Corona Archive

Introduction

PURPOSE

The purpose of this document is to build a web service for Corona disease management which enables digital tracking of citizens which enter certain places and keeping the records in case of a Covid infection spread.

PROJECT SCOPE

Corona Archive is supposed to be a web service for tracking, displaying, evaluating, and archiving of the Corona infections in a particular location. The web service will be accessible to 4 types of users:

1. **Visitors:** Citizens or visitors will use the web service to indicate whether they have entered a particular place and when they have done so.
2. **Places:** Places which are frequently visited by people, such as clubs, pubs, restaurants, cinemas etc. will use the web service to get access to a QR code, which uniquely identifies their place. Citizens will scan this QR code to record their presence at that place.
3. **Agency:** The agency or the evaluation client will use the web service to generate corona-related reports by collecting data from the database.
4. **Hospital:** Hospitals will use the web service to mark people as infected and track anyone else that has been in contact with an infected person.

TECHNOLOGIES USED TO IMPLEMENT THE WEB SERVICE

User-Interface

The technologies used for the user interface of the Corona Archive Web Service consist of:

- (HTML), used to build the structure of the web service and display the content.

- (CSS), used to style the content of the web service.
- JavaScript (JS), used to add functionalities and make the web service more interactive with the employees.

Application

The technologies used for the application of the Corona Archive Web Service consist of:

- Python

Database

The technologies used for the management and storage of data of the Corona Archive Web Service consist of:

- MySQL, used to access, update, and maintain all data in the database, such as: employees' log in credentials, their status, goals they have written in the corona archive and changes they have made to the other sections of the corona archive.

Requirements Analysis

USER REQUIREMENTS

1. A user of the application shall be either a visitor, a place owner, an agent, or a hospital.
2. If not already registered, visitors will be required to register in the web service by providing some information.
3. Visitors are required to enter their name, address, and city they live in.
4. Visitors will have the option to choose whether to provide their contact number, email address, or both.
5. If visitors are registered users, they will not have to enter anything; instead, all the fields will be automatically filled once they scan the QR code provided by the place they are frequenting.

6. Place owners will be able to obtain a QR code by registering with information about their place, such as name, address, and a contact point, such as an email address or contact number.
7. The agent will have access to the entire database.
8. Agent will have two functionalities at hand to track all infections between intervals of days:
    a. Search by person
    b. Search by place
9. Agent will be able to search for an infected person and find information related to them.
10. Agent will be able to track all the places an infected person has been to in a period of time specified by the agent.
11. Agent will be able to get a list of all the visitors that were present in any of the places that the infected person had visited.
12. The hospital will have the rights to mark people as infected when they are tested positive for Covid and unmarking them once they are recovered.

SYSTEM REQUIREMENTS

1. The visitor must be able to register.
2. The place must be able to register.
3. Authentication/validation of a user on trying to register to the system must be performed.
4. The visitor must fill in the form displayed to their screen by providing information such as enter their name, address, and city they live in.
5. The visitor must choose whether to provide their contact number, email address, or both.
6. After registering, the visitors must be directed to the scanning page.
7. The visitor must modify their data in the system at a later time if necessary.
8. Agent and hospitals must be able to log in.
9. Agent shall be able to log in with the credentials given by us
10. Authentication of a user on trying to log in to the system must be performed.
11. The place owners must register with information about their place, such as name, address and a contact point, such as an email address or contact number.
12. The place owners shall be given a QR code.
13. QR code given to place owners shall be able to be downloaded.
14. The visitor after scanning the QR code and clicking Submit button, will be redirected to the “You’re in” page.
15. Agent shall have read write access on the database.
16. Agent must see the list of the visitors which are registered.
17. Agent must see the list of the places owners which are registered.
18. The place, the time and the date when a visitor entered a place and when they left that place must be shown in the agent’s page.

19. Agent shall be able to search by person with the option of also adding a time interval.
20. Agent shall be able to search by place with the option of also adding a time interval.
21. Agent shall track the people who were present at a particular place.
22. Agent shall see with whom a particular person was at a particular place.
23. Agent shall see the list of the places which are registered.
24. Agent must add hospitals.
25. Agent must see the list of hospitals.
26. Hospital must see the list of visitors registered.
27. The hospital shall search the visitors by name.
28. Hospital must be able to check or uncheck the status of healthiness of a particular visitor.
29. To operate in the web service, the hospital must be licensed by the local authority.
30. The user shall leave by clicking a button.
31. When clicking Leave button, the visitor must be redirected to the main page.
32. No real name, place shall be used.
33. The application must consider Autofill values.
34. The application must support X users at the same time.
35. When the submit button is pressed, the confirmation screen must load within 2 seconds.
36. The system must support the collapse and expansion of different sections.
37. The ID of device must be stored with hidden form.

Non-goals:

1. Agent shall give log-in credentials to hospital.
2. Agent shall download the displayed data.
3. The hospital shall automatically send an email to the user who is infected or might be at risk of having been infected.
4. The application must display the duration of visit of a visitor at a place.
5. When clicking the Leave button, the visitor must be redirected to the Duration page for 5 seconds.
6. After Duration page is displayed, the visitor must be redirected again to the scanning page.

FUNCTIONAL REQUIREMENTS

CA01: The visitor must be able to register.

CA02: The place must be able to register.

CA03: Authentication/validation of a user on trying to register to the system must be performed.

CA04: The visitor shall fill in the form displayed to their screen by providing information such as enter their name, address, and city they live in.

CA05: The visitor must choose whether to provide their contact number, email address, or both.

CA06: After registering, the visitors must be directed to the scanning page.

CA07: The visitor must modify their data in the system at a later time if necessary.

CA08: Agent and hospitals must be able to log in.

CA09: Agent shall be able to log in with the credentials given by us

CA10: Authentication of a user on trying to log in to the system must be performed.

CA11: The place owners must register with information about their place, such as name, address and a contact point, such as an email address or contact number.

CA12: The place owners shall be given a QR code.

CA13: QR code given to place owners shall be able to be downloaded.

CA14: The visitor after scanning the QR code and clicking Submit button, will be redirected to the "You're in" page.

CA15: Agent shall have read write access on the database.

CA16: Agent must see the list of the visitors which are registered.

CA17: Agent must see the list of the places owners which are registered.

CA18: The place, the time and the date when a visitor entered a place and when they left that place must be shown in the agent's page.

