ManagementPersonnel

ManagementPersonnelComp

PharmacyComp

PreCondition:

DoctorComp must be connected to the system.

ManagementPersonnelComp must be connected to the system.

PharmacyComp must be connected to the system.

FlowOfEvents:

1) The DoctorComp displays the main menu.

1) The Doctor selects to request to fill a prescription.

2) MIMS sends the DoctorComp the display prompts for prescription information.

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Comp 3700

HomeWork 4

3) The Doctor enters the prescription information.

4) The MIMS receives the information, timestamps it & displays it on the ManagementPersonnelComp.

5) The ManagementPersonnel forwards the information to the PharmacyComp.

PostCondition:

The perscription information is displayed on the PharmacyComp.

Name:

Order XRay

List of Participants:

Doctor

MIMS

ManagementPersonnel

ManagementPersonnelComp

XRayComp

PreCondition:

DoctorComp must be connected to the system.

ManagementPersonnelComp must be connected to the system.

XRayComp must be connected to the system.

FlowOfEvents:

1) The DoctorComp displays the main menu.

1) The Doctor selects to request to order an XRAY.

2) MIMS sends the DoctorComp the display prompts for XRay information.

3) The Doctor enters the XRay information.

4) The MIMS receives the information, timestamps it & displays it on the ManagementPersonnelComp.

5) The ManagementPersonnel forwards the information to the XRayComp.

PostCondition:

The XRay information is displayed on the XRayComp.

Name:

Order Lab

List of Participants:

Doctor

MIMS

ManagementPersonnel

ManagementPersonnelComp

LabComp

PreCondition:

DoctorComp must be connected to the system.

ManagementPersonnelComp must be connected to the system.

LabComp must be connected to the system.

FlowOfEvents:

- 1) The DoctorComp displays the main menu.
- 1) The Doctor selects to request to order a lab.
- 2) MIMS sends the DoctorComp the display prompts for lab information.
- 3) The Doctor enters the lab information.
- 4) The MIMS receives the information, timestamps it & displays it on the ManagementPersonnelComp.
- 5) The ManagementPersonnel forwards the information to the LabComp.

PostCondition:

The Lab information is displayed on the XRayComp.

Name:

Update PatientChart

List of Participants:

MIMS
ManagementPersonnel
ManagementPersonnelComp
XRayComp/LabComp/PharmacyComp
PatientChart

PreCondition:

ManagementPersonnelComp must be connected to the system.
XRayComp/LabComp/PharmacyComp must be connected to the system.
An XRay, Lab, or Prescription request must have just been completed.
The patient must exist.

FlowOfEvents:

- 1) The MIMS is sent an alert that a request has been completed.
- 2) The XRayComp/LabComp/PharmacyComp sends the information regarding the current request.
- 3) The ManagementPersonnelComp displays the alert.
- 4) The ManagementPersonnel adds the update to the PatientsChart.

PostCondition:

The PatientsChart is up to date.

Name:

Access PatientChart

The doctor enters the need to view a specific patients chart.
The MIMS searches for the patient information.
If the patient exists, the chart is displayed on the screen.

If the patient doesn't exist, a nonexistent patient message is displayed.

List of Participants:

Doctor/Nurse

MIMS

PatientChart

PreCondition:

DoctorComp must be connected to the system.

The patient must exist.

FlowOfEvents:

- 1) The DoctorComp displays the main menu.
- 2) The Doctor selects to request to search for a PatientsChart.
- 3) The DoctorsComp displays the search page.
- 4) The Doctor enters the Patient's name.
- 5) The MIMS searches for the Patient.
- 6) The MIMS returns the results to be displayed on the DoctorsComp.
- 7) The Doctor selects the patient he is looking for.
- 8) The DoctorsComp displays the Selected PatientChart.

PostCondition:

The doctor has the PatientsChart.

4) For each use-case, develop one or more scenarios and corresponding System Sequence Diagrams to illustrate the sequence and order of events specified in the scenarios.

