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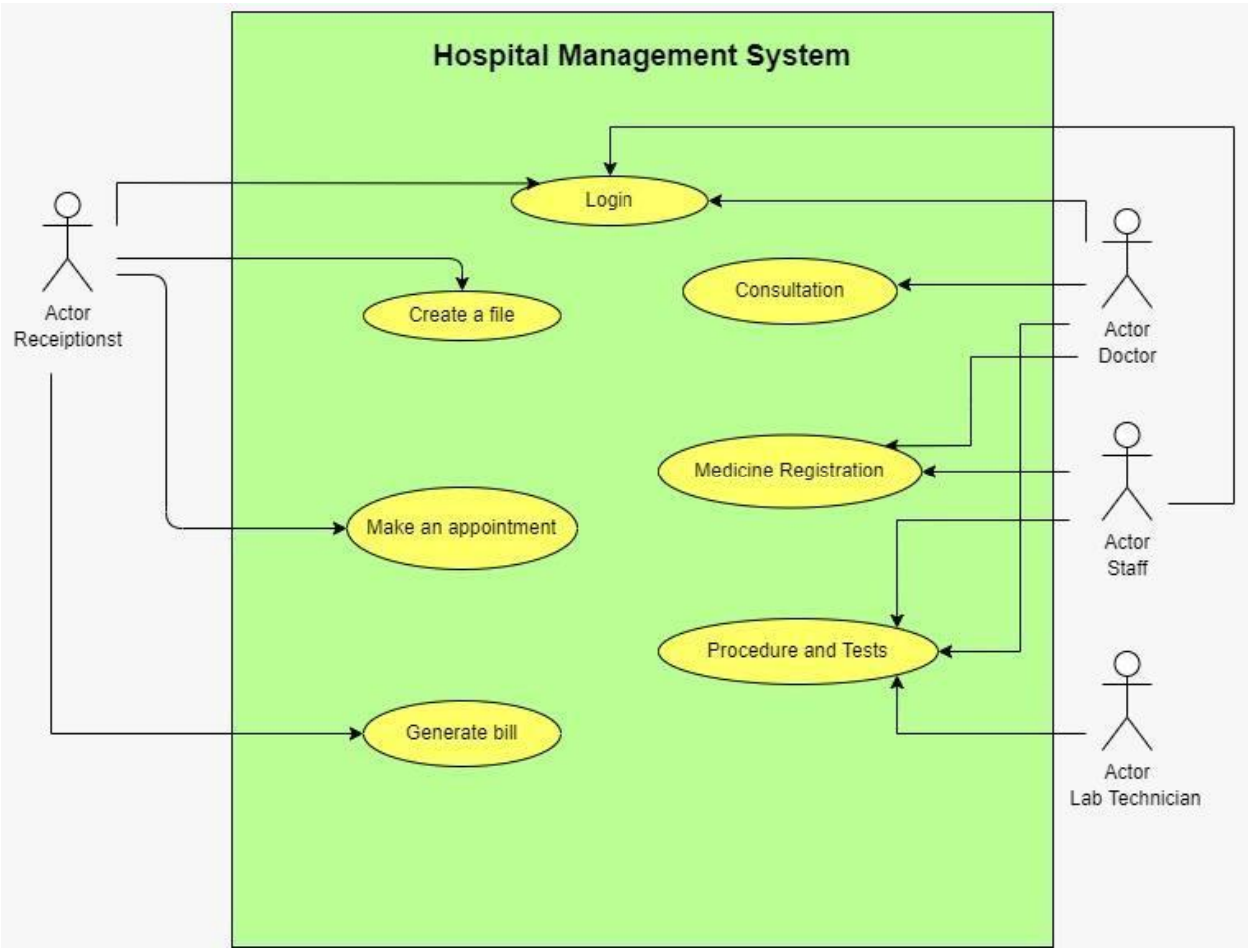
CS-3004 Software Design and Analysis

Final Project Report

Topic: Hospital Management System

Section: CS-G

Use Case Diagram



Scope:

We are presenting a hospital Management System as a utility to ease the work of staff and Doctors in the hospital. This system will help the staff and doctors in doing their work more efficiently and easily. Moreover, they will also be free from the hassle of losing files or finding them manually among thousands of other files. Everything will be one step away. The system will also keep a track of all the records, which can help in finding data.

Project Description:

We will be working on a hospital management system. In our project, There are 6 main actions that can be performed.

- Creating a patient file
- Making an appointment of the patient with the doctor.
- The consultation with the doctor
- Test and procedure
- billing of the patient

The system is accessed with

Username: admin

Password:123

The patient's files are created to keep all the records and information in one place. The patient has to make an appointment with the available doctors in their free slots. The doctor has then proceeded to provide consultation to the patients with an appointment. Where the symptoms and the history of the patient are recorded and on the basis of which a diagnosis is given. In addition to this if any further tests and procedures are needed for a diagnosis they are recommended and performed. In the end bill of all the doctor fee test fees is calculated.

