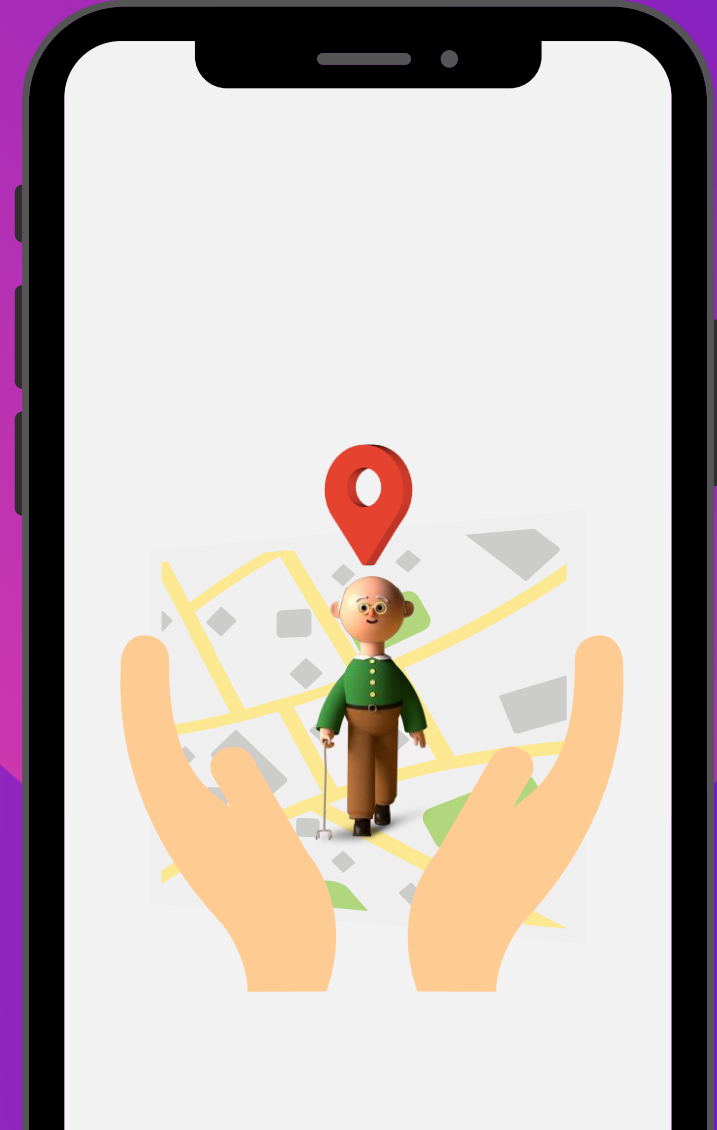




جامعة جدة  
University of Jeddah

# Monitoring of Alzheimer's patients

Dr. Nadia Aloui





جامعة جدة  
University of Jeddah

# Group members :

Follow up on Alzheimer's patients  
(FUOAP)



Sara Alghamdi

2007804



Aisha Fahad

2005721



Naila Mastoor

1911215

# Introduction

## -The description of the idea of the App

- Alzheimer's disease is a neurological disorder that causes the brain to shrink and its cells die, which negatively affects a person's ability to work independently, and because of the high prevalence of Alzheimer's disease among the elderly and the suffering of family in monitoring them and the difficulty of dealing with them when they are lost.
- We decided to create an application that helps to find patients when they are lost, and it is an application connected to smartwatches and also connected to the phones of some of the family relatives.
- When the watch battery runs out the application will send a notification of the last location of the patient and that the application has been linked to the GPS feature to determine the places of danger that may cause his injuries and send an audio notification warning him.



# Interview description .

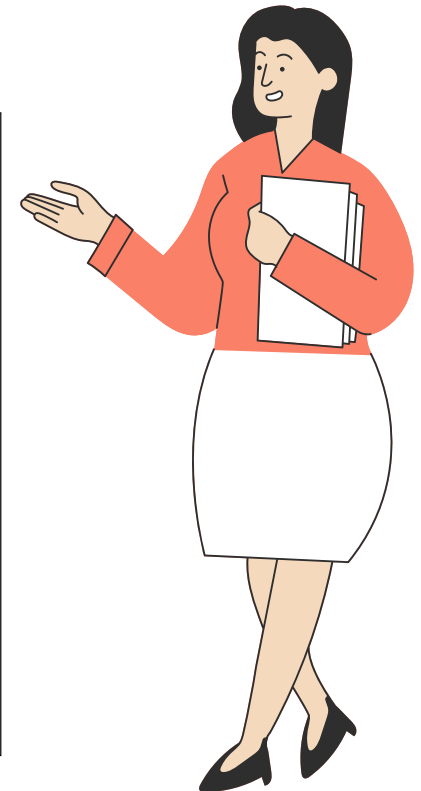
To find out what people think of our application , we Asked them some questions:

- 1 Is Alzheimer's disease dangerous for the patient?
- 2 What are the changes that occur in a patient with Alzheimer's in terms of behavior and personality?
- 3 Factors that may cause early infection of Alzheimer's?
- 4 What problems have you faced with Alzheimer's patients?
- 5 If you lose an Alzheimer's patient, what do you do?
- 6 Does Alzheimer's patient lose the ability to walk?
- 7 What is the way you provide food to Alzheimer's patients?