CA19: Agent shall be able to search by person with the option of also adding a time interval.

CA20: Agent shall be able to search by place with the option of also adding a time interval.

CA21: Agent shall track the people who were present at a particular place.

CA22: Agent shall see with whom a particular person was at a particular place.

CA23: Agent shall see the list of the places which are registered.

CA24: Agent must add hospitals.

CA25: Agent must see the list of hospitals.

CA26: Hospital must see the list of visitors registered.

CA27: The hospital shall search the visitors by name.

CA28: Hospital must be able to check or uncheck the status of healthiness of a particular visitor.

CA29: The user shall leave by clicking a button.

CA30: When clicking Leave button, the visitor must be redirected to the main page.

CA31: The ID of device must be stored with hidden form.

NON-FUNCTIONAL REQUIREMENTS

CA32: To operate in the web service, the hospital should be licensed by the local authority.

CA33: No real name, place shall be used.

CA34: The application must consider Autofill values.

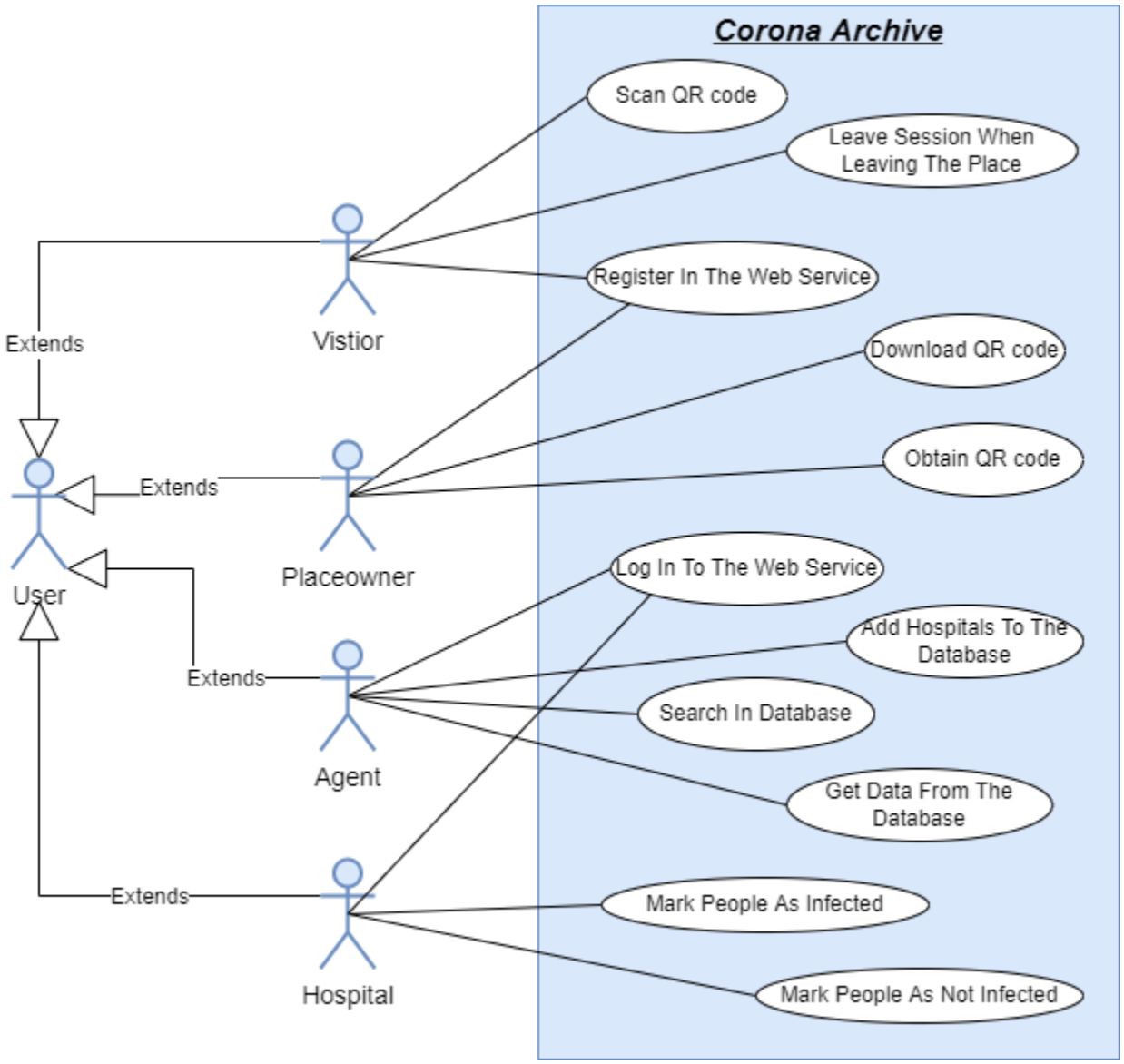
CA35: The application must support X users at the same time.

CA36: When the submit button is pressed, the confirmation screen must load within 2 seconds.

CA37: The system must support the collapse and expansion of different sections.

Use Case Diagram

The use case diagram displays the user's possible interactions with the system. As it can be seen, the four users of the web service interact differently with the system but have common meeting points in some of the interactions.



Architecture of Corona Archive

The architecture of Corona Archive will consist of three layers or sub-systems:

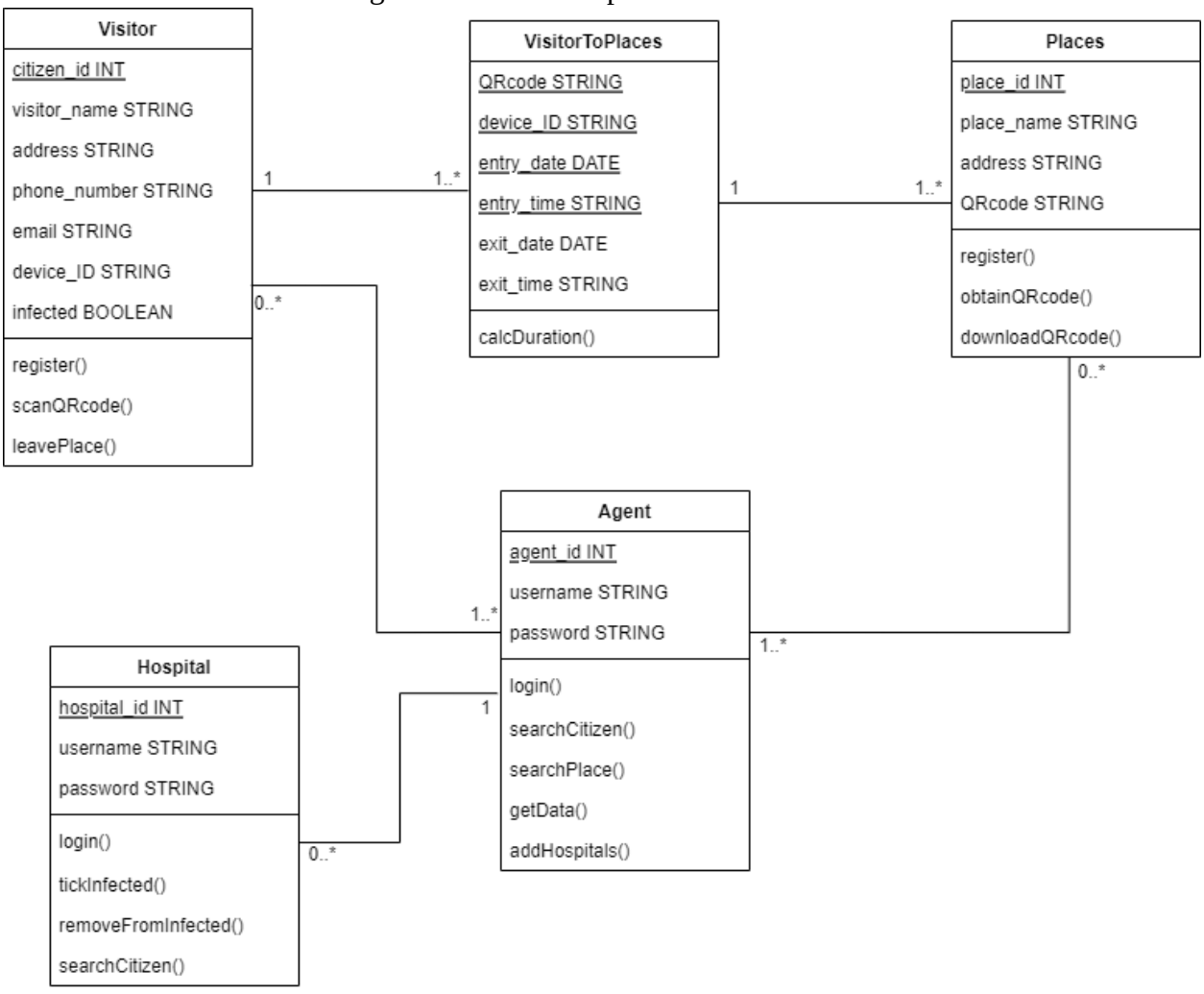
1. Presentation Layer → The presentation layer will display the user interface and will make the interaction with the users easier to achieve. This layer will receive input from the users and display the output to the browser.

2. Application Layer → This layer will process the information collected from the presentation layer. In addition, it will determine the way and which data will be accessed from the data layer.

3. Data Layer → This layer will be the place where all the information processed by the application is stored.

Class Diagram

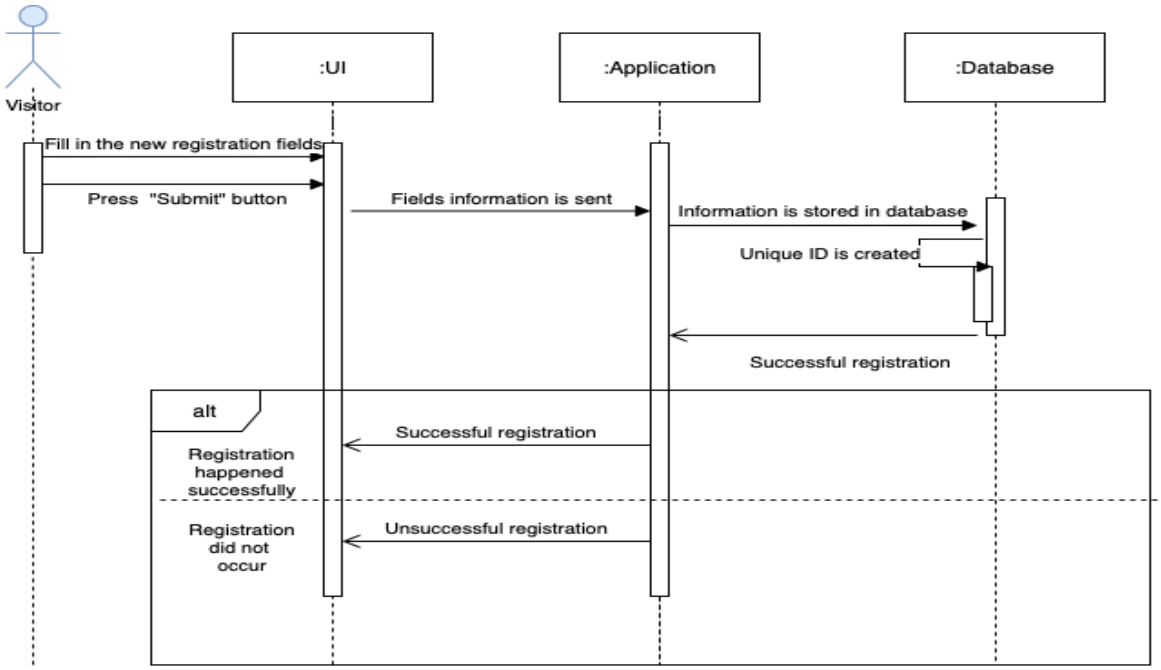
The class diagram better displays the structure of the web service by modeling in a detailed way the classes that we are building the web service upon.