Stakeholders:

Our project stakeholders are: -

1) Director of Hospital
2) Pharmacist
3) Accountant

High-level goals of Stakeholders:

The high-level goals for the stakeholders are:

1. The Director of the hospital
    - Will be able to view the details of every patient
    - Can edit patients' medicines
    - Can change doctors schedule
2. Pharmacist
    - Can view patients medicine list
    - Will be able to update the medicine given to the patient through the hospital's pharmacy.
3. Accountant
    - Can view patients total bill
    - Will be able to update billing status
    - Will be able to update the amount being paid and the amount that is not paid.

Description:

Create a file

The patient comes to the hospital, hands the receptionist their id card. The receptionist will log in to the system of the hospital and go to the create a file option. The information of the patient is entered into the system. Then the system creates and stores the file into the memory of the system.

Make an Appointment

The patient first gives the receptionist an existing file number. Then the receptionist inquires from the patient which doctor they would like to consult with and then after checking the doctor's schedule and telling the patient the available slots of booking, the receptionist books the appointment. The time of the appointment is then saved in the patient file

Consultation

The patient arrives at the doctor, and the doctor logs into the system and enters the file number of the specific patient. The history is asked from the patient and recorded into the patient file, according to the symptoms, the doctor provides the patient with a diagnosis which is also entered into the patient file by the doctor.

Medicine Registration

The file number of the patient is entered. After the consultation, the doctor decides on which medication is suitable for the patient. The doctor stores the name of the medicines, doses and frequencies into the system the medicines written in the patient file is given to the patient.

Procedure and Testing

After consultation, if the patient needs any procedure and tests done the doctor enters the patient file number and goes to the option of procedure and testing. The name and specifications of the required test are saved in the system by the doctor. According to these the staff contacts the lab technicians then the set-up is accessed by the lab technician which performs the specified tasks and the results are uploaded onto the system.

Billing

The receptionist logs into the system and goes to the option of billing. All the procedures and tests that were performed, if any medicine was registered is checked from the file of the patient. Then all the costs for each part are checked the total cost is compiled and a bill is generated by the system.

Expanded Use Cases

1)**Use Case:** Making an Appointment

Actors: Receptionist

Pre-Condition: Already checked if the patient has a file

Actor Action	System View
1)The receptionist asks the patient about his/her file number.	
2)Receptionist enters the patient file number into the system	
	3)A list of all doctors available is shown by the system
4)The receptionist asks the user about his/her preference for the doctor	
5)The required doctor serial number is entered into the system by the receptionist	
	6)The system opens the schedule of that specific doctor
7)The receptionist books the patient by entering time slot that is most suitable.	
	8)System shows all the details of the appointment and asks for confirmation

9)Receptionist confirms the appointment	
	10)The system saves the doctor's information and appointment time in the patient file

Alternatives:

7)The slot available for the appointment of a specific doctor is not suited to the patient

7a: The receptionist ask the patient if they want an appointment with any other doctor if so the system will display the list of the doctors again then step 4 to 7 is repeated by the receptionist

1)The system crashes in the middle of booking an appointment

1a: The System has to be restarted again and then the whole step 1 to 10 is done by the receptionist.

2)Use Case: Consultation
Actor: Doctor
Precondition: An appointment for the patient was already in the system

Actor Action	System View
1)The patient arrives at the doctor for consultation.	
2)The doctor asks for the patient file number	
3)The file number of the patient is entered into the system	
	4)System opens the file of the specific patient
5)The doctor asks the patient their family history and symptoms they are experiencing	
6)Doctor then enters all the information onto the file	
7)The diagnosis is entered into the system	.
	8)All the information is saved by the system
9)The diagnosis is told to the patient.	

Alternatives

1)The system crashes in the middle of booking an appointment

1a: The System has to be restarted again and then the whole step 1 to 9 is done by the doctor

7)The doctor doesn't have any diagnosis for the patient due to the limited information.

7a: Hence the doctor recommends tests for the patient by going to the option of testing and Procedure. The system opens the option of test and procedure. The doctor writes the name of the tests into the patient file.

3)Use Case: Testing and Procedure

Actors: Doctors, Staff, Lab Technician

Pre-Condition: Consultation has been completed

Actor Action	**System View**
1)The doctor enters the required tests/procedure name for the patient into the system	
	2)The test and procedure are saved into the patient file
3)The patient goes to the staff to pick the list of the tests	
4)Staff asks for the file number from the patient	
	5)The file number of the patient is entered into the system
6)Staff contacts the lab technician	
7)Set-up is accessed by the lab Technician	
8)The test is performed by the lab technician	
	9)The results are uploaded onto the system

Alternatives:

1)The system crashes in the middle of booking an appointment

1a: The System has to be restarted again and then the whole step 1 to 9 is done by all the actors involved in the use case

9)The patient file number before uploading the results is entered wrong

9a: The system checks the file number entered by the lab technician does not exist in the system. If not the system sends a notification of the not right number and asks to enter again.

