CAPSTONE PROJECT REPORT

INTERIOR CONSTRUCTION QUOTATION SYSTEM

– TP.HCM, January 2024 –
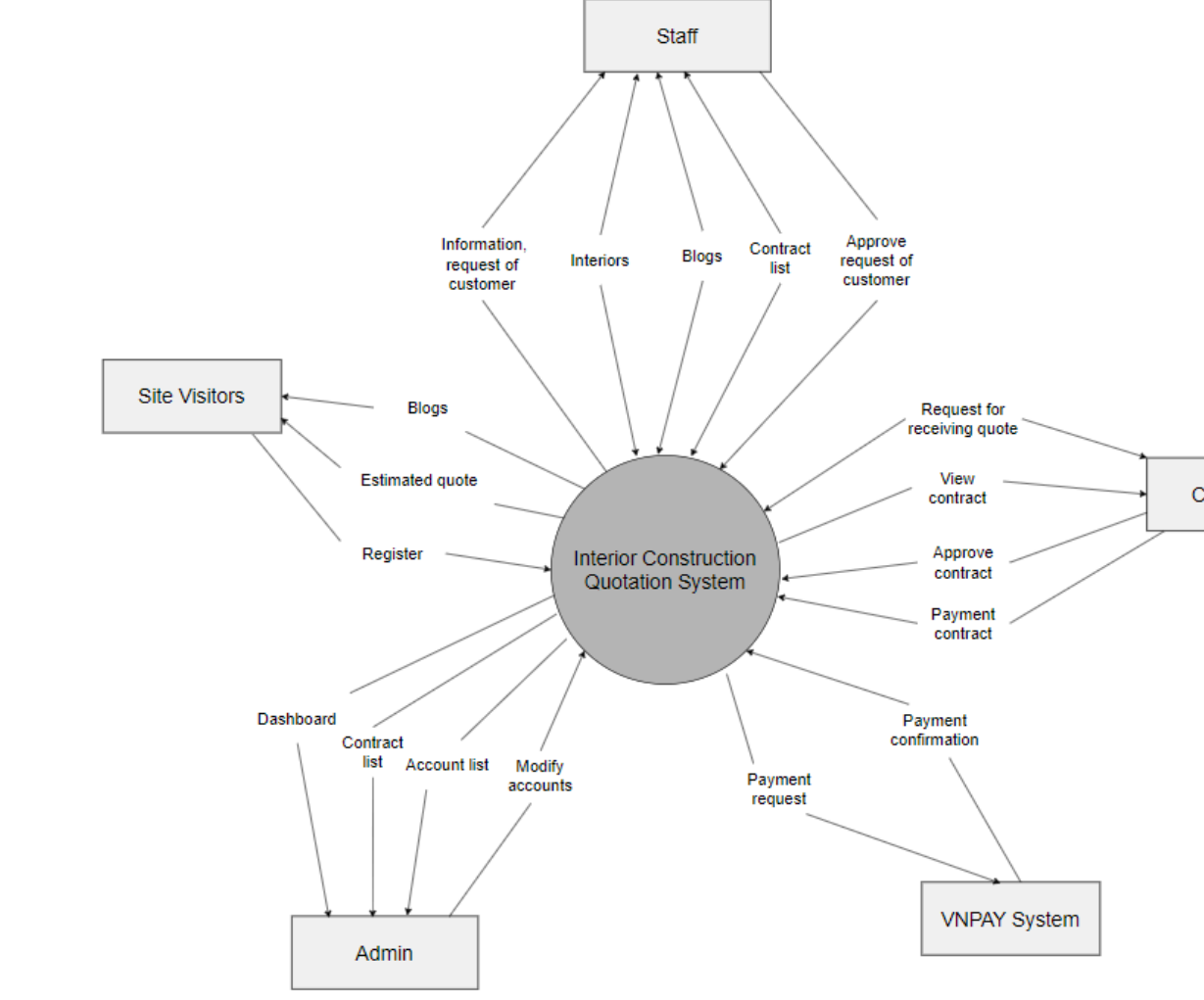
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I. Record of Changes

Date	A* M, D	In charge	Change Description
15/01/2024	M	KhangBH	Edit Product Overview, Use Case Diagram - Description, Non-Functional Requirement
20/02/2024	M	KhangBH	Edit diagram of Product Overview
24/01/2024	A	UyenTTD, KhangBH	Add detail of Use Case
26/01/2024	M	KhangBH	Edit Product Overview, Use Case Diagram
11/03/2024	D, M	KhangBH	Delete Messenger System, Update Product Overview
13/03/2024	M, A	KhangBH, UyenTTD, NhatLN	Update sequence - activity - class diagram Add system architecture

*A - Added M - Modified D - Deleted

II. Software Requirement Specification

1. Product Overview

The Interior Construction Quotation System is a quotation company about interior construction for users to view information, blogs, quotations of which interior users need. Replace interior construction operating in the traditional way as before. The system will allow members according to each role to operate directly on the website through the Internet platform. The system is expected to issue a connection to the online payment authorization service.