# Interview analysis :

Interviewer	Interviewer	Analyst Comment
Sara Ahmad	<p><b>Interview Date:</b> 27 Feb 2022</p> <p><b>Interview Name:</b> Ghaida</p> <p><b>Job Title:</b> Student Daughter of an Alzheimer's patient</p>	<p>One of the problems that we have faced with an Alzheimer patient is that he shows symptoms of hallucination and delusion like seeing or hearing something that isn't there.</p> <p>When losing a patient, we check the first place that we last saw them, and also ask around if anyone have seen them.</p>





# Interview analysis :

Interviewer	Interviewer	Analyst Comment
Aisha Fahad	<p>Interview Date: 29 Feb 2022</p> <p>Interview Name: Iama</p> <p>Job Title: Student Daughter of an Alzheimer's patient</p>	<p>* Difficulty walking can be caused by a variety of factors, Walking declines in Alzheimer's patients as the disease develops, and the causes often range from numerous brain diseases to issues in the knee or pelvis joints, among other things."</p> <p>* Alzheimer's disease can affect a person's visual and spatial abilities, making it difficult to distinguish between food and dish. - Having only one type of food on the plate makes the meal more appealing and straightforward. When giving hot food, I pay close attention; an Alzheimer's patient may not realize that the food is too hot to eat</p>





# Interview analysis :

Interviewer	Interviewer	Analyst Comment
Naila Mastoor	<p><b>Interview Date:</b> 29Feb2022</p> <p><b>Interview Name:</b> Abdulaziz</p> <p><b>Job Title:</b> Doctor</p>	<p>Alzheimer's disease is a dangerous disease because it may cause death or even severe injury to him</p> <p>Among the changes that occur to the patient is that he may suffer from depression, as well as social withdrawal and mood swings</p> <p>Delusions and changes in sleeping habits.</p> <p>* The most important factors that cause Alzheimer's disease are:</p> <ul style="list-style-type: none"><li>Getting old</li><li>Family history and genetics</li><li>Head trauma</li><li>Bad sleep patterns</li></ul> <p>One of the most important problems that Alzheimer's patients face</p> <p>It is aggressiveness, fear, and also increasing stubbornness</p>



# Interview Analyst :

Warns patients by sending notifications in case of danger.

1

The application helps to find Alzheimer's patients when they are lost.

2

Designing an application that protects Alzheimer's patients from severe injuries.

3

The application will send alert notifications to patients' families when they leave the permitted area.

4





# Project Goals:

- Helping Alzheimer's patients and their families
- Maintaining the safety of Alzheimer's patients and saving their lives from any harm or danger
- Ease communication between the patient and his family
- Directing the patient while leaving the house

## Recommendation and proposed solution:

- Website
- application

### We choose the application

the website isn't the right option, because it's difficulty to use, way slower than the application and more importantly some websites are unreliable and weakly secured, which causes security problems that lead to damage your device, getting hacked or getting viruses. To avoid that, the application is the best, fastest and safest option to use

# Feasibility study

**1 Problem Definition:** Because of the spread of Alzheimer's disease, most of the patient's family and friends suffer from the fear of losing and injuring patients. And with the development of life, applications and technology have greatly facilitated this task. We decided to apply to help Alzheimer's patients and their families. So the idea of this project is to create a useful application to monitor their condition and ensure their safety. Families can access features such as patient tracking and updating their location, which will make them more comfortable and reassuring for their patients

**2 Scope Objectives of "new system":**

Name of the system: Alzheimer's patients tracking system

The objectives:

- 1- To help Alzheimer's patients and their families
- 2 - To help Alzheimer's patients and save their lives from harm or danger
- 3- Easy communication between the patient and his family
- 4- Guiding the patient while leaving the house

# Feasibility study

## 3 Alternative Solutions: 1-Application

Cost And Benefits of Alternatives:

Alternatives	Cost	Benefits	Drawbacks
Application	18500SR	Continuous Monitoring - Quick Access - Get Notifications	Need to make a copy for android and iOS systems

## 4 Software Impacts:

There are no modifications, we will start making the application for the biggening.