4)Use case: Creating a file
Actors: Receptionist
Pre-condition: The receptionist is already logged into the system

Actor Action	System View
1)Patient arrives at the receptionist and give his/her id card	
	2)System asks about the patient information
3) Receptionist feeds the information of the patient in the system	
	4)Creates a file for the patient

Alternatives:

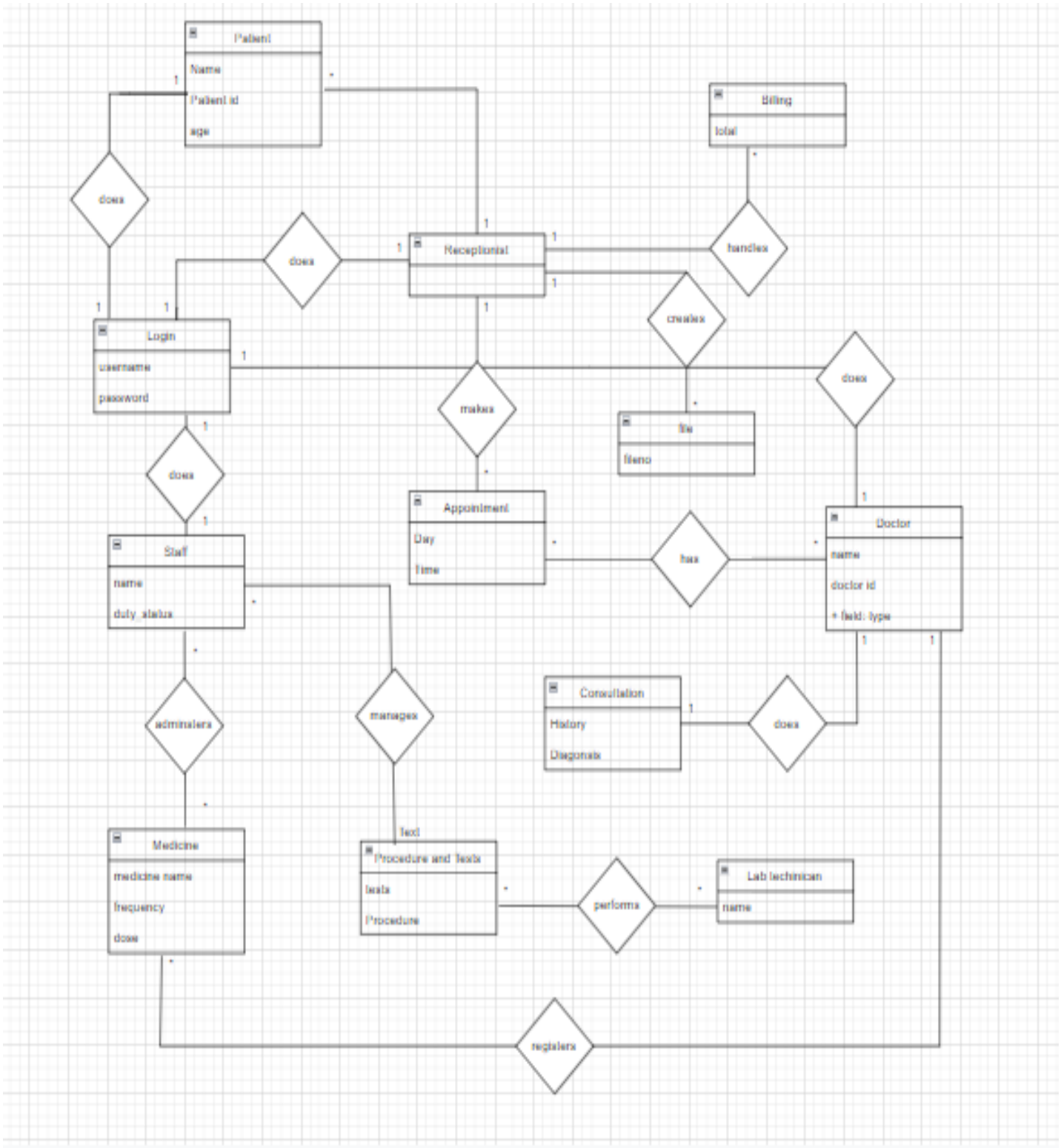
1)The system crashes in the middle of booking an appointment

1a: The System has to be restarted again and then the whole step 1 to 4 is done by the receptionist