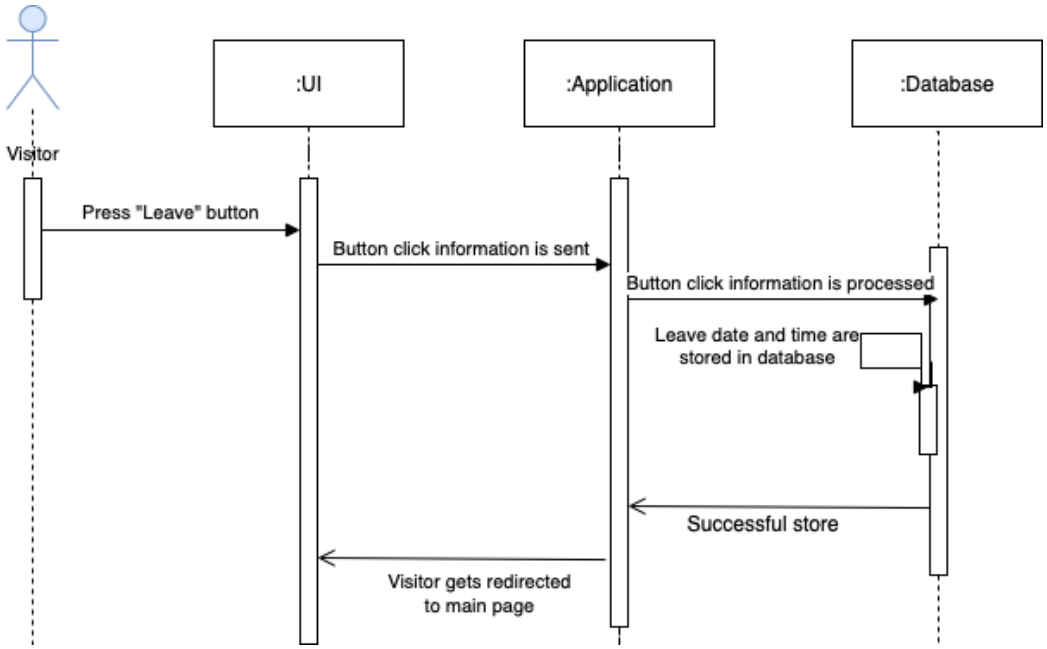
Sequence Diagrams

All the sequence diagrams below show the flow of order, when the objects interact with one another and how they interact with one another.