# Feasibility study

## 5 Potential Changes in the Organization:

The application will be useful for patients and their families and will help reduce potential accidents and errors.

The application also helps to provide assistance to patients and their families in cases of loss, forgetfulness, or even serious cases that may affect patients.

And with this application, it will be their assistant and useful to them, as it will reduce the hours of searching for them and waste time and psychological and physical pressure in searching for patients, it will also reassure families of their patient.

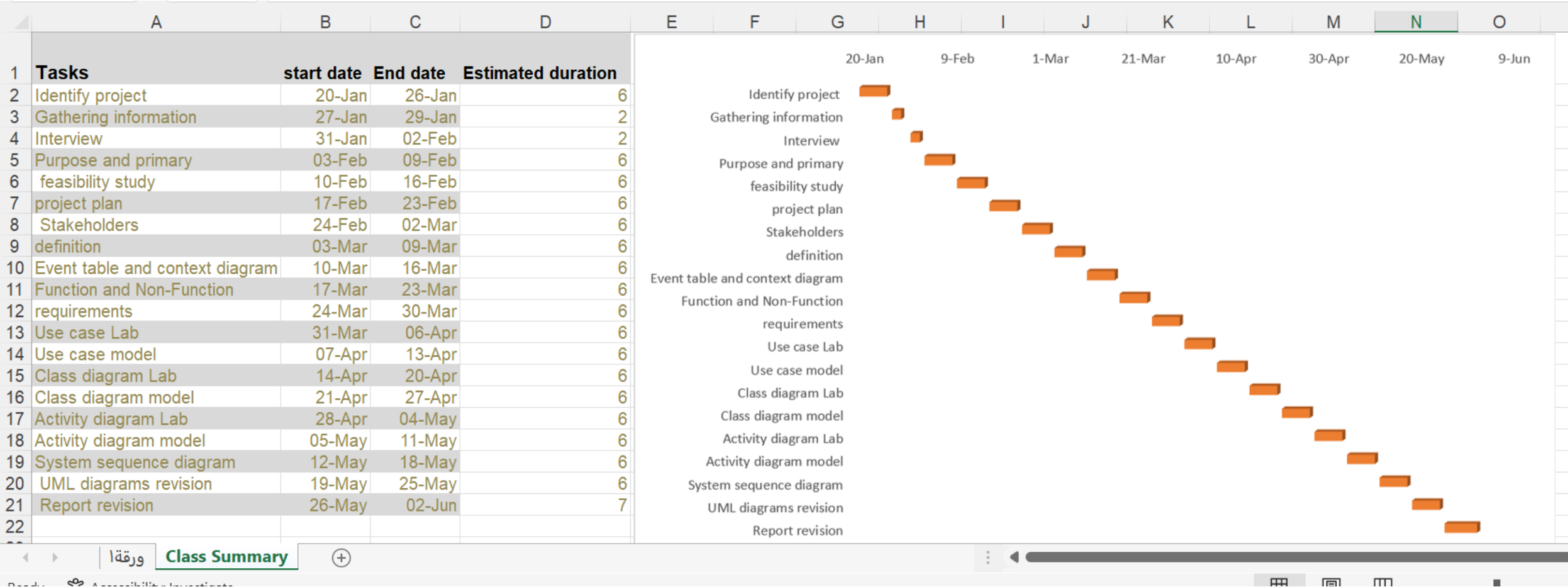
## 6 Recommended Alternative of the Course of Action: Timeless

This application helps Alzheimer's patients to remember events and constantly communicate with family and friends, through the technology of facial recognition through artificial intelligence.

This is the best application that exists at the moment, but the application does not provide the solutions that we provide on our own application, that is, it cannot share the patient's location in cases of loss, and it is also not connected to GPS

Our application offers a lot of solutions that are not present in the Timeless application

# Project plan



# Stockholder Definition

## 1 The Client

- Researchers interested in Alzheimer's disease and how to treat it and deal with patients safely
- Ministry of Health

