Your Cystic Fibrosis Application Design Document

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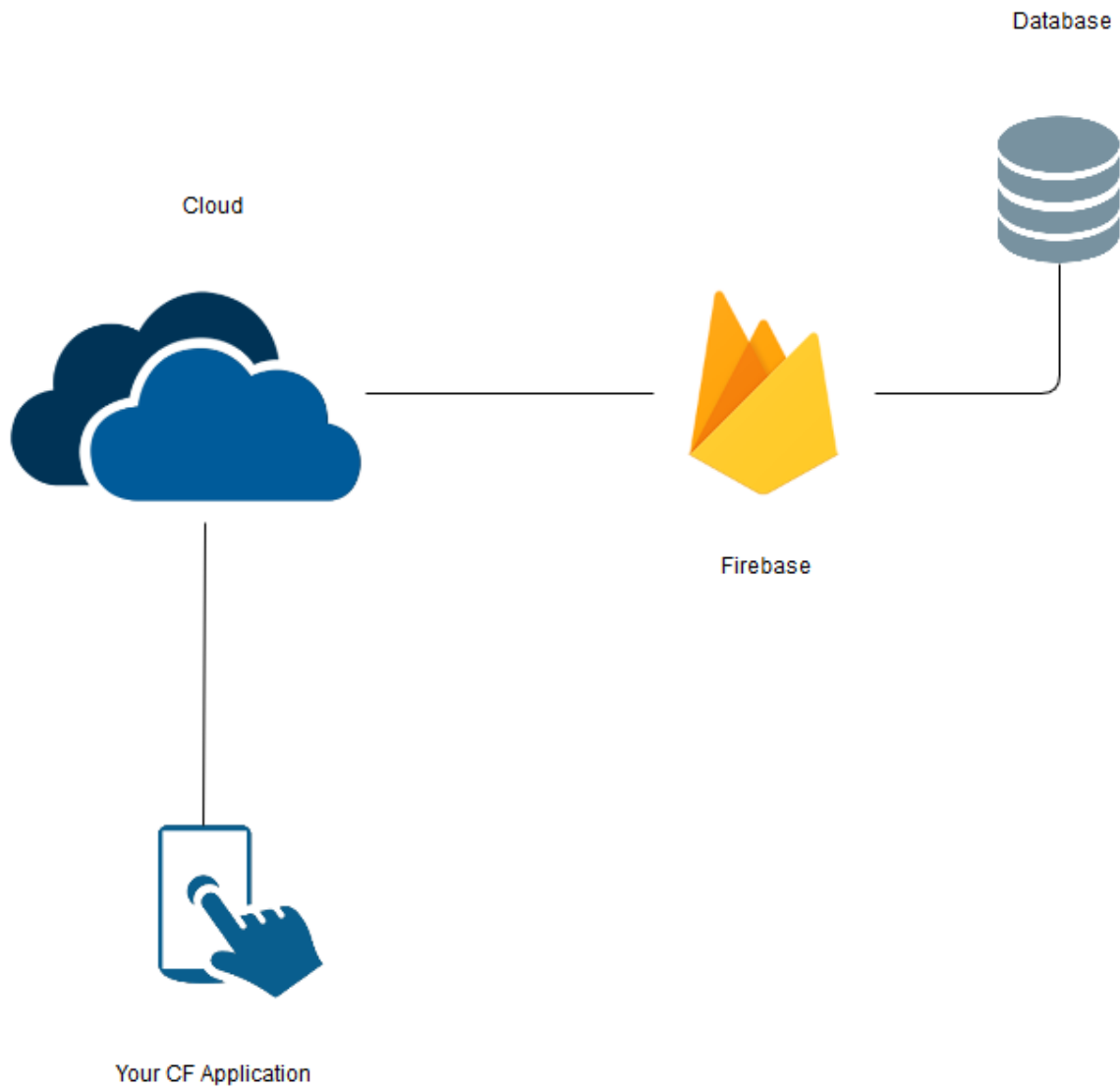
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System Architecture

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pg. 5

```json
{
  "User" : {
    "0868663769" : {
      "DOB" : "24/01/89",
      "EIR" : "RW109",
      "Email" : "brennanSinead@gmail.com",
      "Firstname" : "Sinead",
      "Lastname" : "Brennan",
      "Password" : "password"
    },
    "0868889991" : {
      "DOB" : "28/09/88",
      "EIR" : "RY809",
      "Email" : "healylorcan@gmail.com",
      "Firstname" : "Lorcan",
      "Lastname" : "Bermingham",
      "Password" : "password1"
    }
  }
}
```

Patient Detail Use Case's

Login

Name	Login
Actors	Patient, Firebase
Main Success Scenario	1. Use case begins when the patient opens the application 2. Patient enters mobile number and password 3. Patient selects login 4. The application calls on firebase to check the user and returns the object 5. Use case ends when patient is logged in
Alternatives	• 3a password is incorrect Application display an error warning Return to step 2 • 3b phone number is incorrect Application displays error warning Return to step 2

Medical Profile

Name	Medical Profile
Actors	Patient, Firebase
Main Success Scenario	1. Use case begins when the patient opens the application 2. Patient navigates to the medical profile tab 3. A form loads for the patient to fill out 4. Patient fill out the form 5. The use case ends when the patient has finished filling out the form

