Requirements document for House Watching Service

Date: 4/28/2021

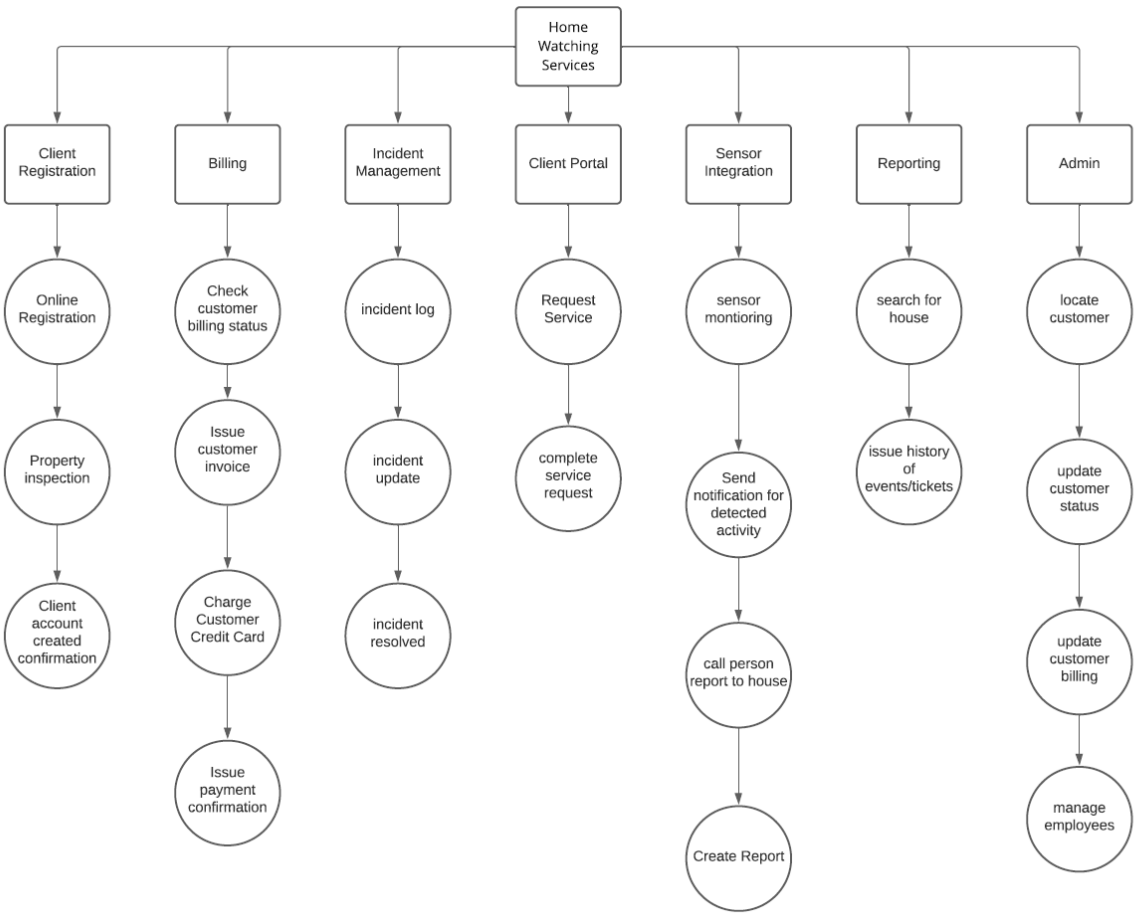
By: You Ming Chen

Revision History

Revision number	Date	Reason for revision	Revised by
1	4/28/21	Initial Draft	You Ming Chen
2	5/3/21	Update decomposition diagram	You Ming Chen

1. Scope statement
    1.1. Ability to let clients sign up for service account online.
    1.2. Ability to add credit card to customer's account.
    1.3. Ability to bill clients monthly.
    1.4. Ability to let clients submit service request.
    1.5. Ability to let clients check on tickets.
    1.6. Ability to monitor sensor 24/7.
    1.7. Ability to alert employee and client if sensor is triggered.
    1.8. Ability to create reports and findings when a call person checks on the house of the alarm.
    1.9. Ability to search for history of events and tickets for a particular house.
    1.10. Ability to activate/deactivate a client billing status.
    1.11. Ability to add/remove employees from the system.
    1.12. Ability to change monthly billing fees.
2. Out of scope
    2.1. There will be no ability to integrate data analytics application to the system.
    2.2. There will be no ability to integrate security camera monitoring to the system.
3. Goals
    3.1. Create a system that coordinate the sensor house watching business.