## 2 The Customer

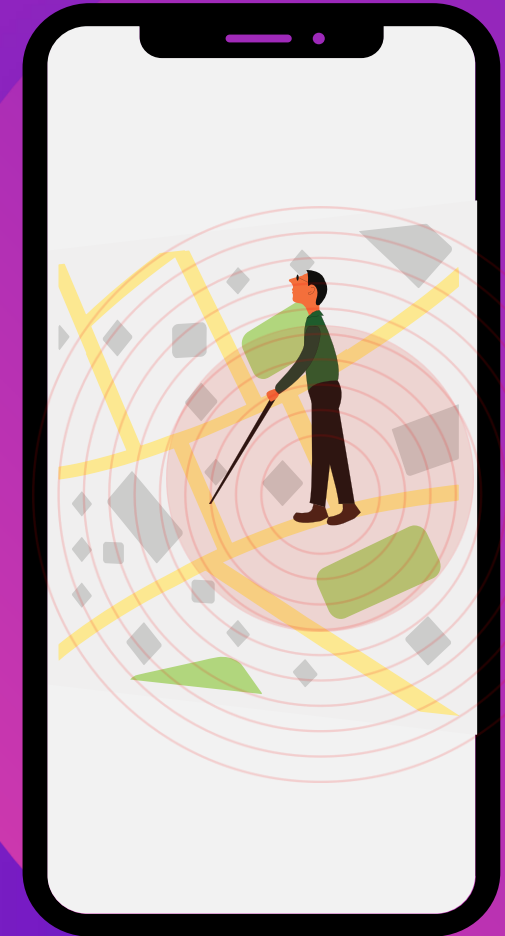
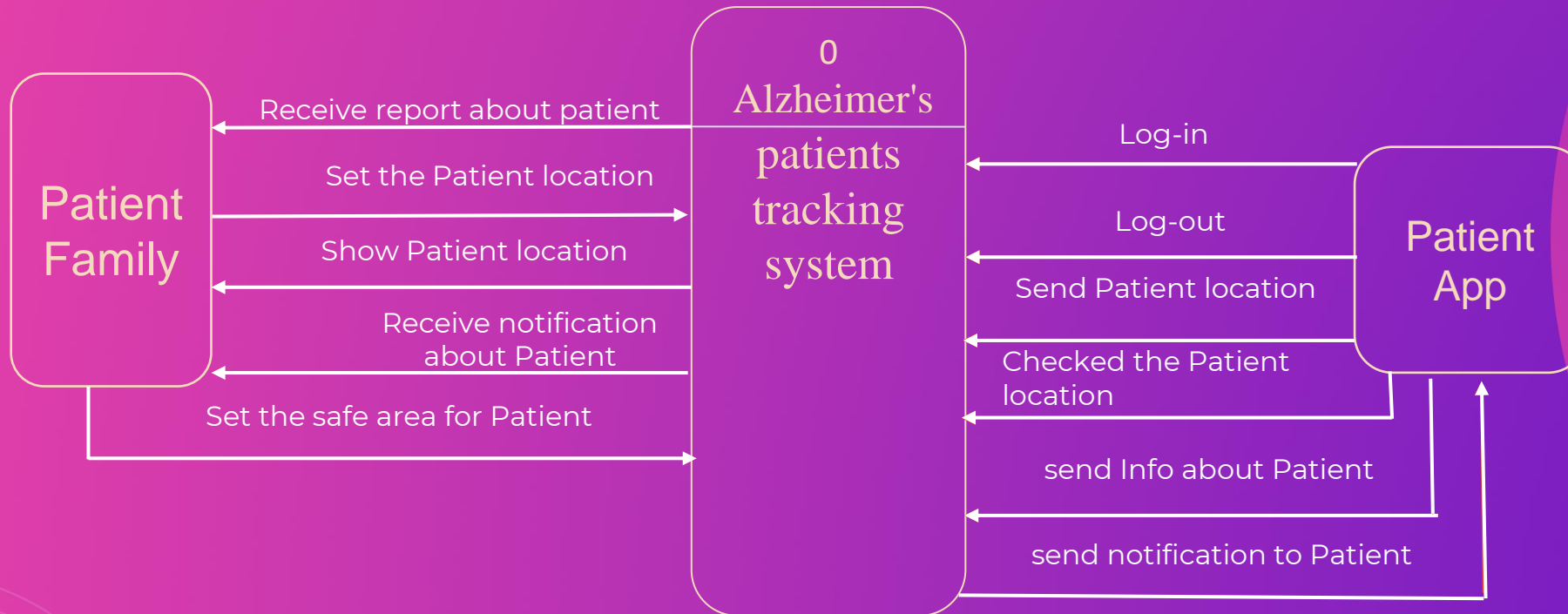
Alzheimer's patients and family  
Another stakeholder

\* Other Stakeholder

System stakeholders for the Alzheimer's patients system include:

- 1- Patients friends Who need help understanding patients' problems. also about the condition and suffering of patients
- 2- Doctors who treat Alzheimer's patients
- 3- Programmer who will program and build the application