Alternatives	• 3a the form doesn't load
	    Application display an error warning
	    Return to step 3
	• 3b the patient can't navigate to the medical profile tab
	    Application displays error warning
	    Return to step 2

Register

Name	Register
Actors	Patient, Firebase
Main Success Scenario	1. Use case begins when patient opens the application 2. Patient selects register which then displays an information page 3. Patient is then redirected to the register page 4. Patient is prompted to enter account details 5. Entered details are checked against users in firebase 6. Once the details have been checked the patient is redirected to the login page 7. The use case ends when the patient has logged in

Alternatives	• 4a phone number already exists
	    The application displays the number already exists
	    Return to step 4
	• 4b characters have been entered instead of numbers
	    Application displays numbers only
	    Return to step 4

Food Diary

Name	Food Diary
Actors	Patient, Firebase
Main Success Scenario	1. Use case begins when a patient has logged in 2. Firebase loads stored image urls and names for the food diary 3. Patient is brought to the home page which doubles as the food diary 4. Patient can select breakfast, lunch, dinner or snacks 5. Patient selects one of the above-mentioned options 6. Firebase loads the names and images from the database depending on which option was selected. 7. Patient selects a food item from the selected food group. They are then met with a short description, there calorie counter for the day, the quantity of items they wish to choose and the specific calorie count of the food they have selected 8. Once the item and the amount have been selected the application will automatically subtract that amount from there predefined amount set to the patient and update that amount in firebase along with the food details. 9. This use case ends when the user logs out

Alternatives	• 2a the images don't load when the user logs in
	    The application displays empty cards only with the name
	    The application tries to reload the images
	• 4a the application fails to load the selected food area
	    The patient selects a food group and the application fails to load the selected food group
	    The application refreshes and tries again

Activity

Name	Activity
Actors	Patient, Firebase
Main Success Scenario	1. Use case begins when a patient has logged in 2. Patient selects Activity from the menu 3. Firebase loads stored image urls and names for the activity 4. Patient is brought to the activity page 5. Patient can select Light, Moderate, or Vigorous activities 6. Patient selects one of the above-mentioned options 7. Firebase loads the names and images from the database depending on which option was selected. 8. Patient selects an activity from the chosen activity group. The Patient is met with a short description and can select how long they want to do the chosen activity. 9. Once the activity and the length have been selected the application will automatically multiple the length of time by the predefined number set to that activity and update that score in firebase along with the activity. 10. The use case ends when the patient leaves the activity menu

Alternatives	• 3a the images don't load when the user selects activity
	    The application displays empty cards only with the name
	    The application tries to reload the images
	• 9a the application fails to load the selected activity area
	    The patient selects a activity group and the application fails to load the selected activity group
	    The application refreshes and tries again

	• 9b the application makes the wrong calculation
	    The application makes an error when calculating the activity's score
	    The application flags the error and try's again

Spirometer

Name	spirometer
Actors	Patient, Firebase, Spirometer
Main Success Scenario	1. This use case starts when the patient receives a push notification to do their spirometer 2. The patient navigates to the spirometer tab in the menu 3. The patient can optionally choose to follow a guide explaining how to use the spirometer 4. The patient is redirected to spirometer page. 5. The patient starts the timer and enters the result of each of the three tests they have completed. 6. The patient stops the timer and clicks the submit button 7. The application takes the three input values converts it from a String into a INT and the values are added together and divided by three to get the average of the three attempts. The new average and the time are then sent to the database 8. This use case ends when the patient closes the spirometer tab

Alternatives	• 1a the patient doesn't receive a push notification
	    The patient isn't informed to do the spirometer test
	    The system notices that the test has been completed and tries

	to resend the push notification
	• 5a the timer doesn't start
	    The patient clicks the timer to
	    start and it falls to start
	    The system refreshes the page

Logout

Name	Logout
Actors	Patient, Firebase
Main Success Scenario	1. The use case starts when the patient is logged in 2. The patient selects the logout tab 3. The use case ends when the patient is logged out

Alternatives	• 2a the logout tab doesn't work
	    The patient selects the logout
	    tab and it doesn't work
	    Return to step 2

Doctor Detail Use Case's

Login

Name	Login
Actors	Patient, Firebase
Main Success Scenario	1. Use case begins when the doctor opens the application 2. Doctor enters username and password 3. Doctor selects login 4. The application calls on firebase to check the user and returns the object Use case ends when doctor is logged in

Alternatives	• 3a password is incorrect
	    Application display an error warning
	    Return to step 2
	• 3b phone number is incorrect
	    Application displays error warning
	    Return to step 2

Manage Patients

Name	Manage Patients
Actors	Doctor, Patient, Firebase
Main Success Scenario	1. This use case begins when the doctor has logged in 2. The doctor selects the manage patient tab 3. The doctor selects the patient they wish to monitor 4. The doctor then can review the selected patient's data

Doctor Detail Use Case's

Alternatives	1a the doctor cannot login The doctor receives an error when trying to login Return to step 1 3a the patients are not displayed The doctor selects the manage patient tab and noting is displayed Return to step 2