3)The patient id entered into the system already exists in the system

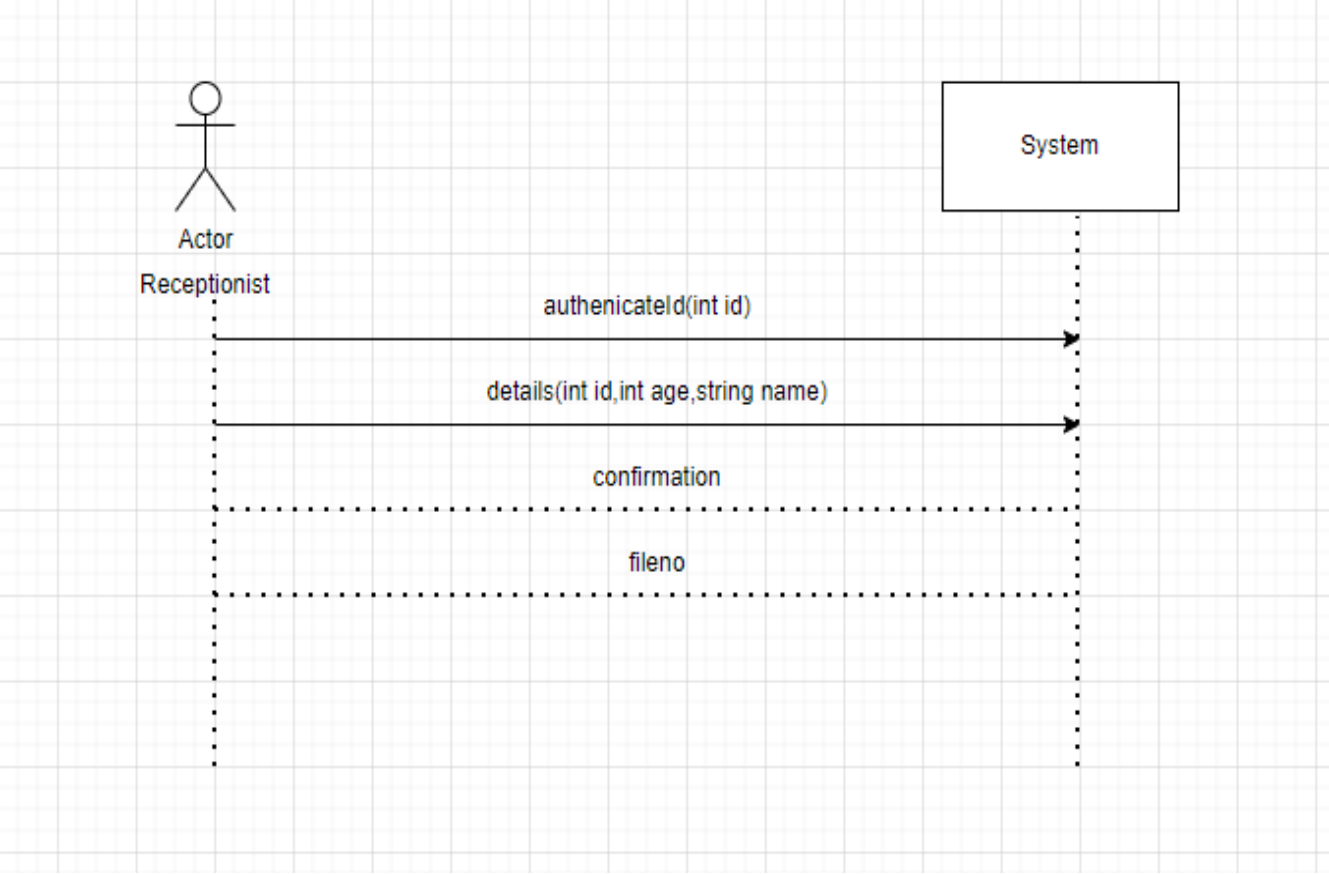
3a: System then goes back and informs the Receptionist that the file of the certain patient with the entered ID already exists. The receptionist informs the patient the file is already made,