4. Objectives
    4.1. Build a system to monitor client's home 24/7 and manage the business.
    4.2. System will be responsive and easy to navigate for clients and employees.
5. Risks
    5.1. The integration of sensor to monitor house is a new technology. This can cause a delay in timeline or a exceed in budget.
    5.2. Limited number of resources can cause a delay in timeline or a exceed in budget.
    5.3. The owner will not always be able to meet due to busy schedule. This can cause a delay in the timeline or exceed in budget.
6. Constraints
    6.1. The system needs to be finished in 8 months.
    6.2. The budget is limited to $250,000.
    6.3. The scope contains the basic need of a functional system and cannot be further reduced.
7. Decomposition diagram



8. Functional requirements (Client Registration)

8.1. Online Registration

8.1.1. The system require the client to enter application information and require the service.

8.2. Property Inspection

8.2.1. The system require an employee to inspect the house.

8.2.2. The system require the employee to approve or deny the service.

8.3. Account created confirmation

8.3.1. The system shall require the application to be approved.

8.3.2. The system shall send the client a confirmation for the service account.

9. Functional Requirements (Billing)

9.1. Check Customer Billing Status

9.1.1. The system shall check if the client is still opted into the service.

9.1.2. The system shall not bill the client if their billing status is disabled.

9.2. Issue Customer Invoice

9.2.1. The system shall allow the user to send the client an invoice if they are still opted in.

9.3. Charge client credit card

9.3.1. The system shall charge the credit card on file for the monthly service amount. [Payment]

9.3.2. The system shall notify client if payment failed and will require client to update credit card.

9.3.3. The system shall require client to update credit card if payment failed.

9.4. Issue payment confirmation

9.4.1. The system shall issue the client a payment confirmation if the payment was successful.

10. Functional Requirement (Incident management)

10.1. Incident log