2. Business Process

2.1 Create Contract Process

2.2 Manage Progress Of Construction Process

Manage progress of construction process			
Customer	Staff	VNPay System	VNPay System

Create Progress → Save in database → Respone to staff, customer

Update Progress → Complete Progress

View Progress

Fill payment and Pay a remaining balance → Approve form and Receive fee
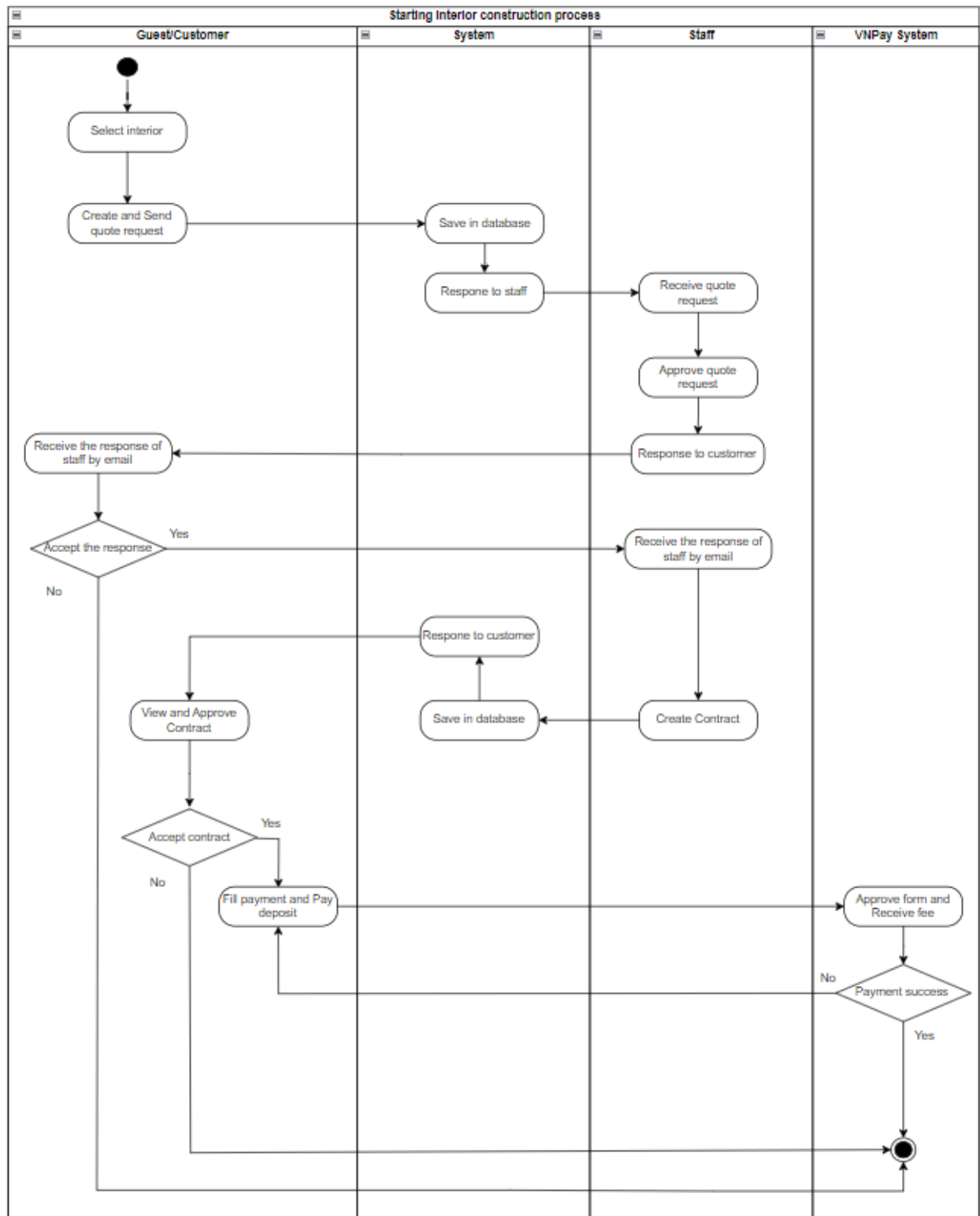
Payment success — No / Yes
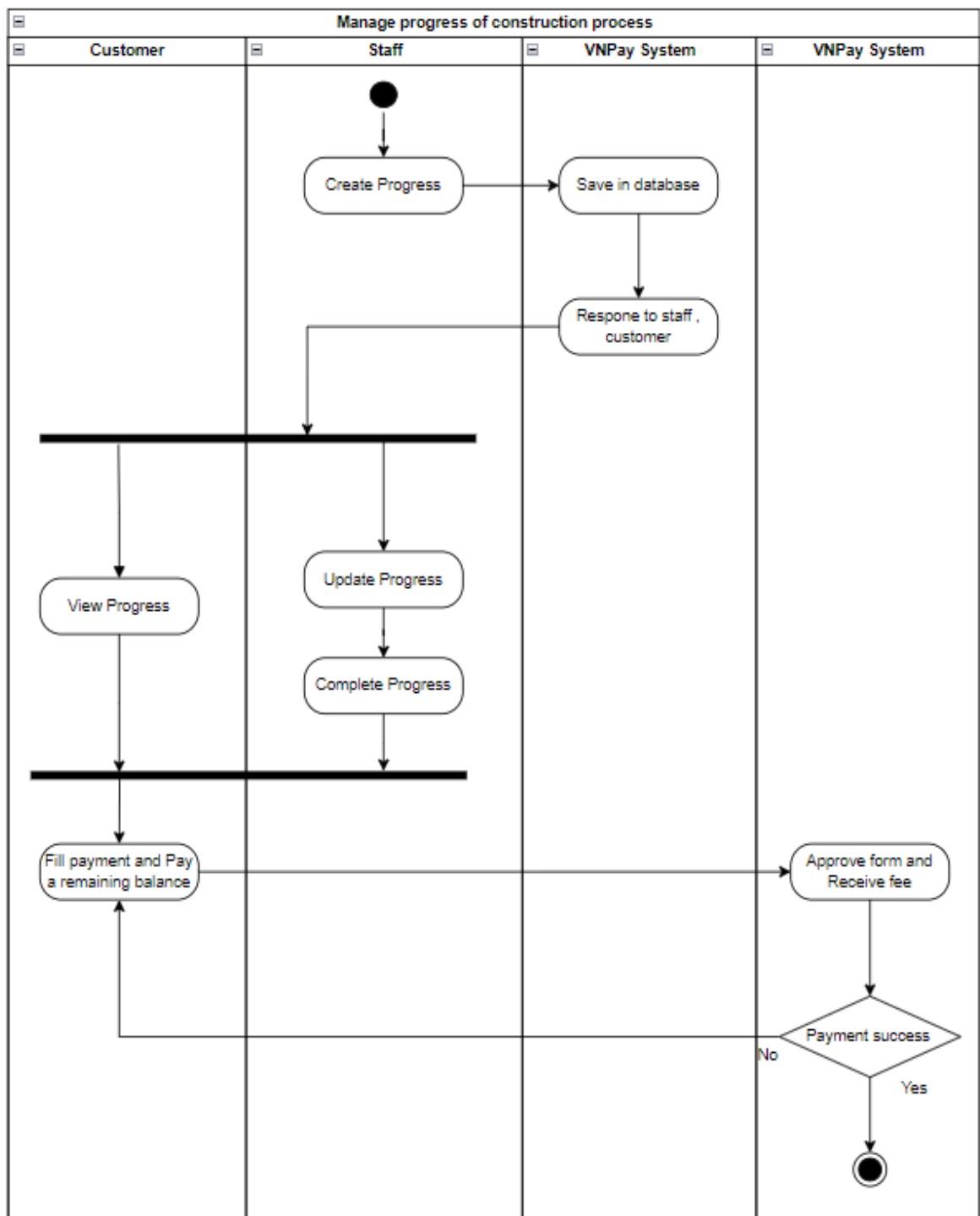
III. User Requirements

1. Actors

#	Actor	Description
1	Guest	Guest is an actor who wants to view news about interiors, the standard quote of interior construction, calculation of the estimated construction price, blog of interior construction, search interiors and chat with a consultant. To become a customer, guests must register an account.
2	Customer	A customer is a guest that has registered. A customer is an actor who can create a request for receiving quotes, manage contracts and provide feedback.
3	Staff	The staff is an actor who is mainly responsible for internal activities such as viewing information and the request of customers, managing news of interior construction, blogs, contract and contact to customers.
4	Admin	The admin is an actor who manages all accounts, view dashboard and reports, contract list.
5	Authenticated User	An authenticated user is an actor which can login, logout and manage their account details.