# System Context diagram



# System Event List :

Event Name	Input and Output	Summary
Log-in	User name and password (in)	The user have to log to the mobile app by registration for first time and log in to the application
Log-out	Log out (out)	The user have to click on logout to exit from the application in we get message he is logged out from the app
Sent report about patient	Sent report about the patient to the family (out)	The mobile app will send the report to the family in parodic time or if the family request the report
Set the Patient location	The family have to set the dinguses location for the patient (in)	The mobile will save the dinguses location that the family set as dinguses or risk location for the patient



# System Event List :

Event Name	Input and Output	Summary
Show Patient location	Show the patient location (out)	The family can ask the mobile app about the patient location now and get the real location of the patient
send notification about Patient	Alert message sent to the family (out)	The mobile will sand Alert message to the family if the patient in dinguses location the we had set in the application
Set the safe area for Patient	set the safe location for the patient (in)	The mobile will save the safe area location that the family set as safe when the patient out the area the system will send notification if the patient not in the area

# System Event List :

Event Name	Input and Output	Summary
Send Patient location	patient location (in)	The application will get the patient location to in parodic time or if the family request the location
Checked the Patient location	patient location (out)	The application will send the patient location to the family in parodic time or if the family request the location
send Info about Patient	Status of the battery of the mobile device	The application will send notification about Status of the battery of the mobile device and the last patient location before the device get off
send notification to Patient	Alert message to the patient (out)	The application will send Alert message to the patient when he get out of safe area or when he locate in dinguses or risk location