10.1.1. The system shall allow user to create a log of incidents.

10.2. Incident update

10.2.1. The system shall allow the user to update the status of the incident.

10.3. Incident resolved.

10.3.1. The system shall allow the user to close the incident once the problem is resolved.

11. Functional Requirement (Client Portal)

11.1. Request service

11.1.1. The system shall allow the client to request a service.

11.2. Complete service request

11.2.1. The system shall close the request once the service has been completed.

12. Functional Requirement (Sensor Integration)

12.1. Detects for sensor triggered.

12.1.1. The system shall monitor the sensor 24/7 for any activities.

12.2. Send notification for activity.

12.2.1. The system shall require a sensor to be triggered.

12.2.2. The system shall send a notification to the person on call.

12.2.3. The system shall send a notification to the client.

12.3. Call person report to house

12.3.1. The system shall require the user to report to the client house to check for issues.

12.4. Create Report

12.4.1. The system shall require the user to enter the findings of the house.

12.4.2. The system shall require the user to enter any action that are taken to repair the house.

13. Functional Requirement (Reporting)

13.1. Search for client/house

13.1.1. The system shall require the user to enter client's name or house address to search for account.

13.2. Issue history of events/tickets for the account

14. Functional Requirement (Admin)

14.1. Locate Customer

14.1.1. The system shall require user to search for client account.

14.2. Change customer status

14.2.1. The system shall require user to update the customer billing status.

14.3. Update customer billing

14.3.1. The system shall require the user to update the customer bill/invoice.

15. Nonfunctional requirements

15.1. Credit Card Processing

15.1.1. The system shall require a third-party service to process credit card charges.

15.2. Response time

15.2.1. The system shall have industry standard response time

15.3. Security

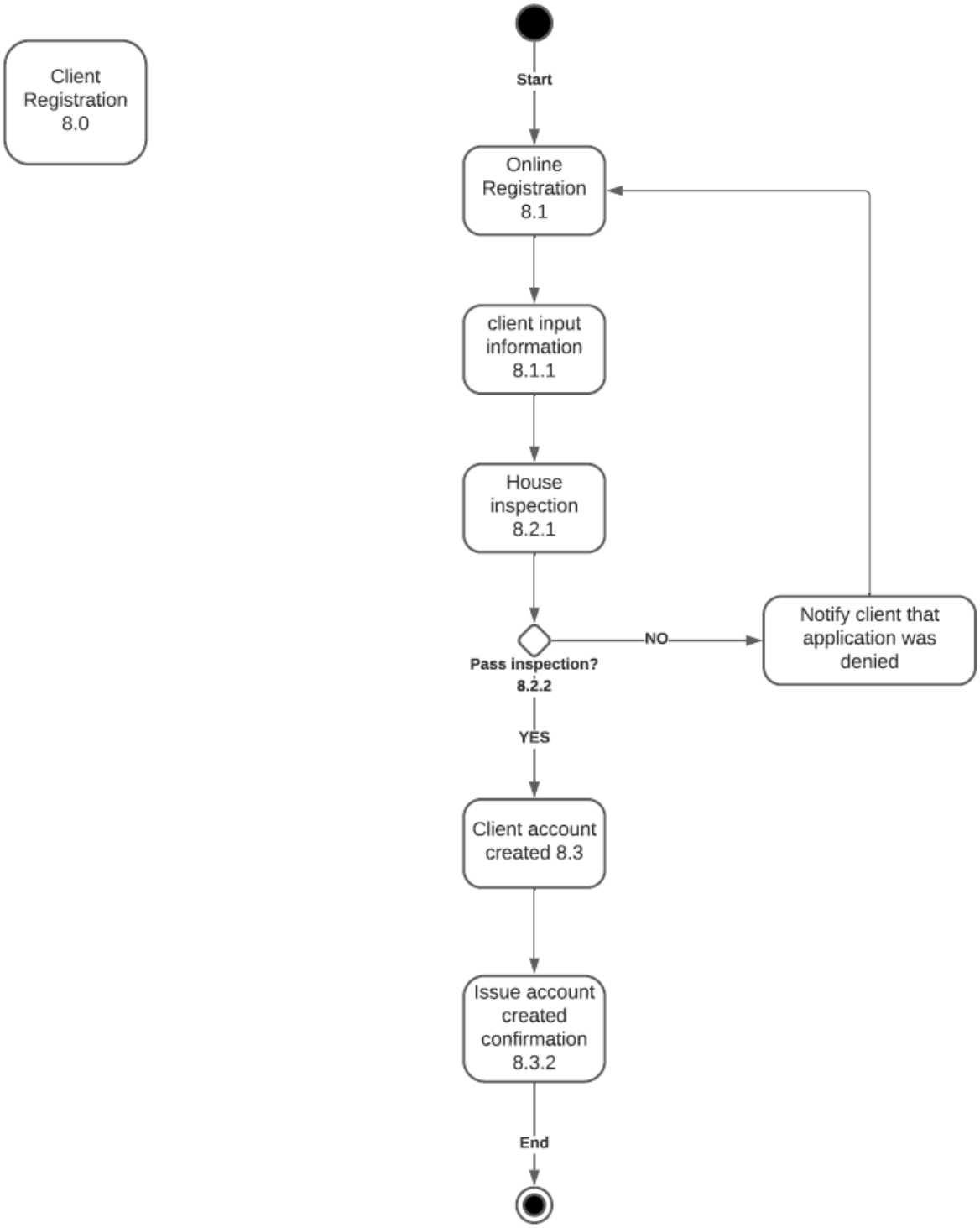
15.3.1. The system shall encrypt all personal information