Logout

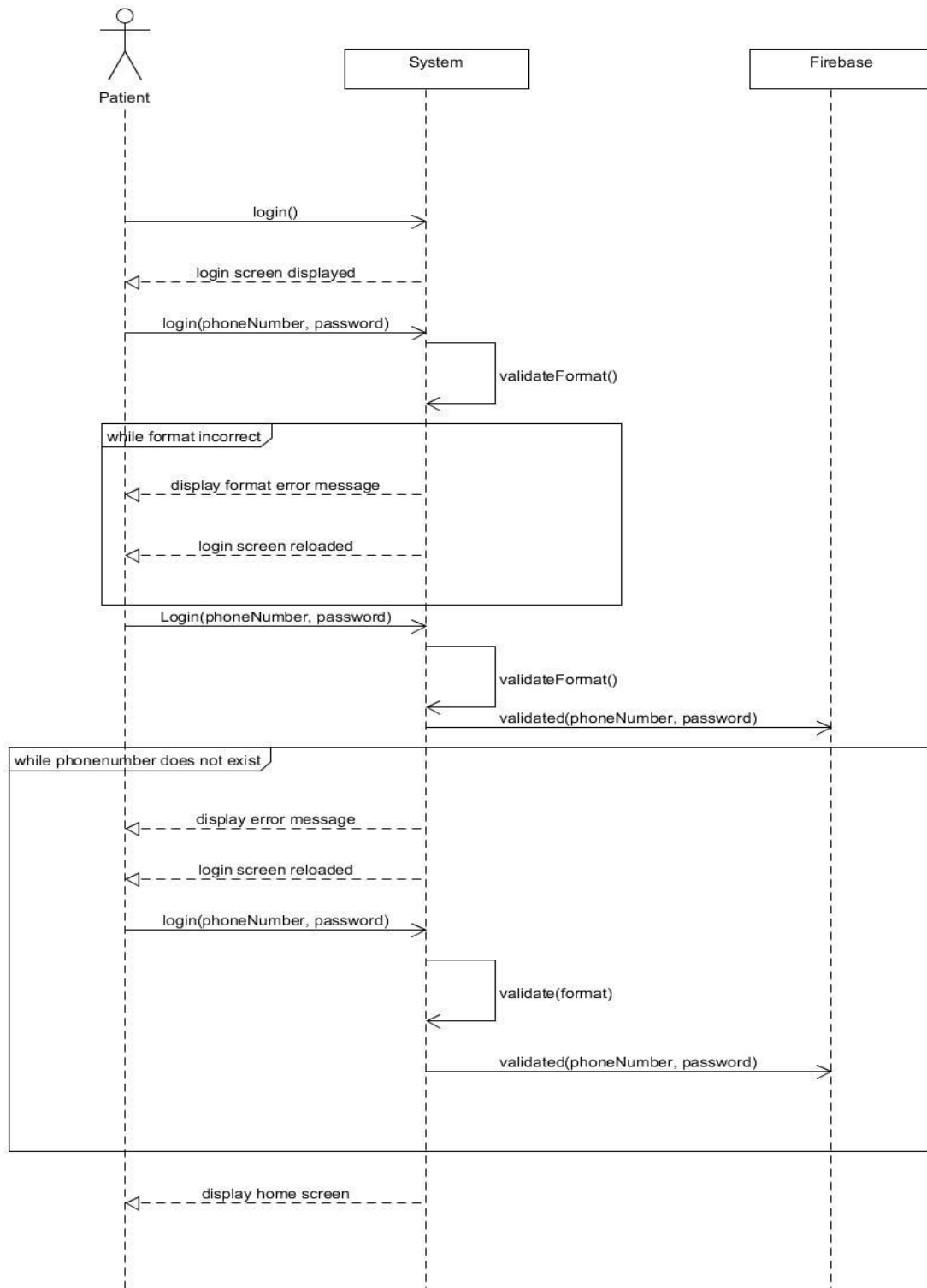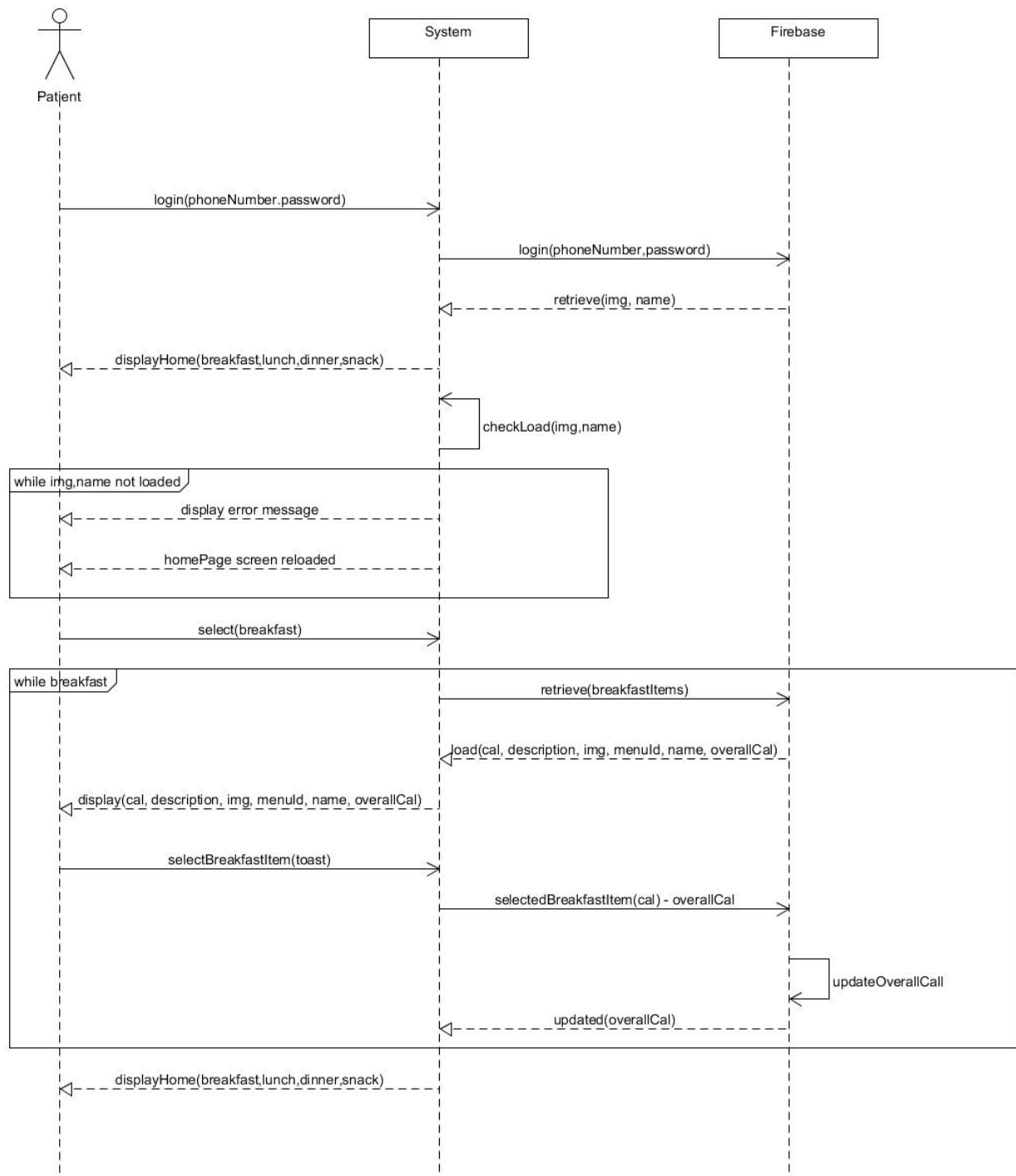| Name	Logout
Actors	Doctor, Firebase
Main Success Scenario	1. The use case starts when the patient is logged in 2. The patient selects the logout tab The use case ends when the patient is logged out
Alternatives	2a the logout tab doesn't work The patient selects the logout tab and it doesn't work Return to step 2