Login

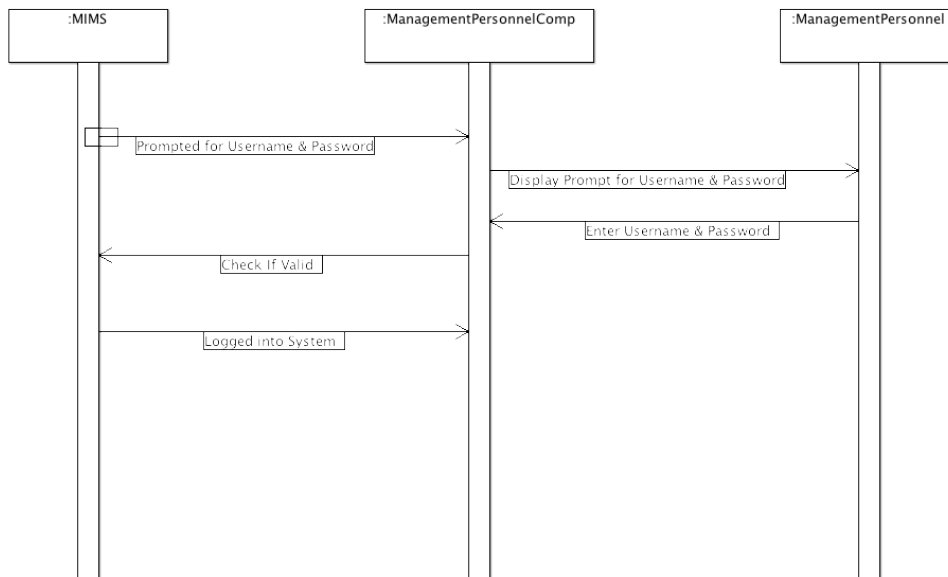
The management personnel is prompted for his username and password.

He enters his user name password into the system.

The MIMS checks that it is a valid combination.

It's valid.

The user is logged into the system.

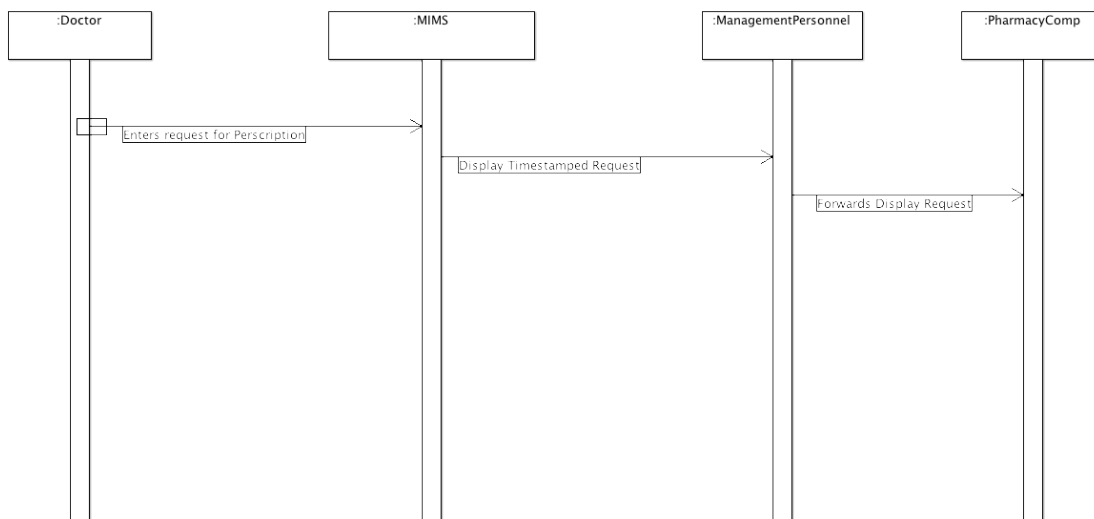


Order Prescription

The doctor enters the need to fill a prescription into MIMS.

The Management Personnel sends a timestamped request to the appropriate PharmacyComp.

The PharmacyComp displays the requests for the Pharmacist.

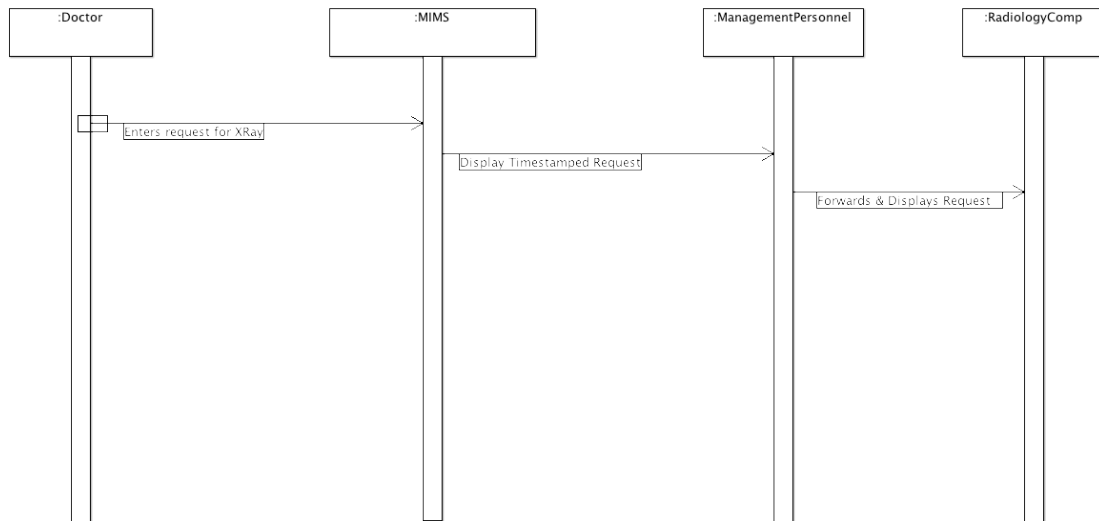


Order XRay

The doctor sends the need to perform an XRay to MIMS.