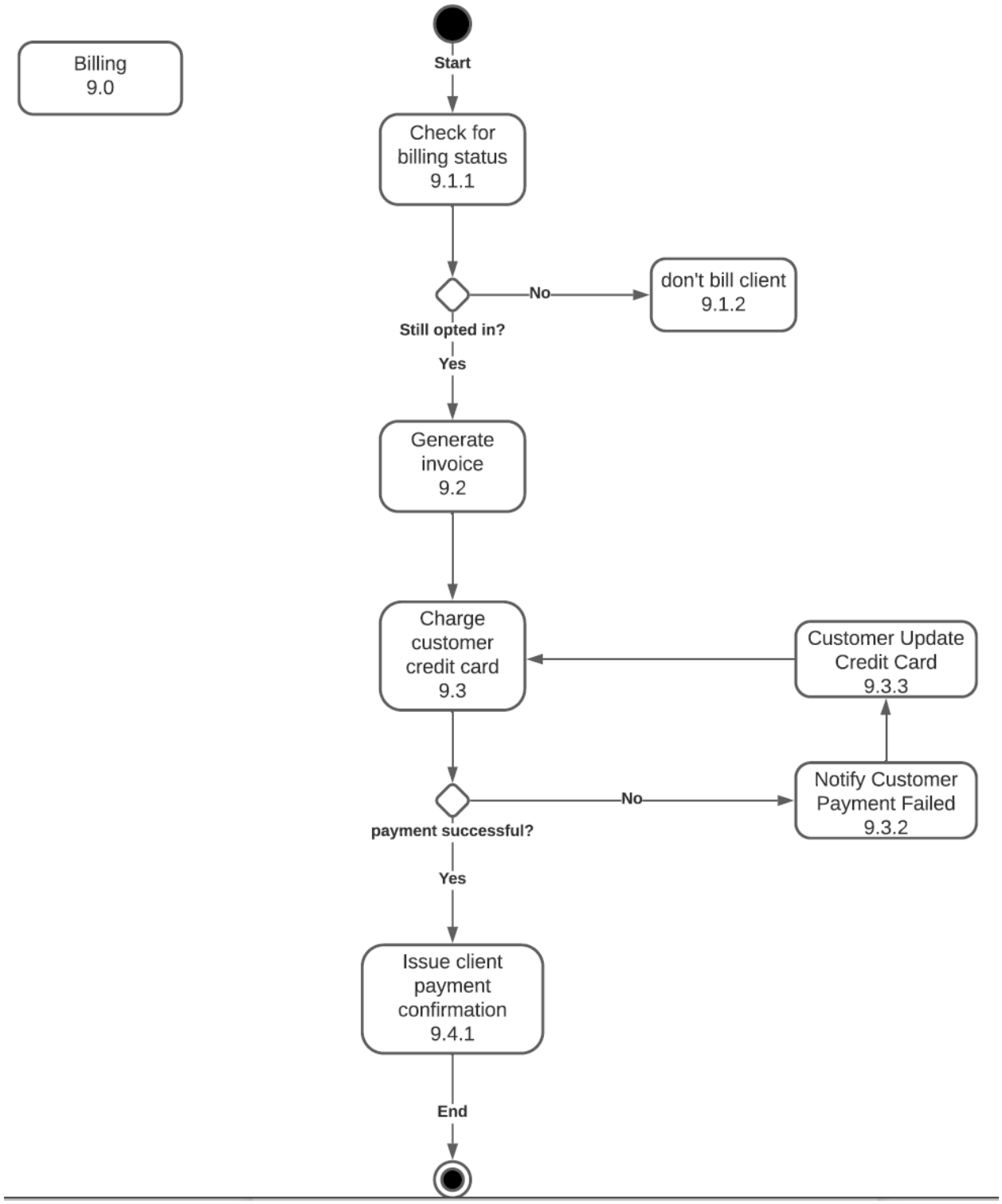
15.3.2. The system shall deploy SSL for credit card processing

15.4. Storage

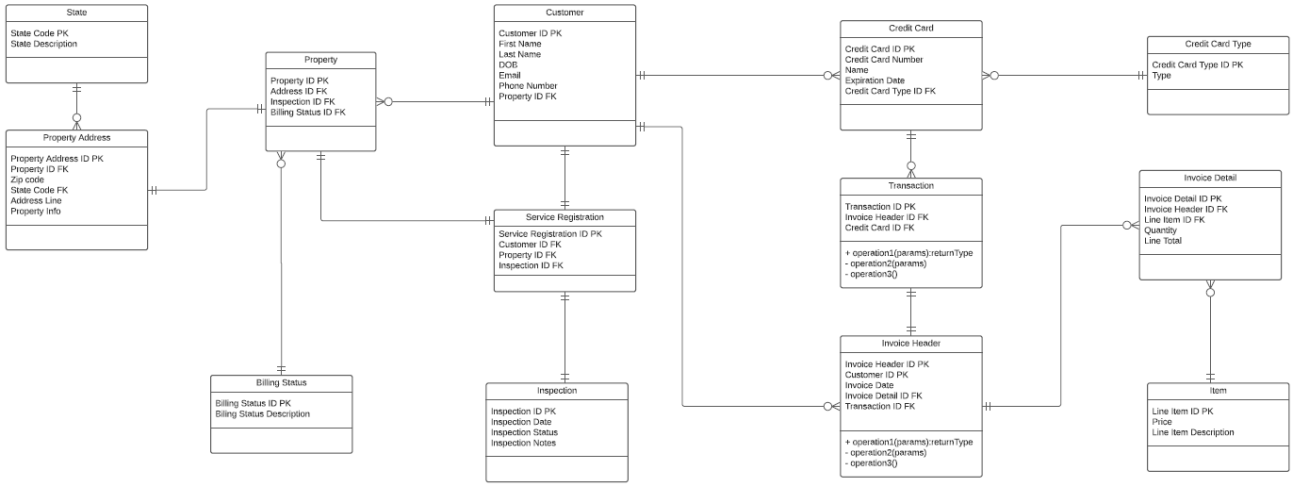
15.4.1. The system shall require 1 petabyte of storage.