2. Use Cases

2.1 Diagram

Interior Construction Quotation System
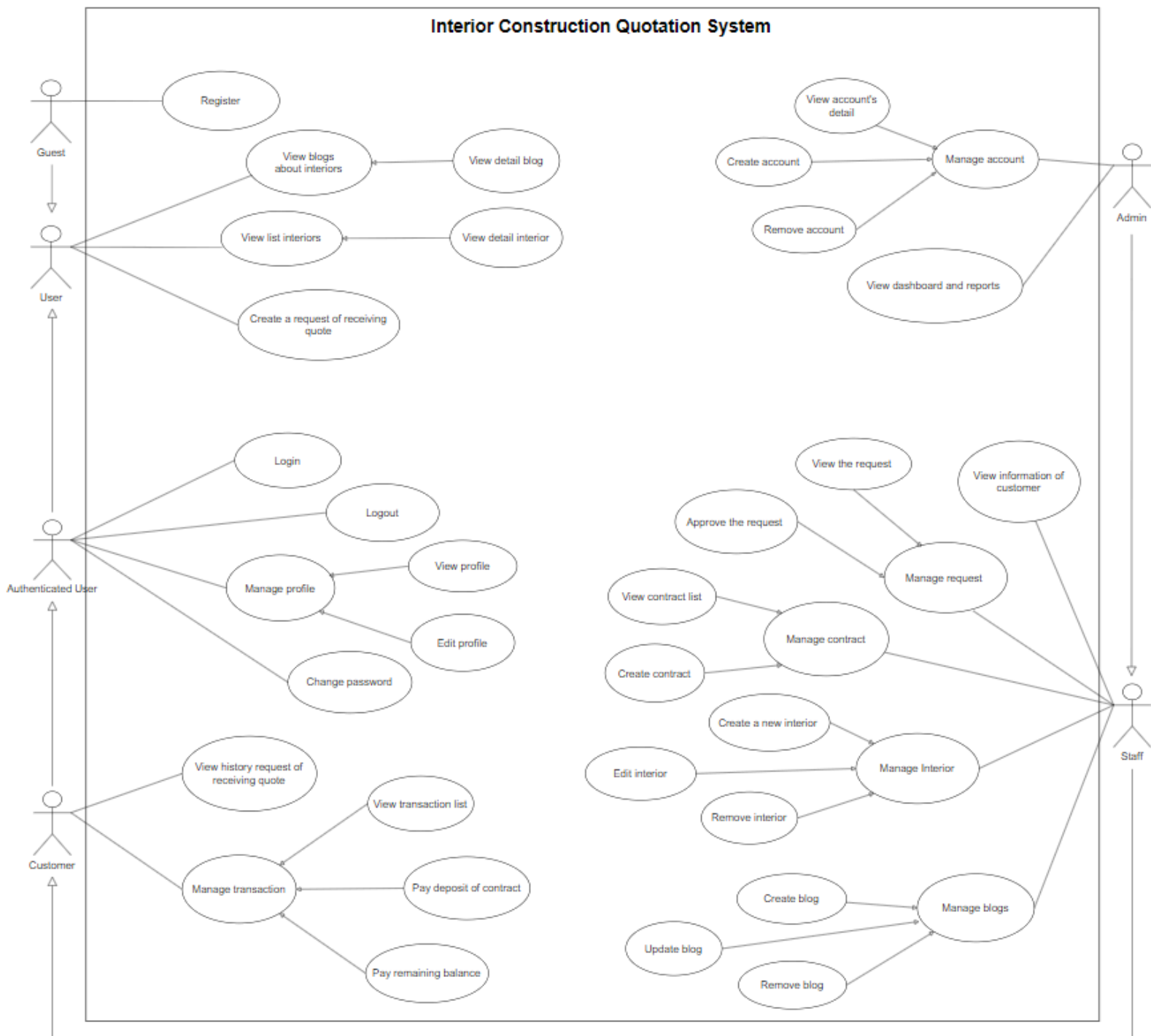
2.2 Descriptions