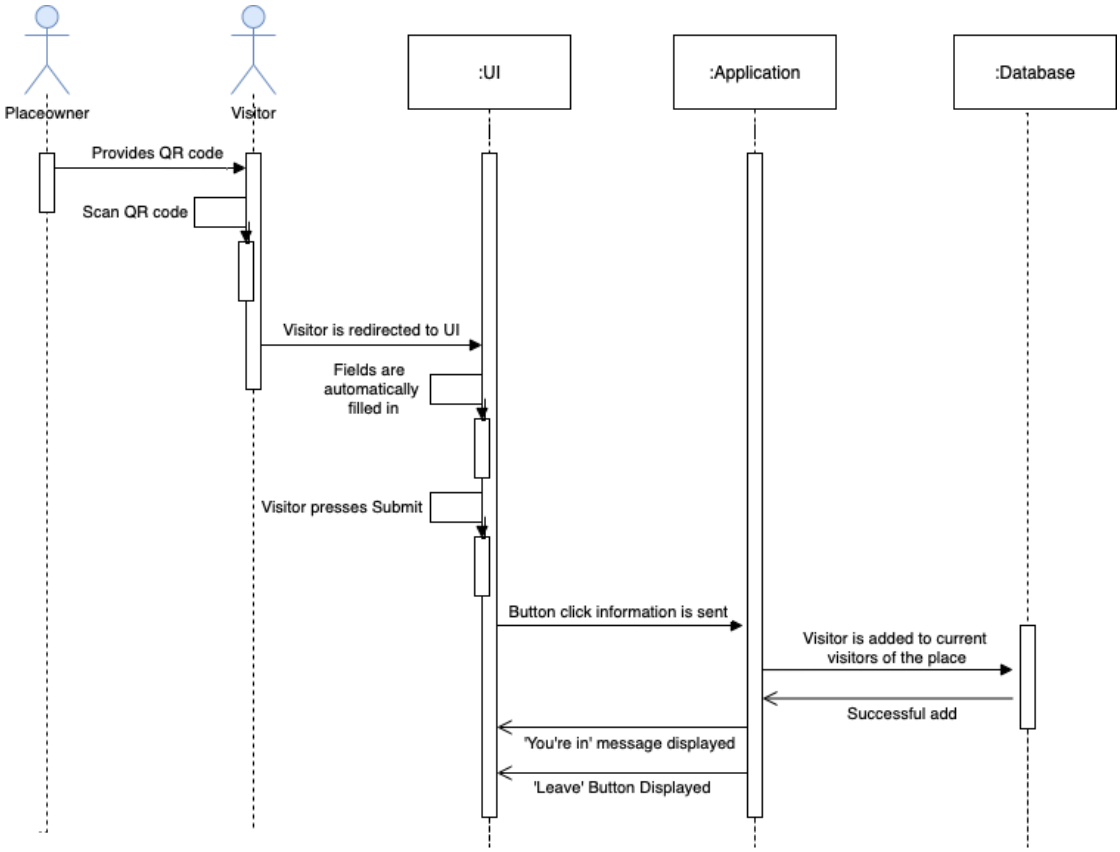
Visitor Registers In The Web Service



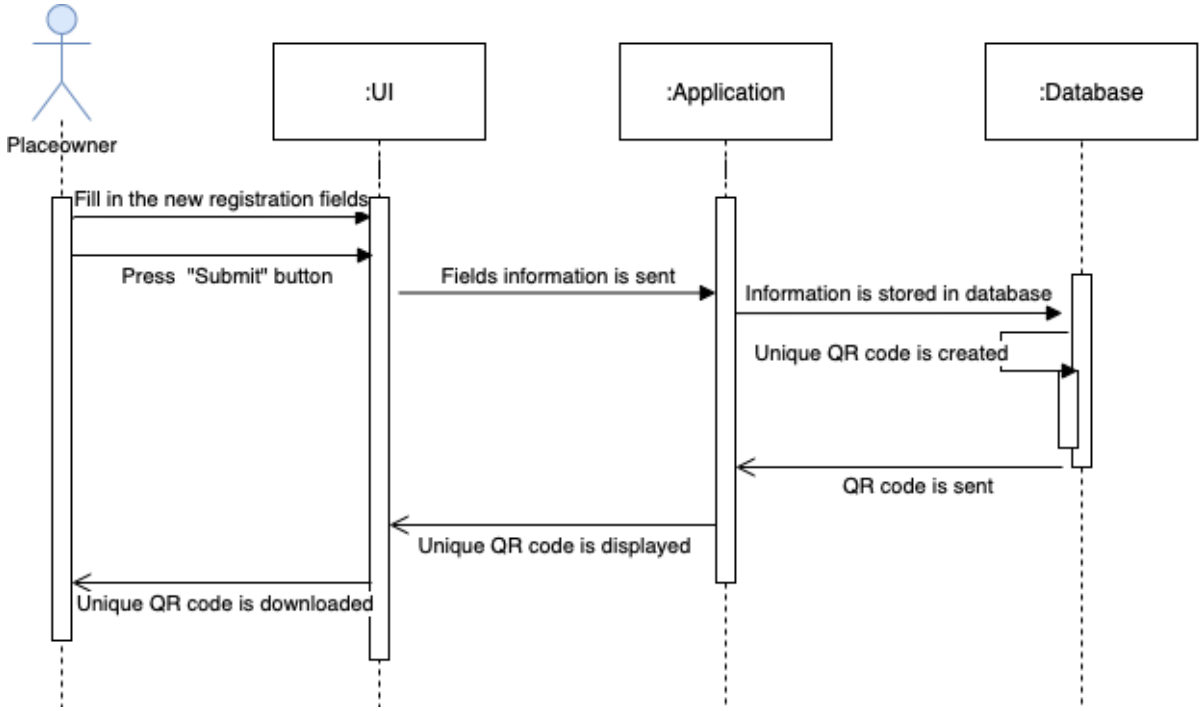
Visitor Leaves The Session



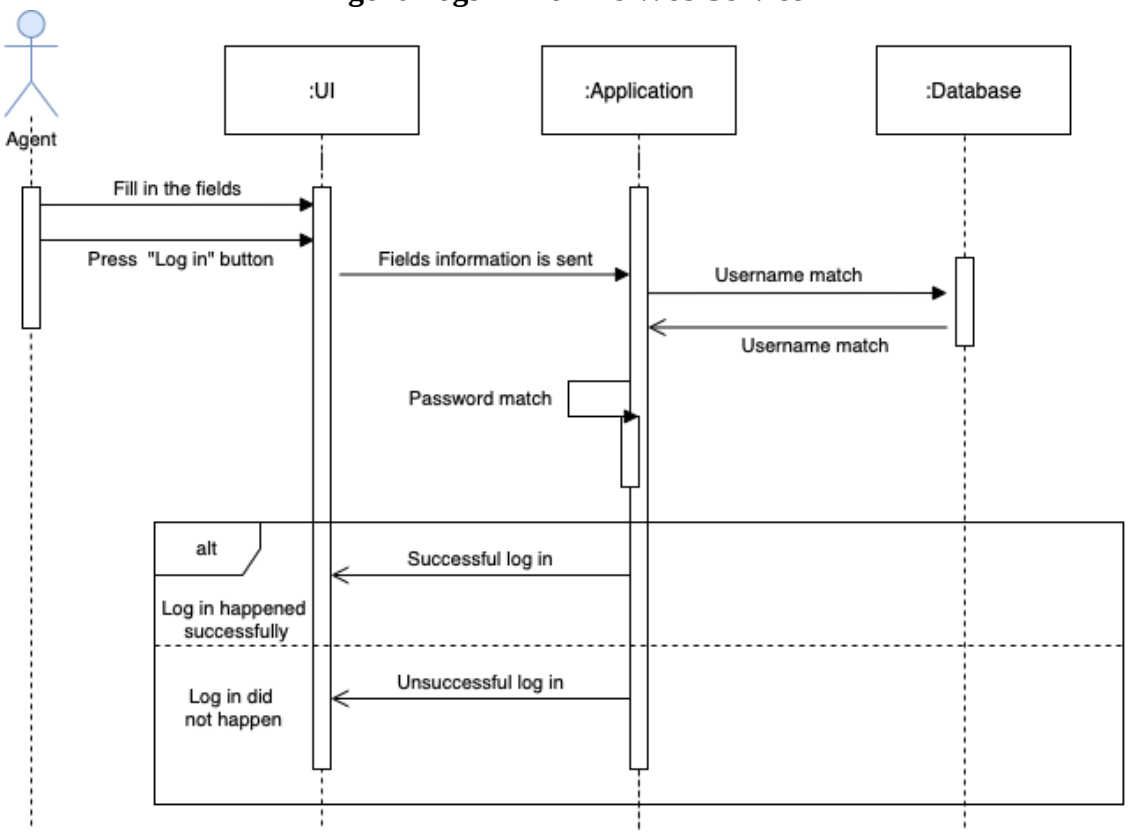
Visitor Scans QR Code Provided By Placeowner