Activity Diagram

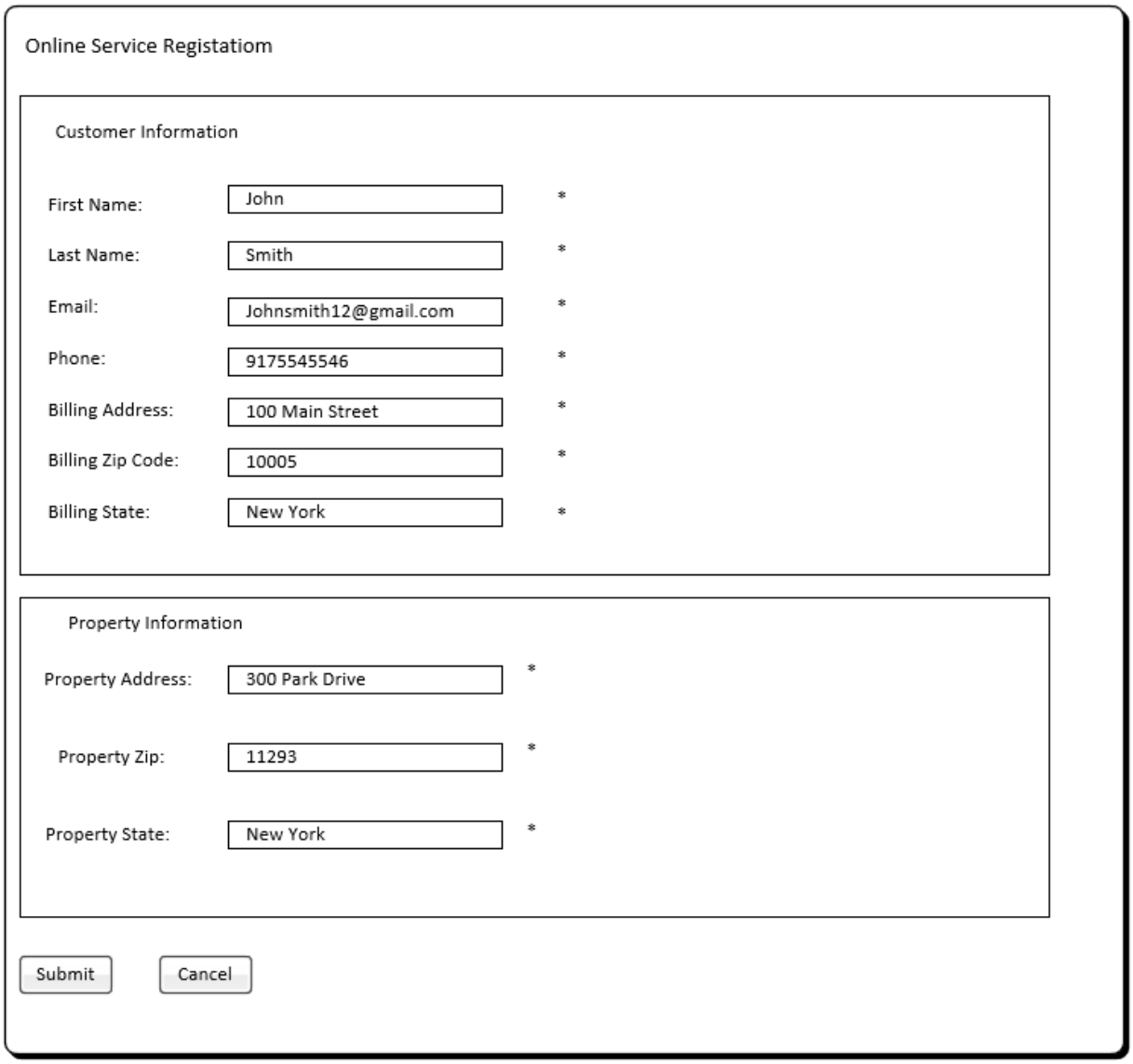



Billing
9.0
Start
Check for billing status
9.1.1
No
don't bill client
9.1.2
Still opted in?
Yes
Generate invoice
9.2
Charge customer credit card
9.3
Customer Update Credit Card
9.3.3
No
Notify Customer Payment Failed
9.3.2
payment successful?
Yes
Issue client payment confirmation
9.4.1
End