Domain Model

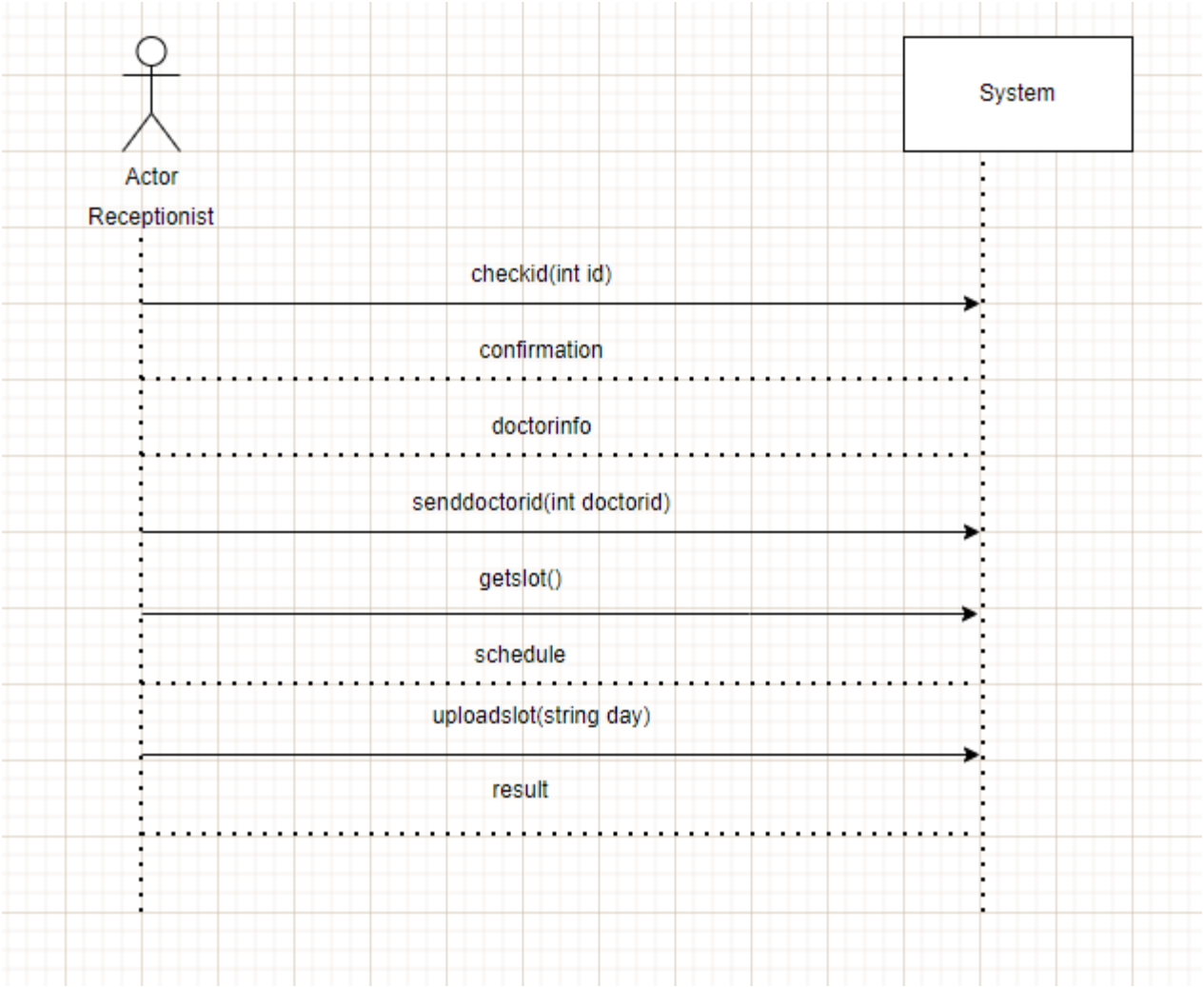


System Sequence Diagram

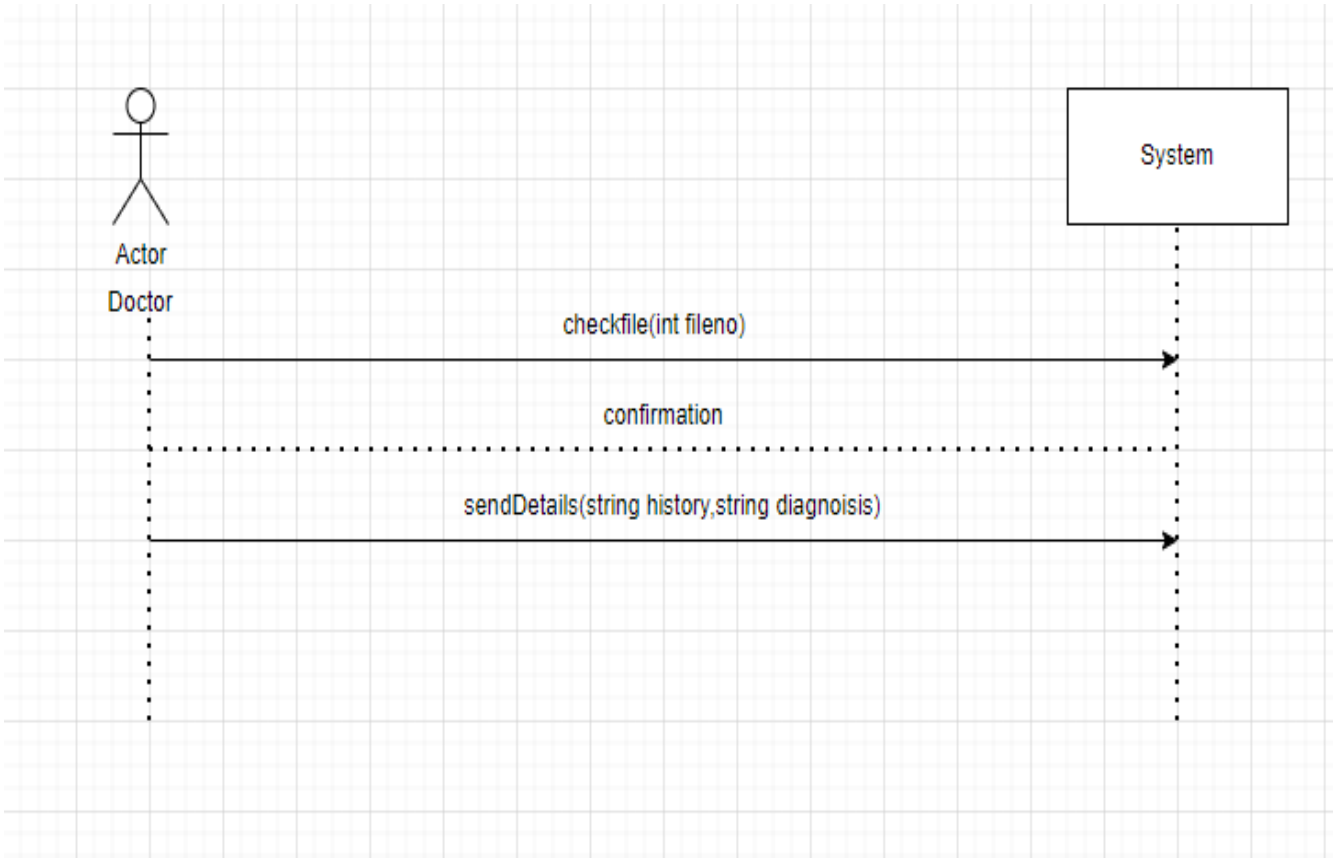