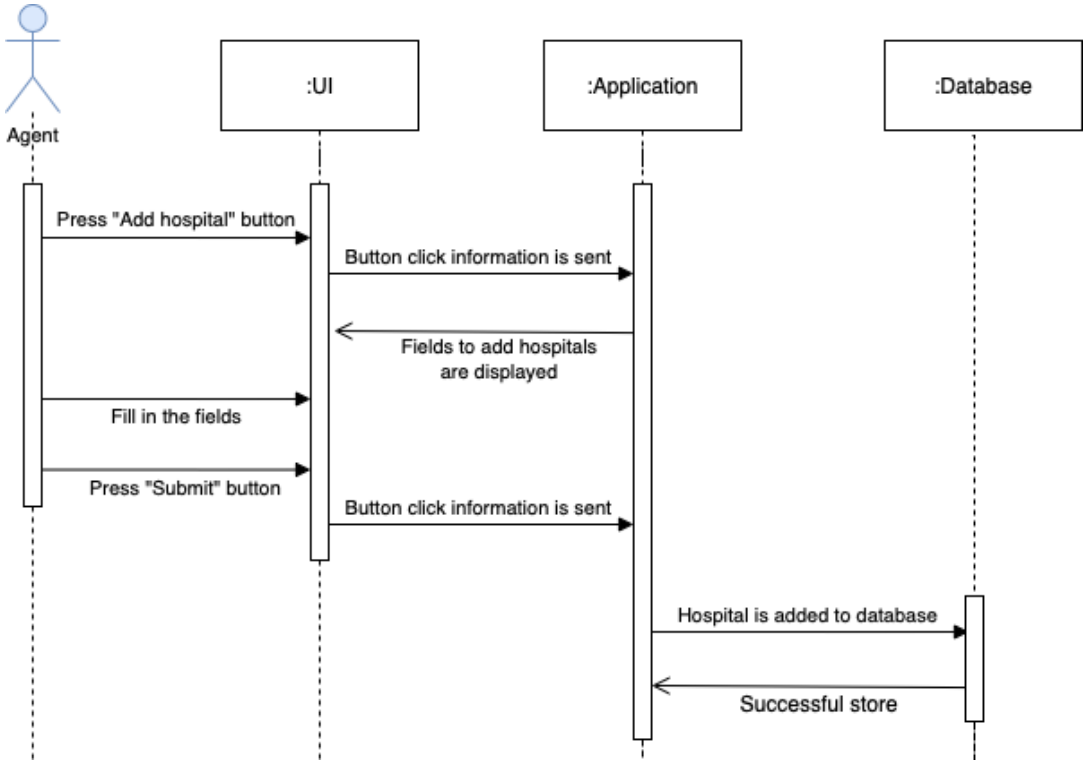
Placeowner Obtains QR Code



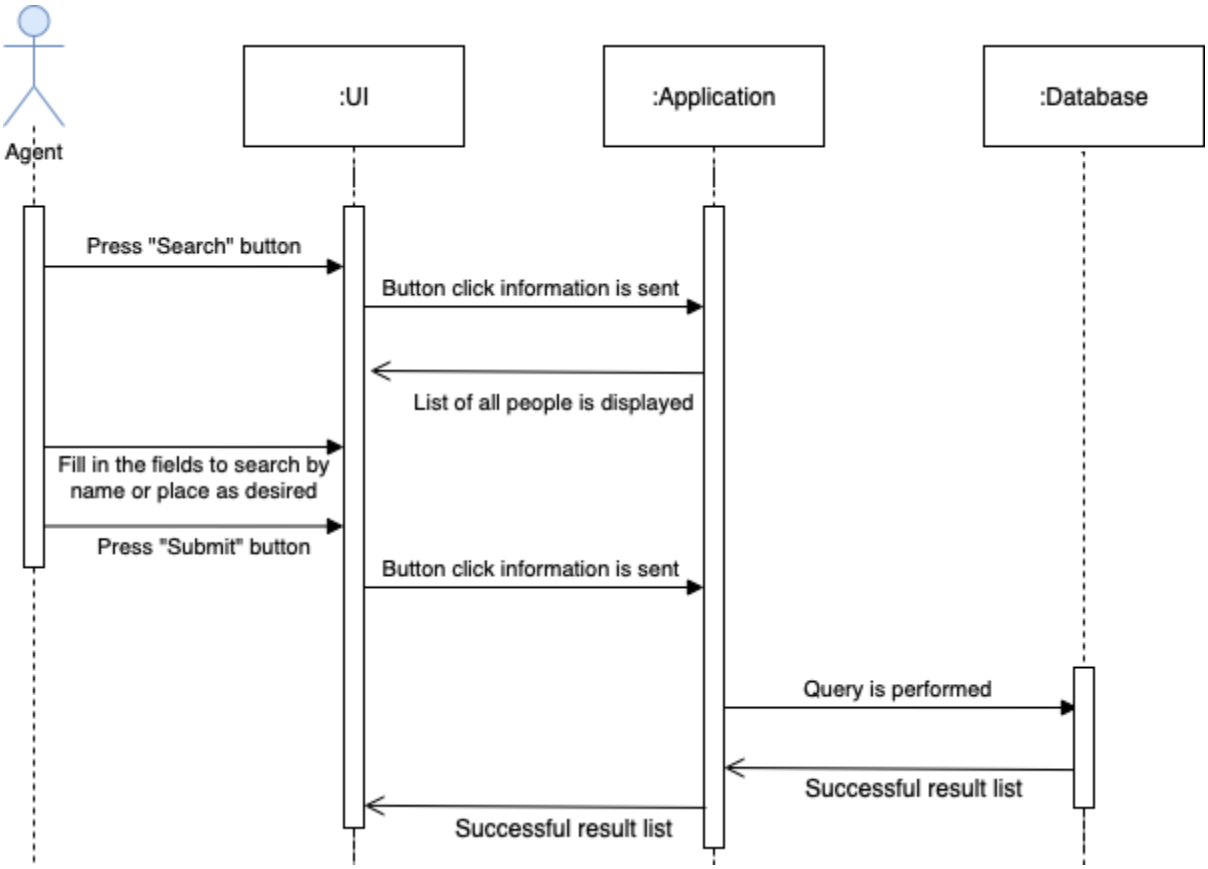
Agent Logs In To The Web Service



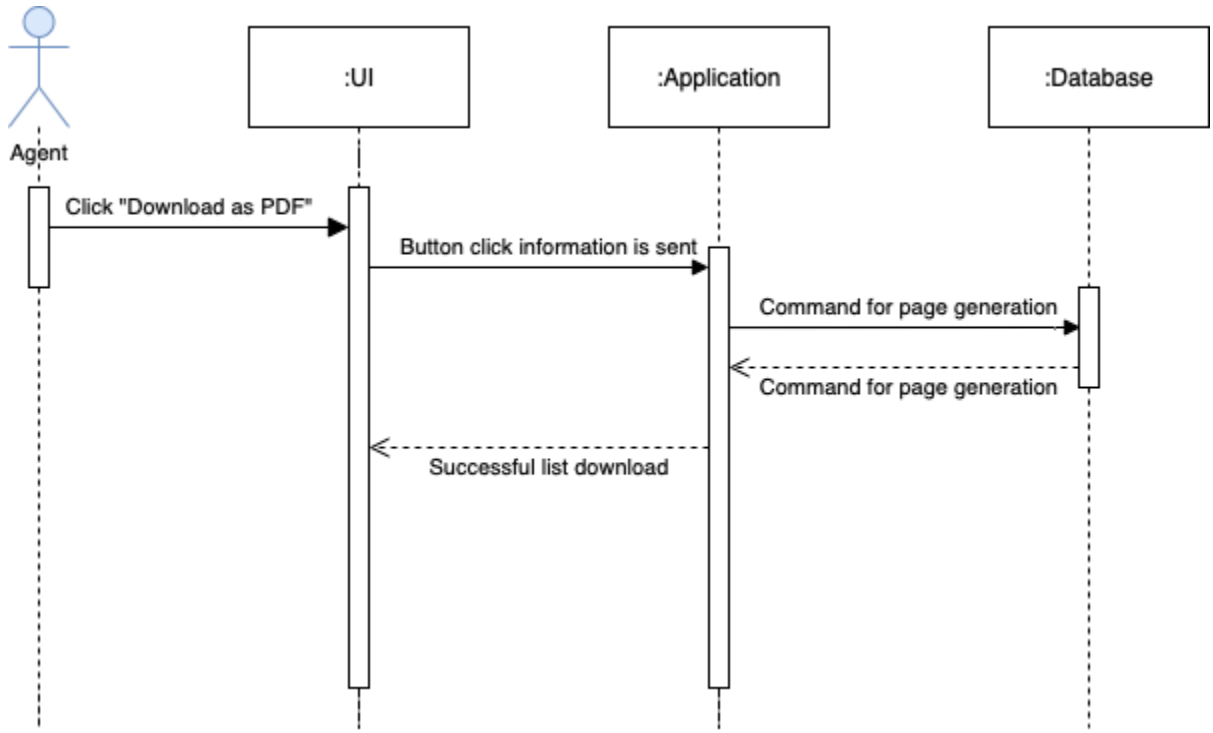
Agent Adds Hospitals To The Web Service