Data Model


State
State Code PK
State Description
Property Address
Property Address ID PK
Property ID FK
Zip code
State Code FK
Address Line
Property Info
Property
Property ID PK
Address ID FK
Inspection ID FK
Billing Status ID FK
Billing Status
Billing Status ID PK
Biling Status Description
Customer
Customer ID PK
First Name
Last Name
DOB
Email
Phone Number
Property ID FK
Service Registration
Service Registration ID PK
Customer ID FK
Property ID FK
Inspection ID FK
Inspection
Inspection ID PK
Inspection Date
Inspection Status
Inspection Notes
Credit Card
Credit Card ID PK
Credit Card Number
Name
Expiration Date
Credit Card Type ID FK
Credit Card Type
Credit Card Type ID PK
Type
Transaction
Transaction ID PK
Invoice Header ID FK
Credit Card ID FK
+ operation1(params):returnType
- operation2(params)
- operation3()
Invoice Header
Invoice Header ID PK
Customer ID PK
Invoice Date
Invoice Detail ID FK
Transaction ID FK
+ operation1(params):returnType
- operation2(params)
- operation3()
Invoice Detail
Invoice Detail ID PK
Invoice Header ID FK
Line Item ID FK
Quantity
Line Total
Item
Line Item ID PK
Price
Line Item Description

Wireframes


Online Service Registatiom
Customer Information
First Name:
John
*
Last Name:
Smith
*
Email:
Johnsmith12@gmail.com
*
Phone:
9175545546
*
Billing Address:
100 Main Street
*
Billing Zip Code:
10005
*
Billing State:
New York
*
Property Information
Property Address:
300 Park Drive
*
Property Zip:
11293
*
Property State:
New York
*
Submit
Cancel

Service Registration Approval

Registration ID: 1254452 *

Customer Information

First Name: John

Last Name: Smith

Email: Johnsmith12@gmail.com

Phone: 9175545546

Billing Address: 100 Main Street

Billing Zip Code: 10005

Billing State: New York

Property Information

Property Address: 300 Park Drive

Property Zip: 11293

Property State: New York

Inspection ID: 235565 *

Inspection Date: 5/1/21 *

Inspection Summary: House have no issue. *

Inspection Result: Approved *

Save Cancel

Billing

Customer Name: John Smith *

Search

Customer Information

First Name: John

Last Name: Smith

Email: Johnsmith12@gmail.com

Phone: 9175545546

Billing Address: 100 Main Street

Billing Zip Code: 10005

Billing State: New York

Property Information

Property Address: 300 Park Drive

Property Zip: 11293

Property State: New York

Billing Status: Activated *

Date: 5/1/21 *

Save

Line Item	Quantity	Price	Line Total	
Monthly Service Fee	1	$150	$150	Delete
Plumbing Job	1	$400	$400	Delete

Add Another Item

Save Cancel

Use case statement

Online Service Registration

Seq	User Action	System Action
1	User goes on HWS sign up page	System display online service registration screen
2	User enter first name	---
3	User enter last name	---
4	User enter email address	---
5	User enter phone number	---
6	User enter billing address	---
7	User enter billing zip code	---
8	User enter billing state	---
9	User enter property address	---
10	User enter property zip code	---
11	User enter property state	---
12	User click submit	System save data and wait for registration to be approved
13	End use case	
12.1	User clicks cancel	System display HWS main webpage

Service Registration Approval

Seq	User Action	System Action
1	User select service registration approval from main menu	System display service approval screen
2	User select registration id from dropdown	System display customer information and property information
3	User enter inspection id	---
4	User select date	---
5	User add the inspection summary	---
6	User select the inspection result	---
7	User click save	System save data
8	End use case	
7.1	User click cancel	System display main menu

Billing

Seq	User Action	System Action
1	User select billing from the main menu	System displays billing screen
2	User enter customer name	---
3	User click search	System display customer information and property information
4	User enter date	---
5	User select line item	---
6	User select quantity	---
7	User click save	System save data and create invoice for client
8	End use case	
7.1a	User deactivate billing status	
7.2a	User click save	System update client billing status
7.3a	Action return to line 8	
7.4b	User click add another item	System add row
7.5b	Action return to line 5	
7.6c	User click delete row	System removes the row
7.7c	Action return to line 7	