1)Create a file



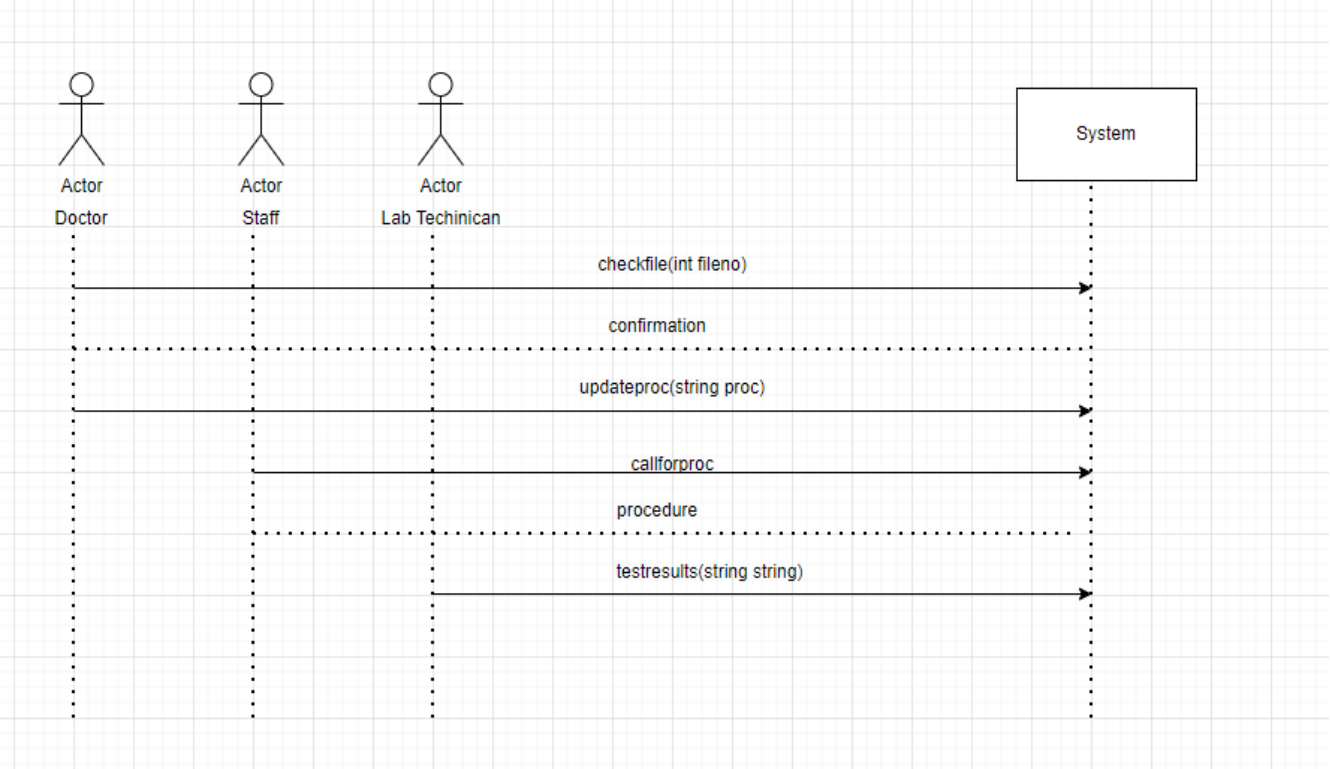
2)Make an appointment



3)Consultation