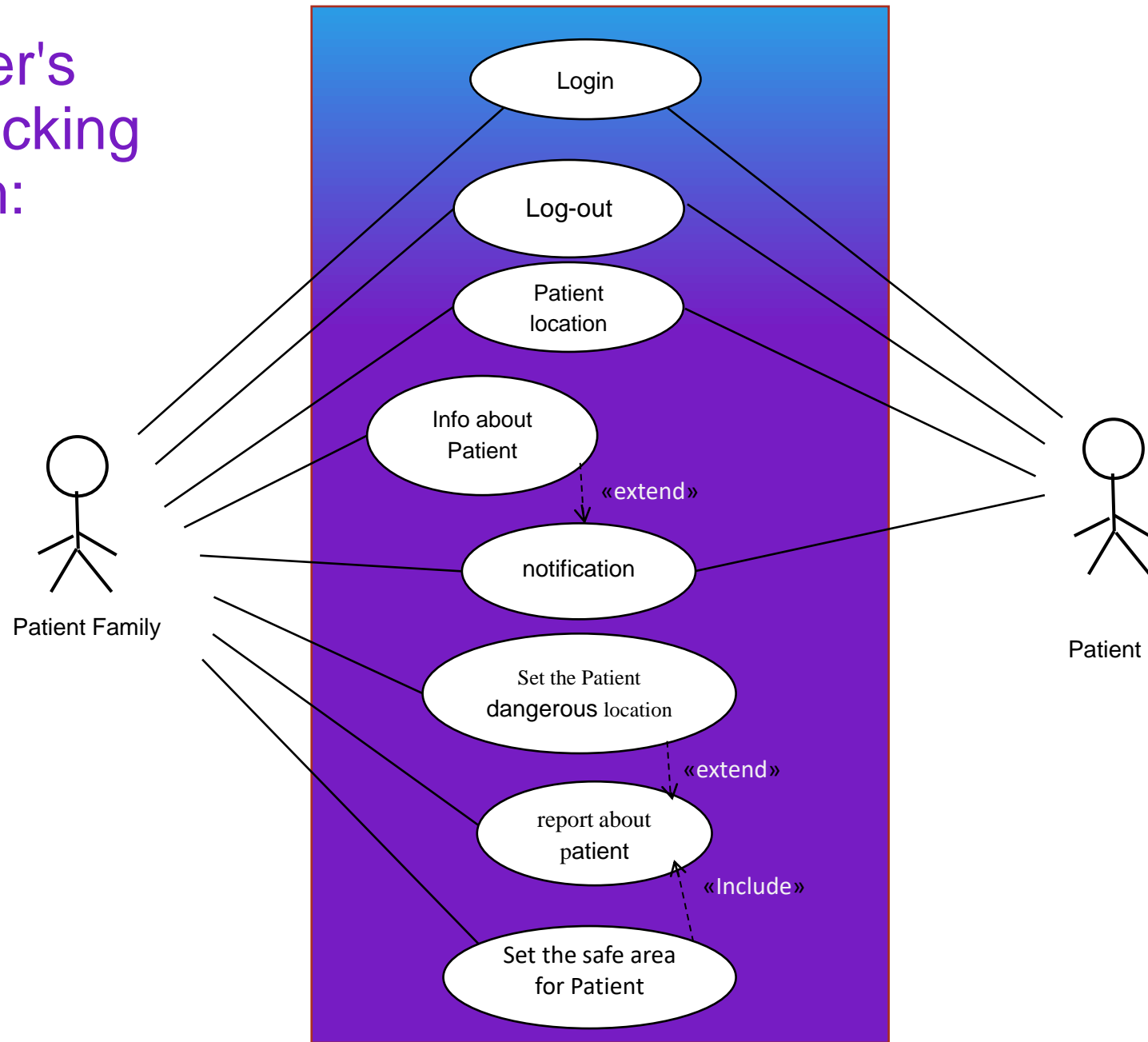
# Functional Requirements

- The app should be able to let the family Patient to make registration, login and edit account.
- The app should be able to detect the current location of the Alzheimer's patients
- The app should be able to let the family Patient to create multiple geo-location (multiple geo-fence) to monitor their Alzheimer's patients with monitoring period.
- The app should be able to guide the family Patient to Alzheimer's patient's direction.
- The app should be able to provide two-ways communication for the family Patient to communicate with their Alzheimer's patients as needed.
- The app should be able to trigger an alert whenever the Alzheimer's patients is entering or leaving the set geo-location (multiple geo-fence).