System Sequence Diagram's
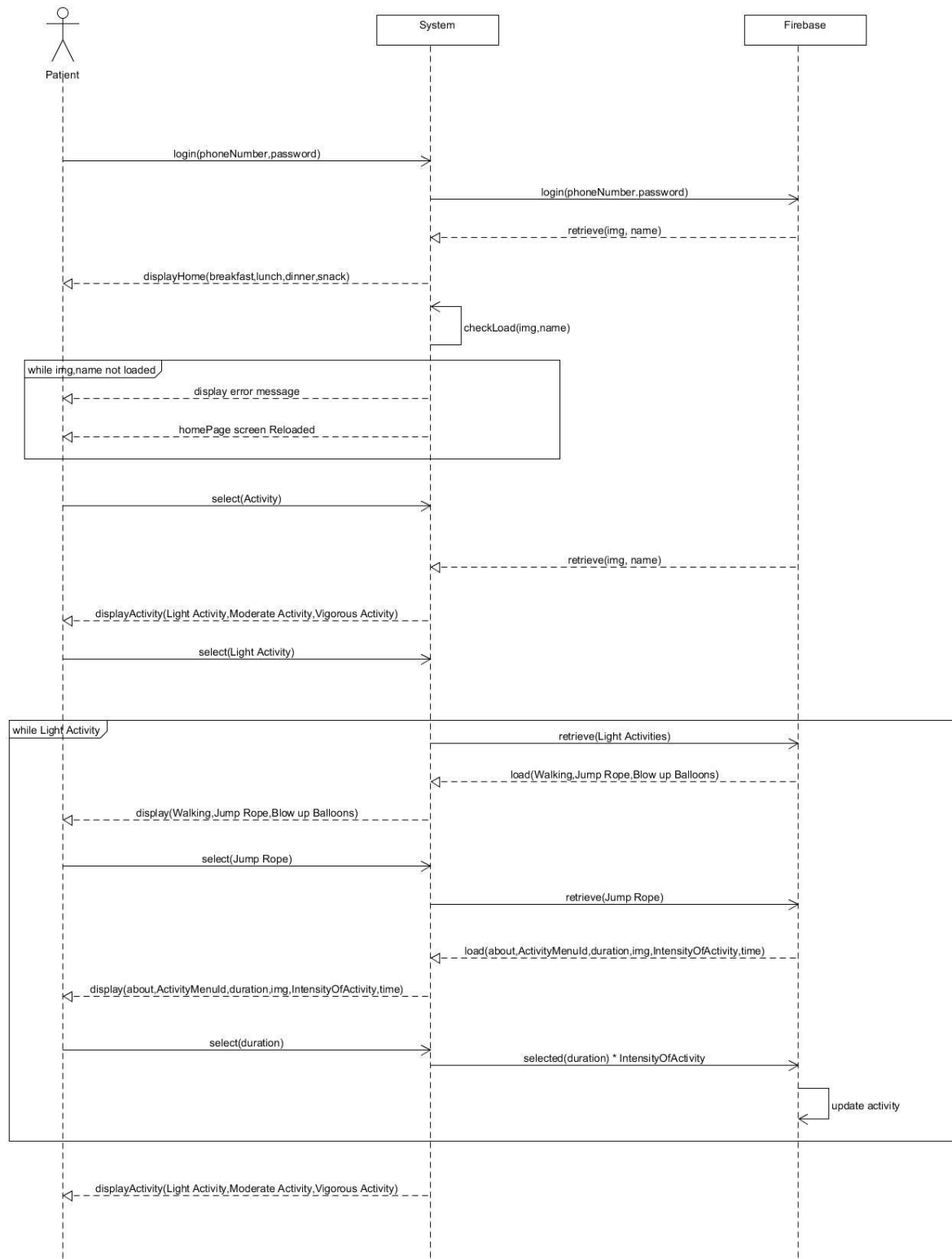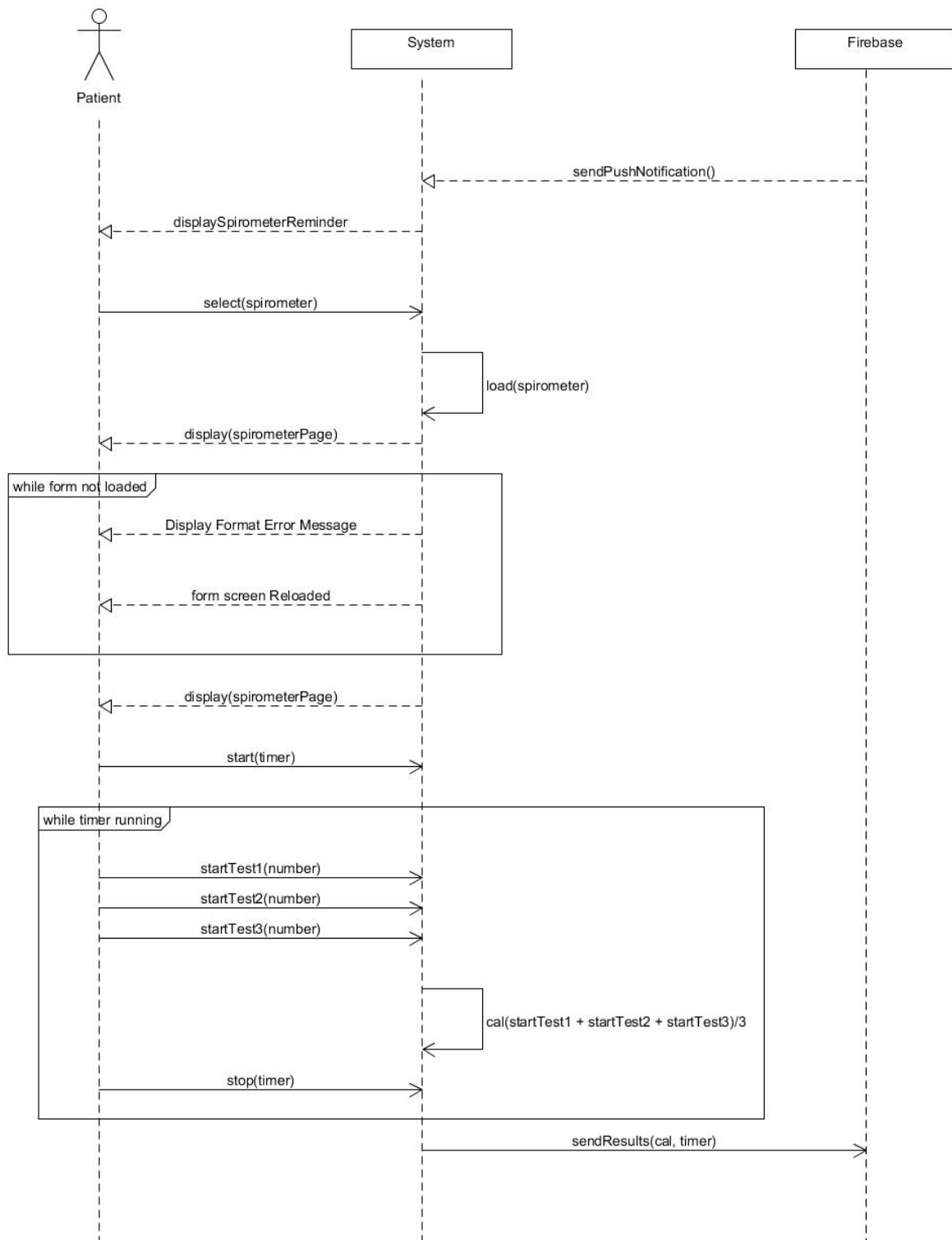