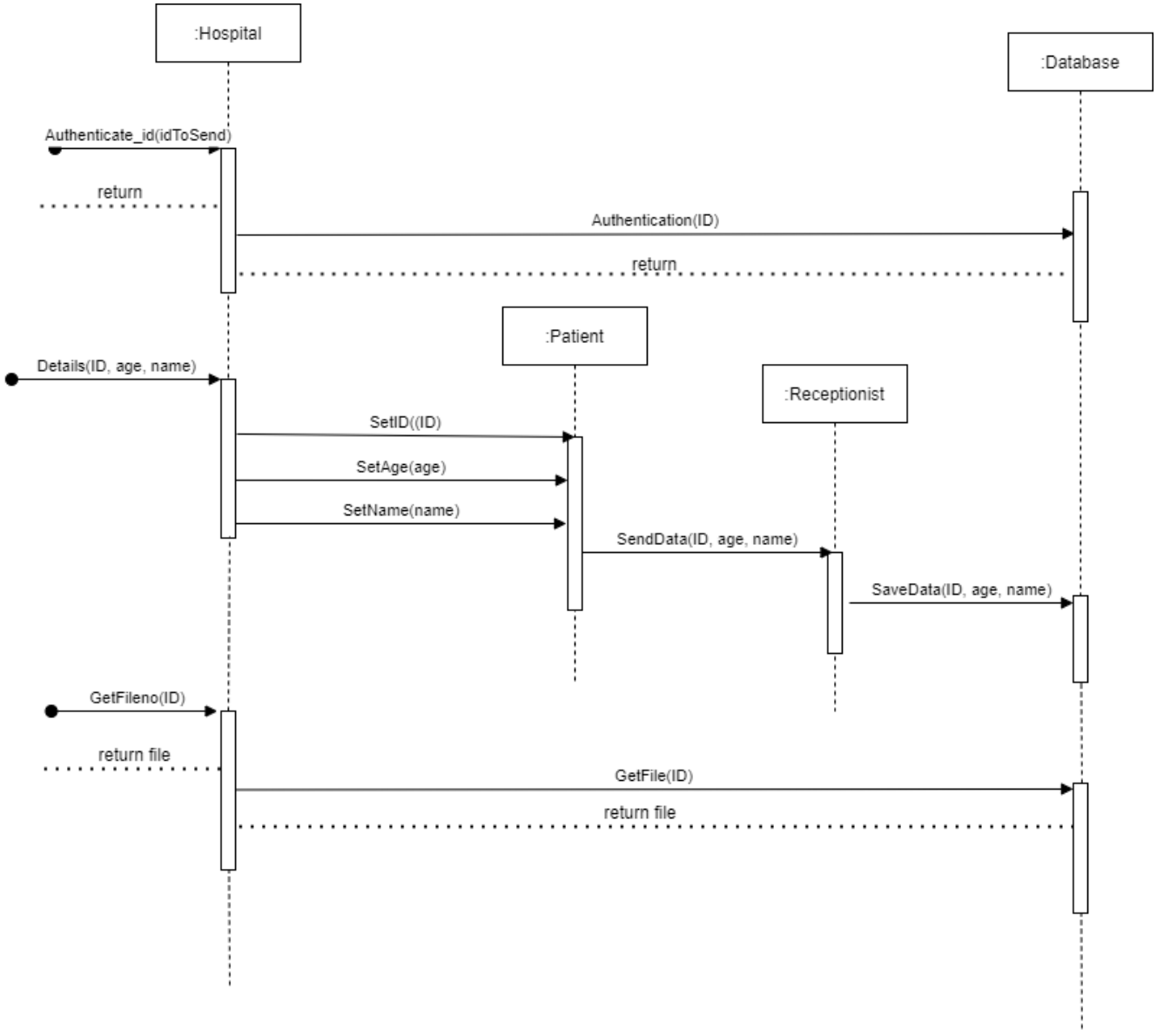


4)Procedure and Tests

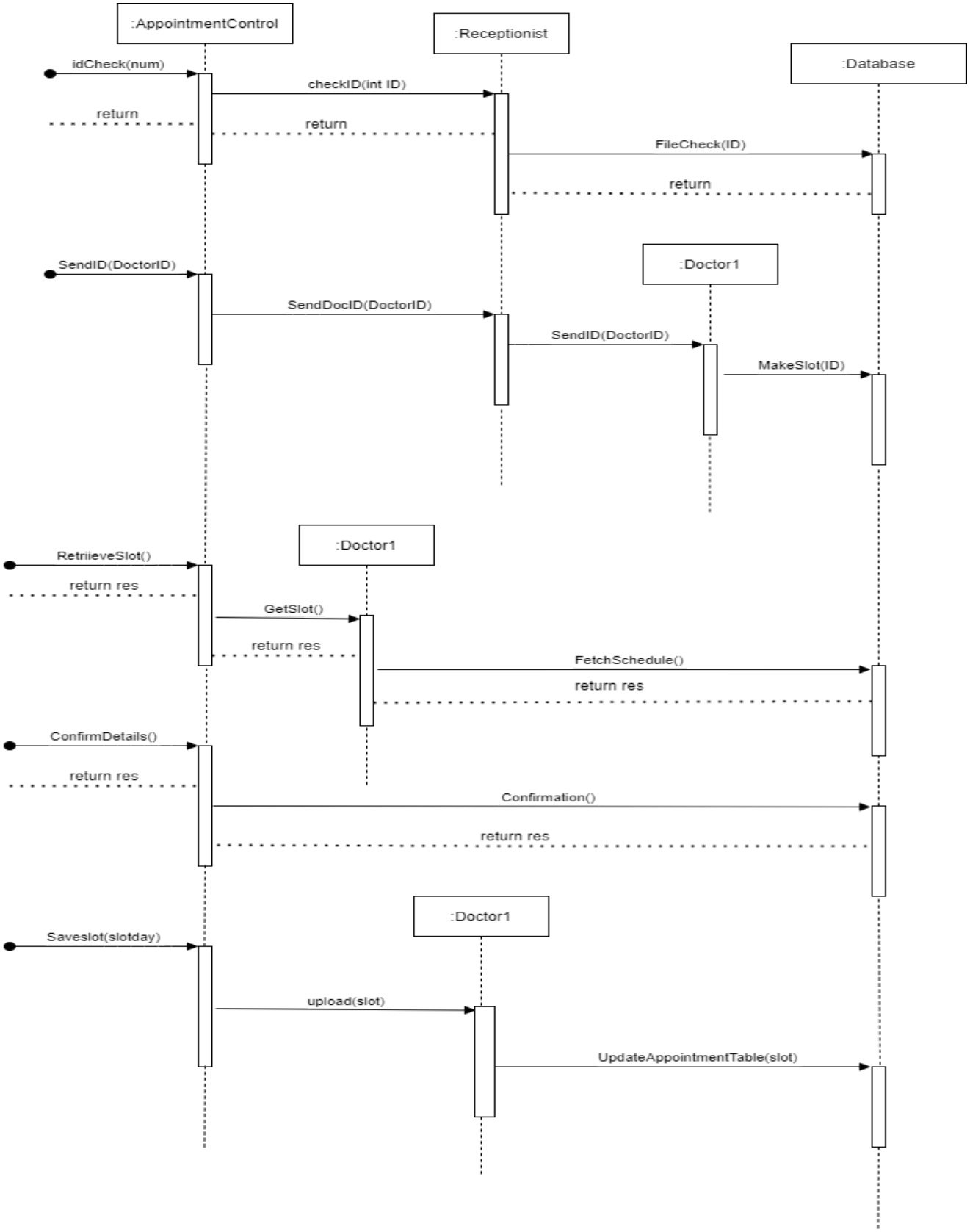


Sequence Diagram