- The app should be able to trace the history of the route went through by the patient family
- The app should be able to trigger an alert to the patients whenever the patients is entering dangerous location or leaving safe area of the geo location (multiple geo-fence).

# Non-Functional Requirements

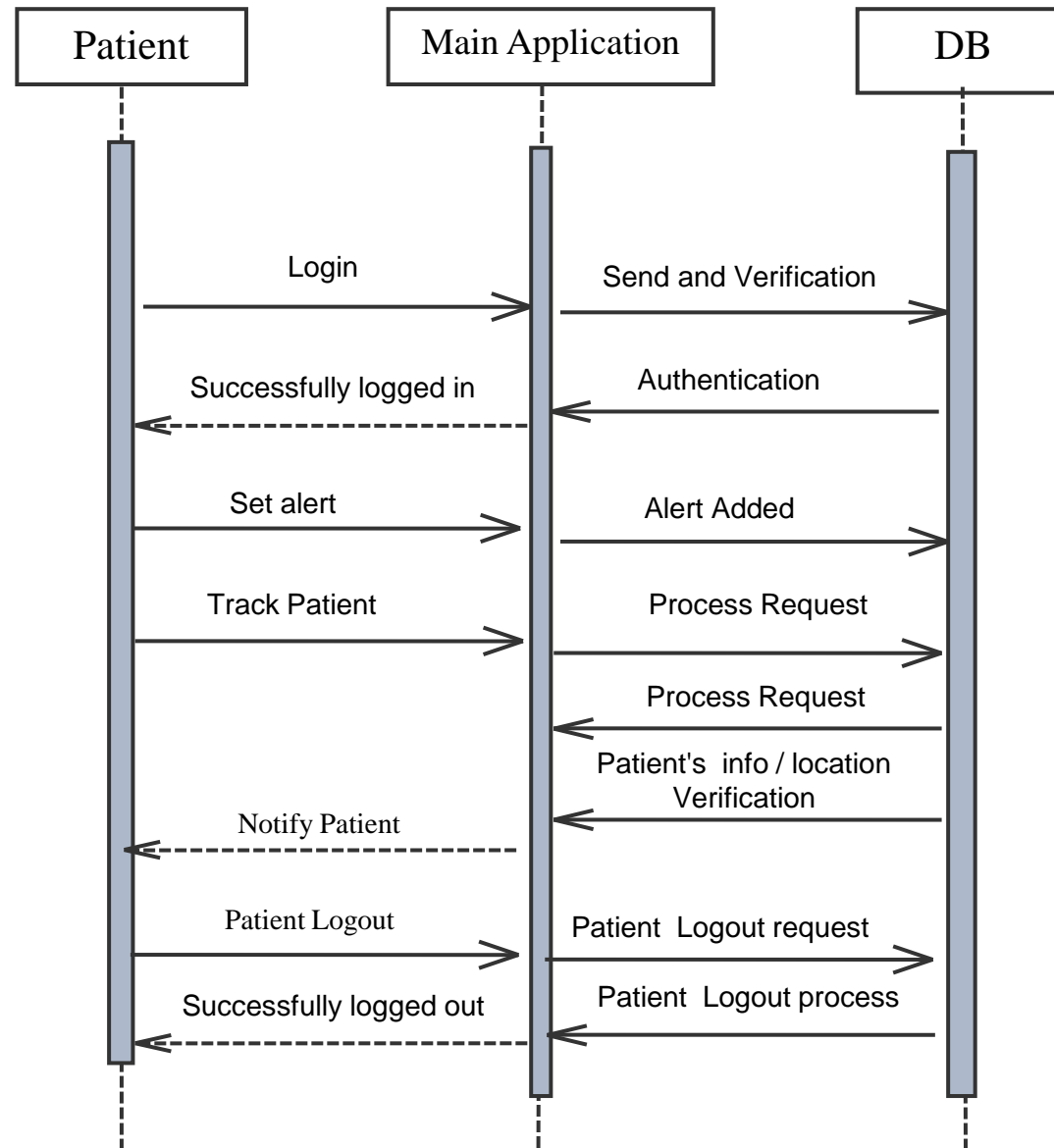
- The location of the Alzheimer's patients should be retrieve in less than 10 second at outdoor in a stable GPS and network connection.
- The alert should be trigger with the maximum allowed delay of not more than 5s.
- The server must have a minimum up-time of 99%.
- The system should be able to cope with minimum 10 user connection.