The Management Personnel sends the timestamped request to the appropriate RadiologyComp.

The RadiologyComp displays the requests on the RadiologyComp.



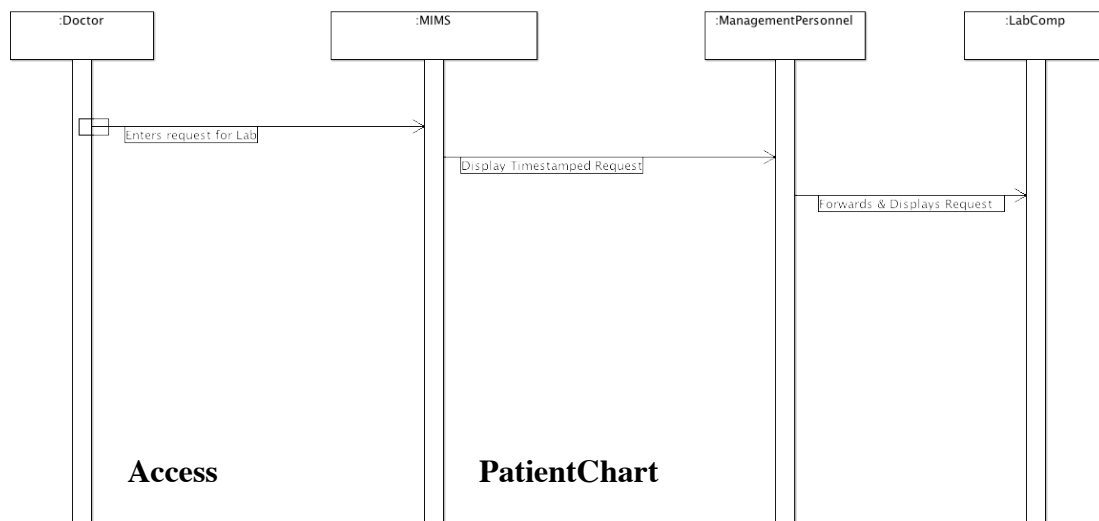
Order Lab

The doctor enters the need to perform a lab into MIMS.

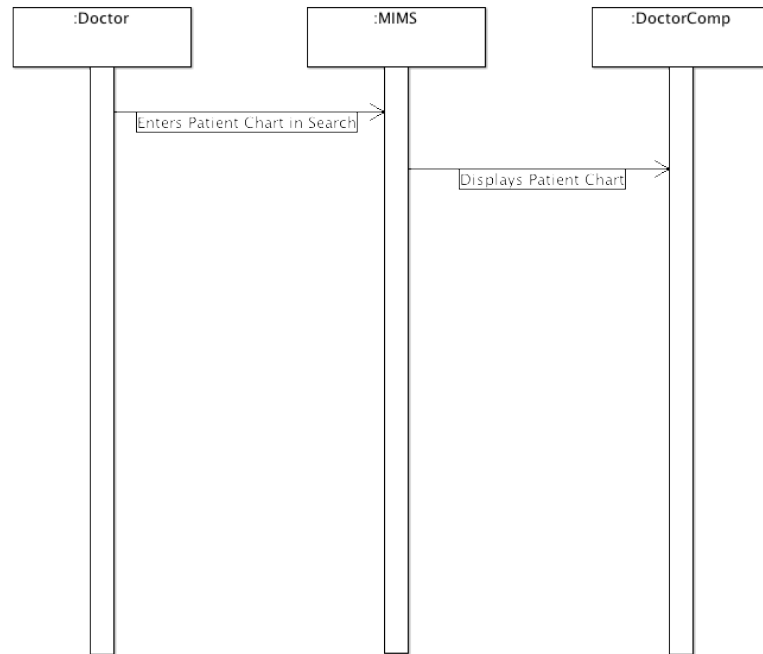
The MIMS receives the lab request and timestamps it.

The Management Personnel sends the request to the appropriate LabComp.

The LabComp displays the requests for the LaboratoryTester.



The doctor enters the need to view a specific patients chart.
The MIMS searches for the patient information.
If the patient exists, the chart is displayed on the screen.
If the patient doesn't exist, a nonexistent patient message is displayed.



Update PatientChart

After a completed lab, XRay, or prescription is filled, the appropriate Computer sends an alert to the MIMS.

The Management Personnel receives the alert and updates the patients chart accordingly.