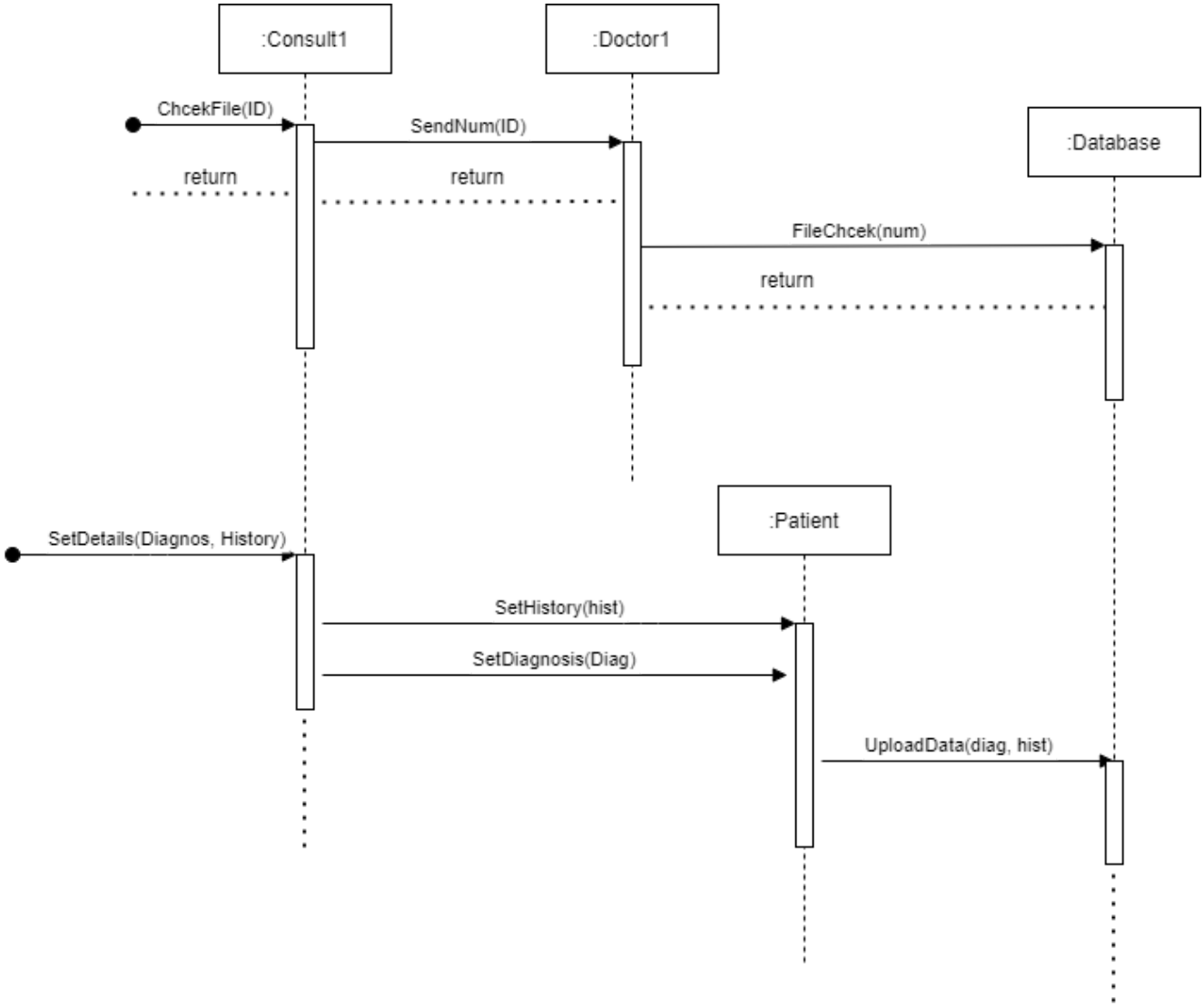
1)Create a file



2)Make an appointment



3)Consultation



4)Procedure and Tests