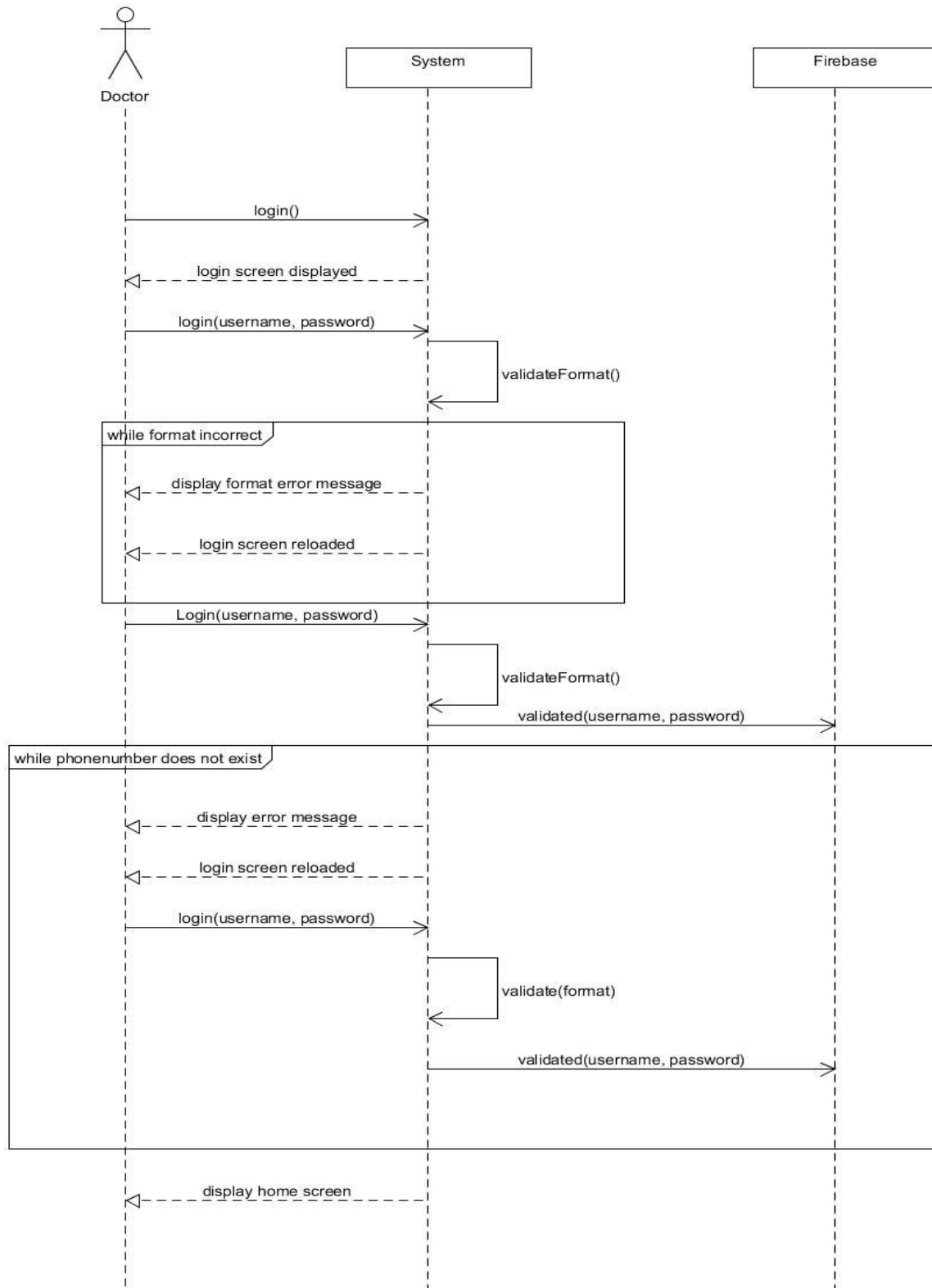
Patient Sequence Diagrams