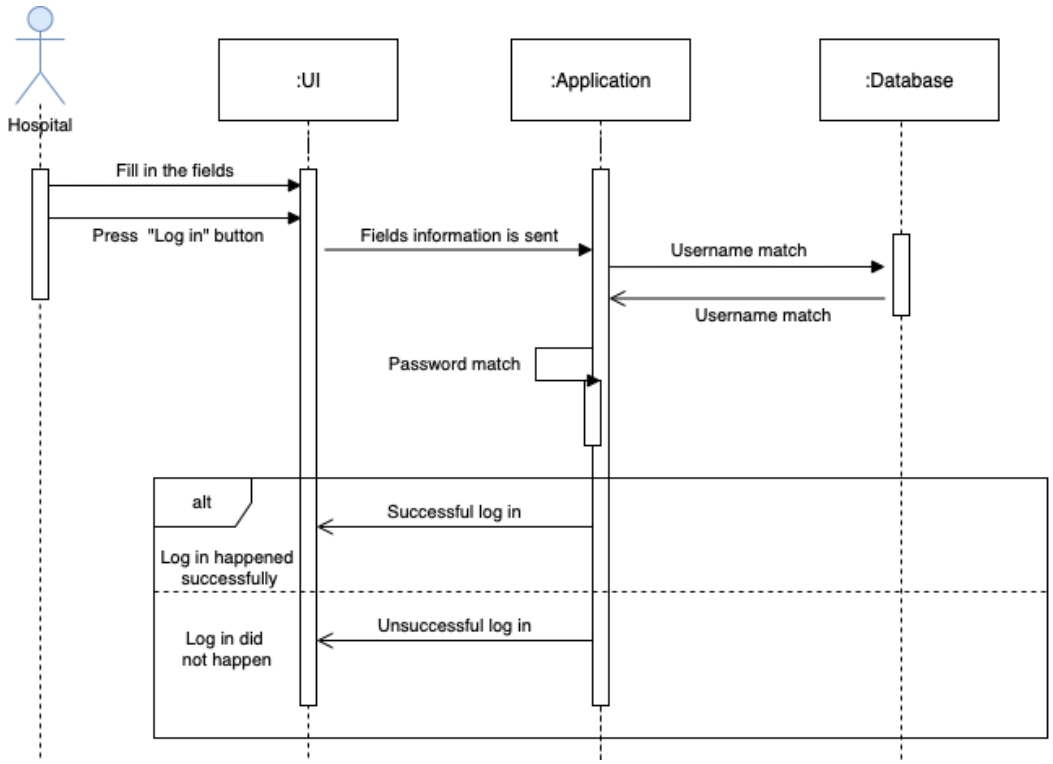
Agent Searches In Database



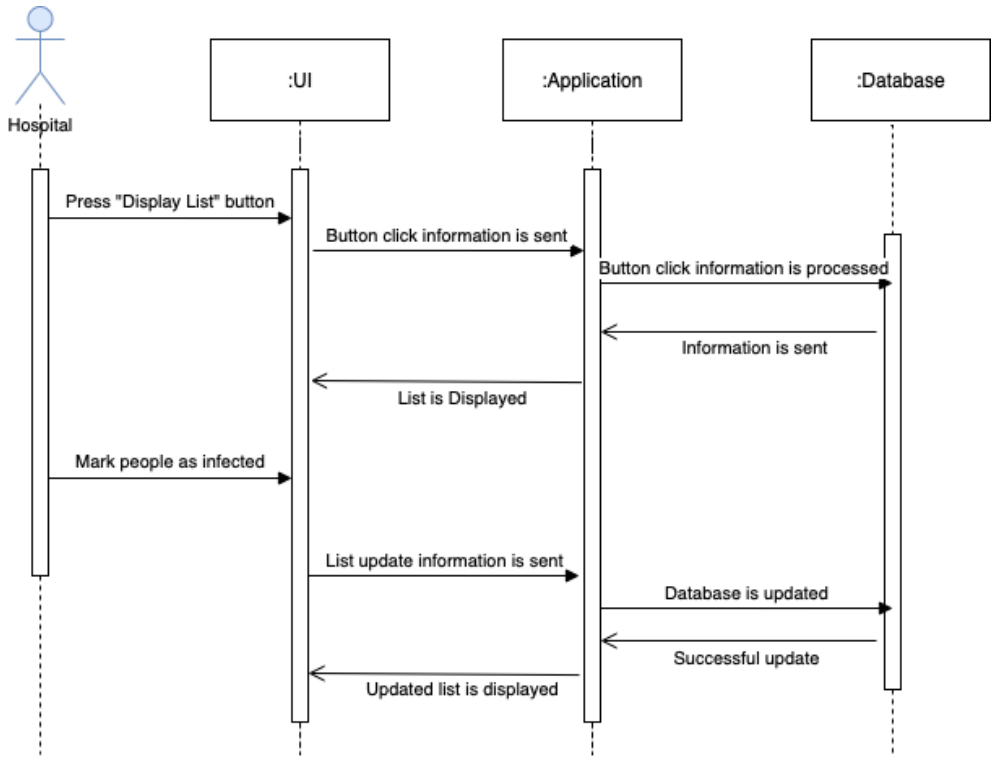
Agent Downloads Information



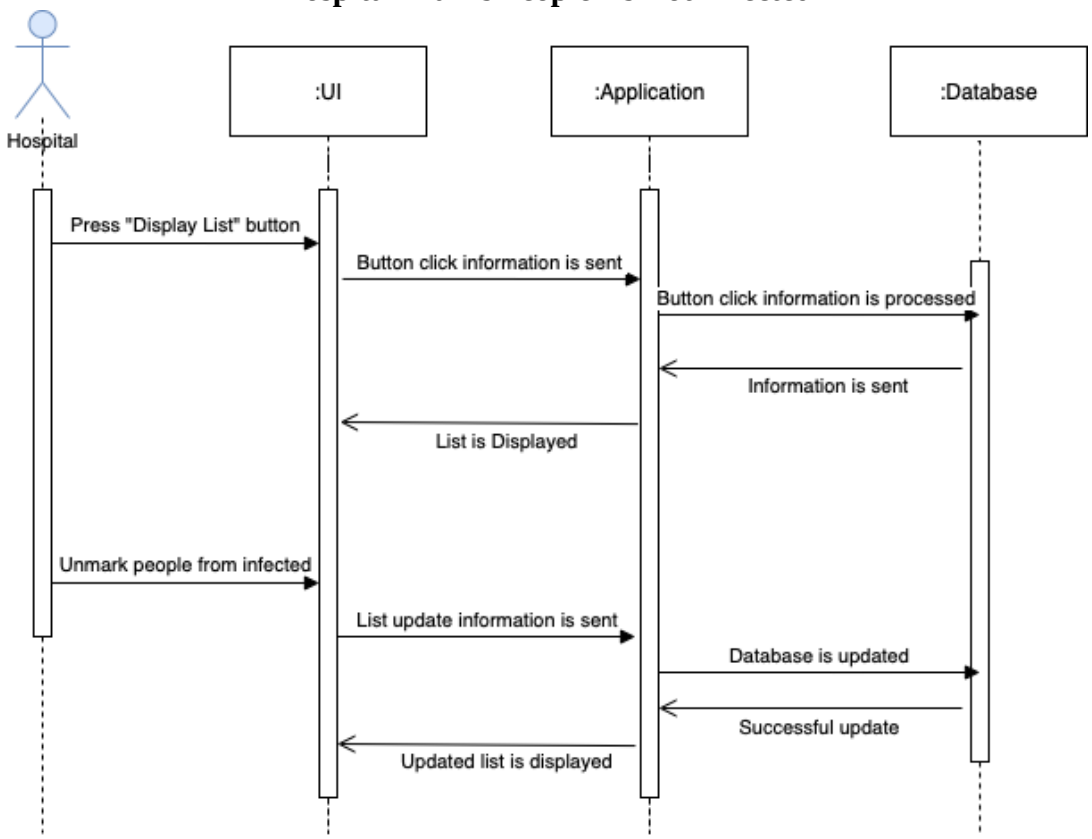
Hospital Logs In To The Web Service