# Alzheimer's patients tracking system:

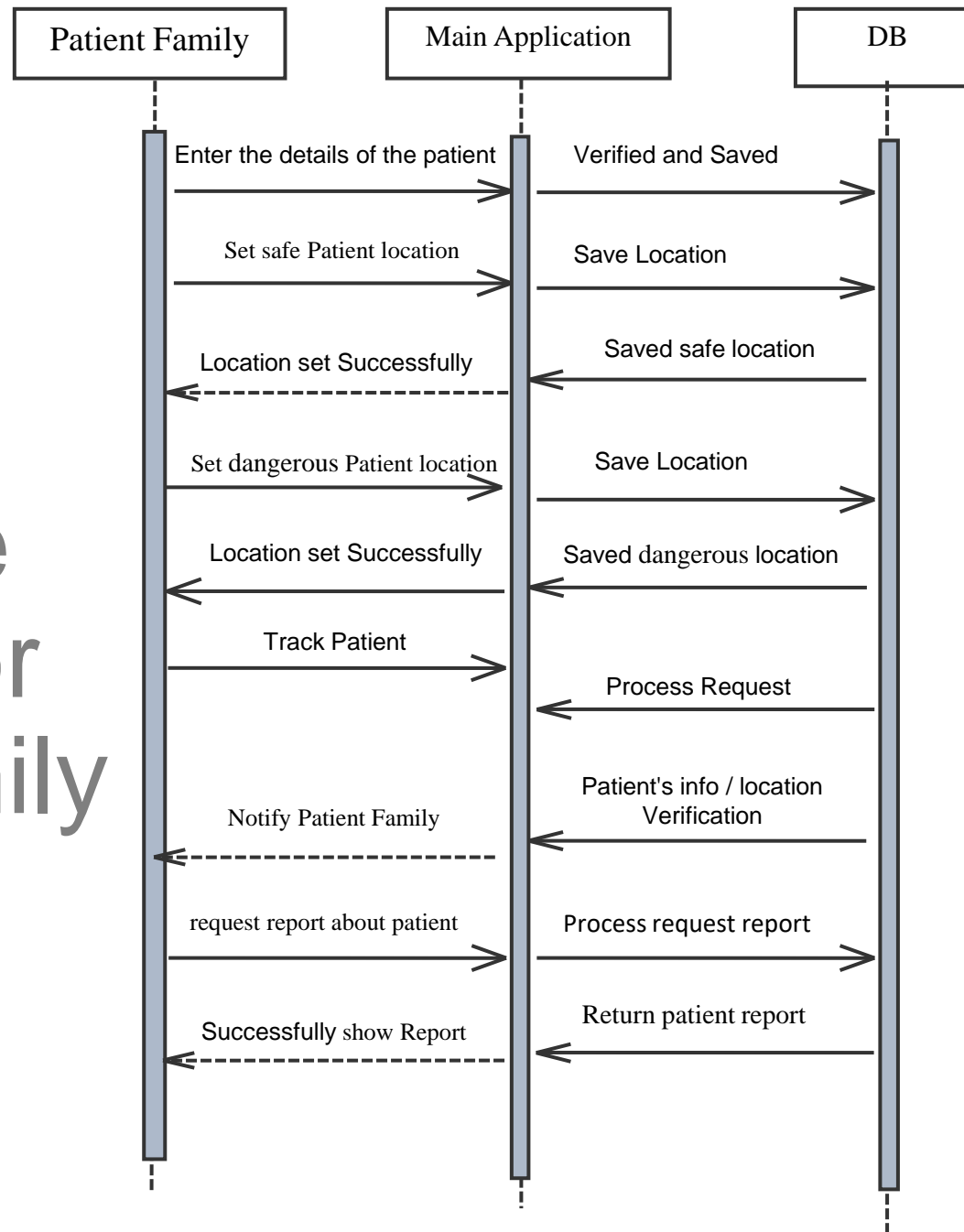


USE CASE DIAGRAM

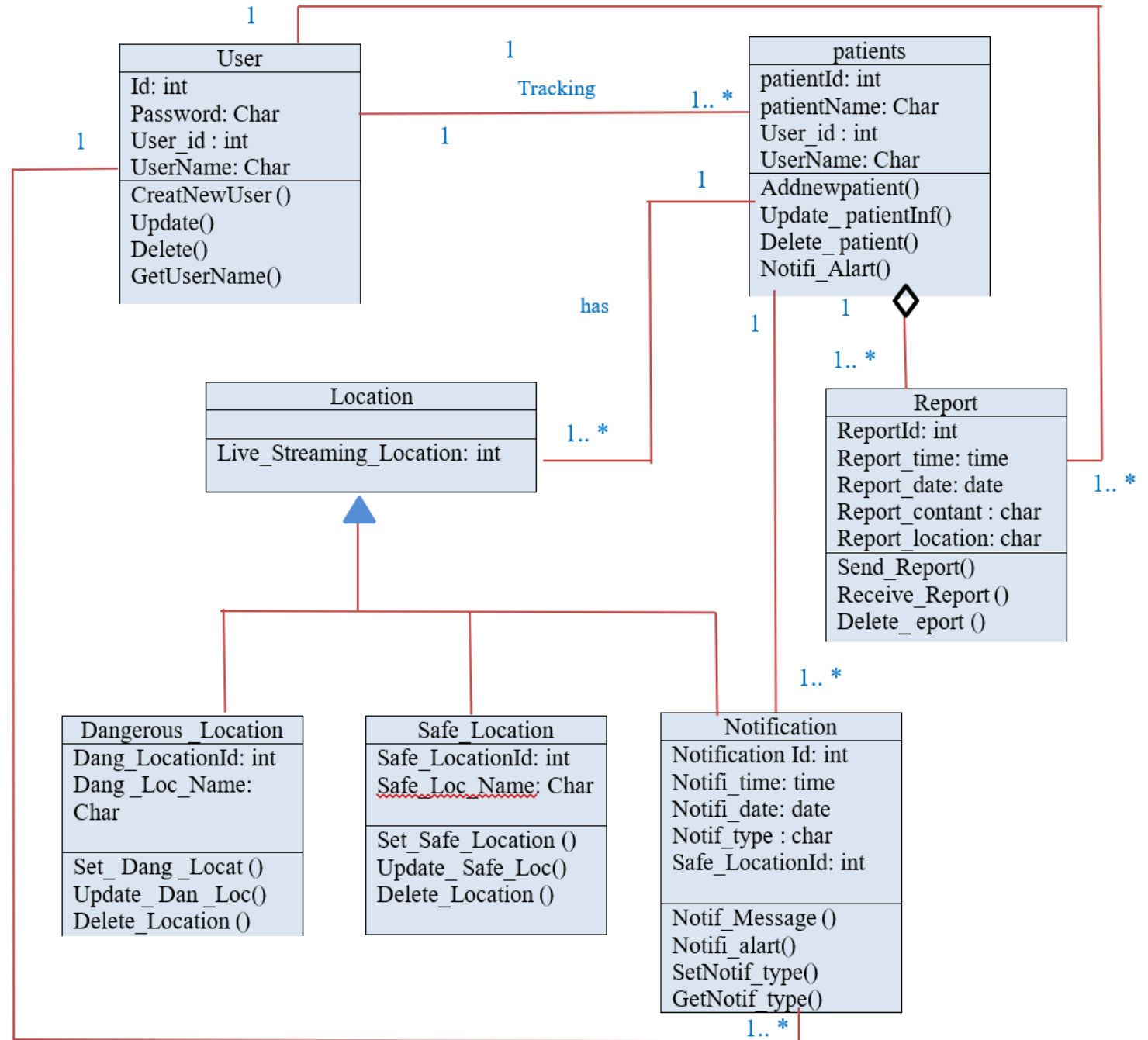
# Sequence diagram for Patient



# Sequence diagram for Patient Family



# Class diagram of Alzheimer's patients tracking system



## - Conclusion -

At the end of this presentation, Alzheimer's disease is the most common cause of dementia, as the patient finds it difficult to think and interact with others, even for simple daily activities, and there is no cure. But it can be dealt with, and many ways help the patient to be in the best possible condition and I hope that our application will help Alzheimer's patients and their families





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THANK  
YOU