Register
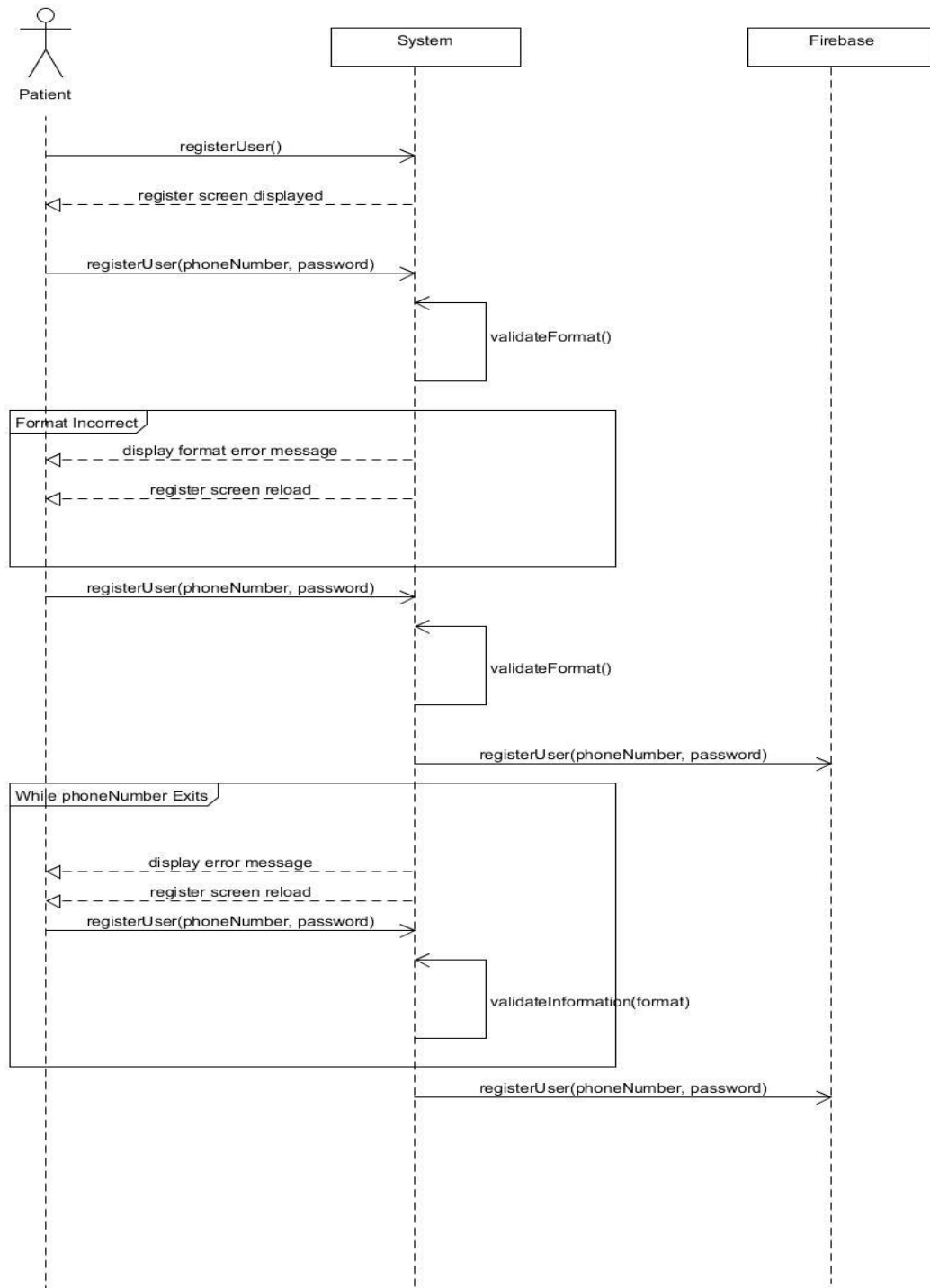
Login

Food Diary

Activity

```
        Patient                    System                    Firebase

          |                          |                          |
          | login(phoneNumber,password)|                        |
          |------------------------->|                          |
          |                          | login(phoneNumber,password)|
          |                          |------------------------->|
          |                          |      retrieve(img, name) |
          |                          |<-------------------------|
          |  displayHome(breakfast,lunch,dinner,snack)          |
          |<-------------------------|                          |
          |                          | checkLoad(img,name)      |
          |                          |__                        |
          |                          |  |                       |
   while img,name not loaded         |                          |
          |      display error message                          |
          |<-------------------------|                          |
          |      homePage screen Reloaded                       |
          |<-------------------------|                          |
          |                          |                          |
          |      select(Activity)    |                          |
          |------------------------->|                          |
          |                          |      retrieve(img, name) |
          |                          |<-------------------------|
          | displayActivity(Light Activity,Moderate Activity,Vigorous Activity)|
          |<-------------------------|                          |
          |     select(Light Activity)|                         |
          |------------------------->|                          |

   while Light Activity              |     retrieve(Light Activities)|
          |                          |------------------------->|
          |                          | load(Walking,Jump Rope,Blow up Balloons)|
          |                          |<-------------------------|
          | display(Walking,Jump Rope,Blow up Balloons)         |
          |<-------------------------|                          |
          |     select(Jump Rope)    |                          |
          |------------------------->|                          |
          |                          |     retrieve(Jump Rope)  |
          |                          |------------------------->|
          |                          | load(about,ActivityMenuId,duration,img,IntensityOfActivity,time)|
          |                          |<-------------------------|
          | display(about,ActivityMenuId,duration,img,IntensityOfActivity,time)|
          |<-------------------------|                          |
          |     select(duration)     |                          |
          |------------------------->|                          |
          |                          | selected(duration) * IntensityOfActivity|
          |                          |------------------------->|
          |                          |                          | update activity
          |                          |                          |__
          |                          |                          |  |
          | displayActivity(Light Activity,Moderate Activity,Vigorous Activity)|
          |<-------------------------|                          |
```