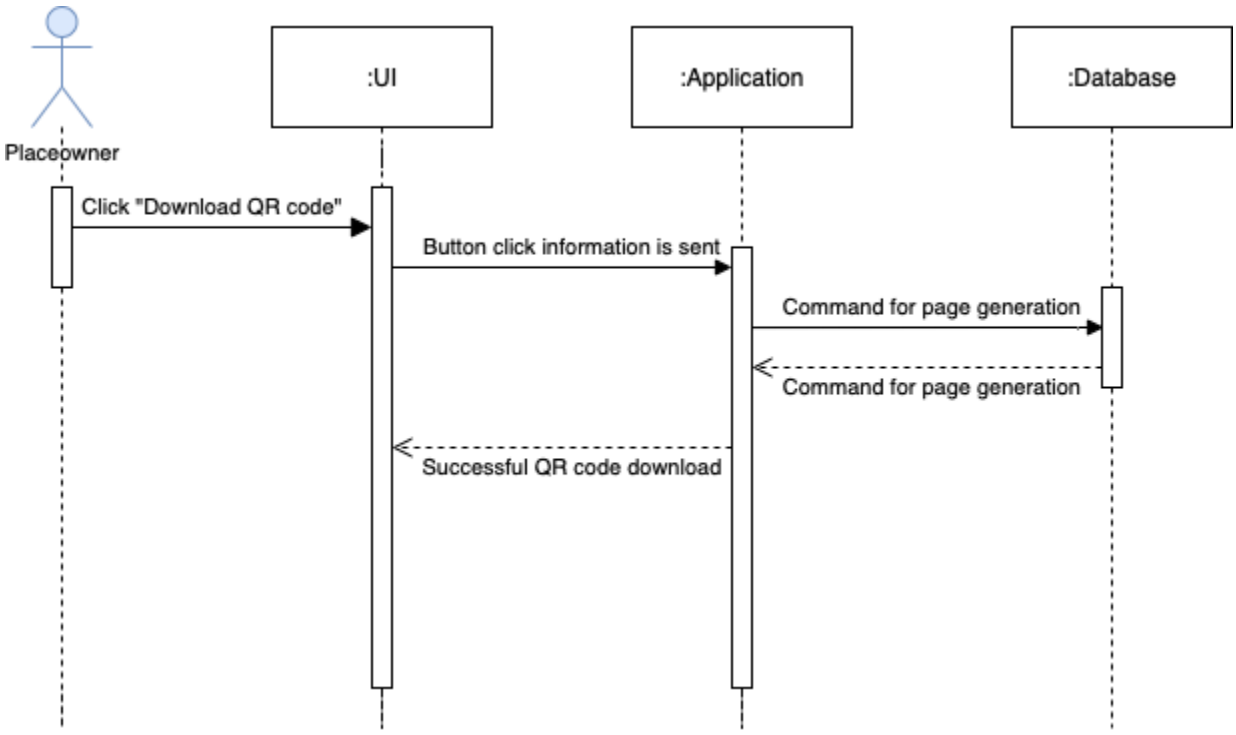
Hospital Marks People As Infected



Hospital Marks People As Not Infected



Placeowner Downloads QR code



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