Spirometer

Doctor Sequence Diagrams

Login

Manage Patient's
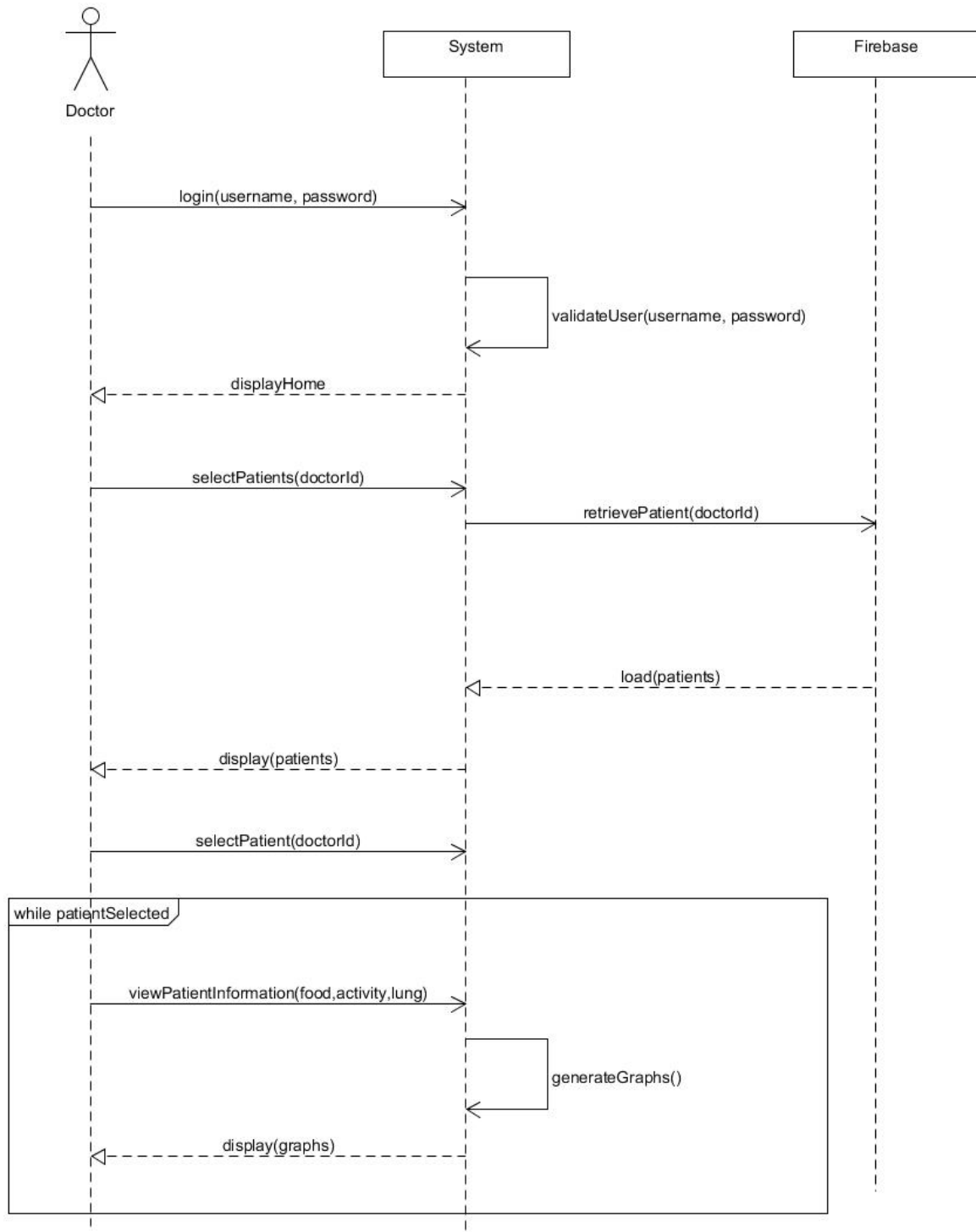
Screens

Splash Screen
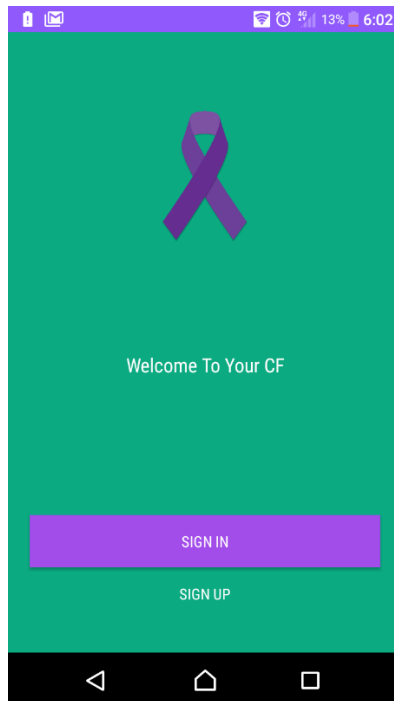
Login

Register/Information

Home/Food Diary

Lunch

Activity

Moderate Activity

Spirometer

Spirometer