ID	Use Case	Actors	Use Case Description
01	Register	Guest	An actor wants to send a request and input his/her information to become a customer.
02	Login	Authenticated User	An actor logins the system and reset the password if the actor has forgotten his/her password.
03	Logout	Authenticated User	An actor logs out of the Interior Construction Quotation System web app.
04	View profile	Authenticated User	An actor wants to view his/her email, phone number, and address.
05	Edit profile	Authenticated User	An actor wants to change his/her phone number, address.
06	Change password	Authenticated User	An actor wants to change his/her password.
07	View blog of interior construction	Guest, Customer, Staff	An actor can view the list of interior construction blogs.
08	View detail blog	Guest, Customer, Staff	An actor can view detailed blogs about the experience in interior construction.
09	View list interior	Guest, Customer, Staff	An actor can view the list of interiors which the actor chooses to construct.
10	View detail interior	Guest, Customer, Staff	An actor can view the details of the interior which the actor chooses to construct.
11	Create a request of receiving quote	Guest, Customer	An actor can leave a brief information, upload a picture of structure and create a request to receive a quote from staff.
12	View history request of receiving quote	Customer	An actor can monitor their request of receiving a quote.
13	View transaction list	Customer	An actor can view a list of transactions including their contract
14	Pay deposit of contract	Customer, VNPay	An actor can pay for their contract.
15	Pay remaining balance	Customer	An actor can pay a remaining balance after paying a deposit of contract
16	View information of customer	Staff	An actor can view customer information.
17	View contract list	Staff, Admin	An actor can view a list of customer contracts.
18	Create contract	Staff	An actor can create contracts based on a customer's orders.
19	View the request	Staff	An actor can view the list of customer requests.
20	Approve the request	Staff	An actor views the request list and decides to accept each of them.
21	Create blog	Staff	An actor can create a blog.
22	Update blog	Staff	An actor can edit a blog.
23	Remove blog	Staff	An actor can remove a created blog.
24	Create interior	Staff	An actor can create an interior.
25	Edit interior	Staff	An actor can edit an interior.
26	Remove interior	Staff	An actor can remove a created interior.

27	View dashboard and reports	Admin	The Admin can view the dashboard and reports of the system. This can include revenue, number of registered customers, number of orders placed and in progress, reviews and reports.
28	View account's detail	Admin	The Admin can view details of an account.
29	Create account	Admin	The Admin can create an account for staff
30	Remove account	Admin	The Admin can delete an account.

2.3 Use Case Details

Use Case ID and Name:	**UC-01 : Register**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Guest	**Secondary Actors:**	None
Trigger:	Guests want to become customers.		
Description:	Guests can input his/her information to become a customer.		
Preconditions:	PRE-1. Guest is on the home page.		
Post–conditions:	POST-1. The system shows a successful message and saves information in the database.		
Normal Flow:	**1.0 Register to customer** 1. The guest fills the information's account in the drop down and clicks "Sign Up". 2. The system logs in to the account just created. (see 1.0.E1)		
Alternative Flows:	None		
Exceptions:	**1.0.E1 The request was not responded** The system does not perform an action.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	**UC-02 : Login**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Authenticated User	**Secondary Actors:**	None
Trigger:	The actor wants to login to the system.		
Description:	The actor can login to the system and reset the password if the actor has forgotten his/her password..		
Preconditions:	PRE-1. The actor has an account that has registered with before.		

Post–conditions:	POST-1. The system redirects the actor to the home page with the customer account.
Normal Flow:	**2.0 Login** 1. The actor fills the information's account in the drop down and clicks "Log in". (see 2.0.E1, 2.1) 2. The system logs in to the account. (see 2.0.E1)
Alternative Flows:	**2.1 Forget password** 1. The actor clicks on the "Forgot Password" button in the drop down. (see 2.0.E1) 2. The system sends an "Email" textbox. 3. The actor opens the email to see the password change message sent and clicks the "Reset password" button. 4. The "Reset password" button will redirect to the system website and the system displays a drop down for the user to enter a new password. 5. The actor enters a new password and clicks "Submit". 6. The system displays the message "Password has been changed. Please log in again!". (see 2.0.E1) 7. Return to step 1 in Normal Flow.
Exceptions:	**2.0.E1 The request was not responded** The system does not perform an action or show a message.
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-03 : Logout**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Authenticated User	**Secondary Actors:**	None
Trigger:	The actor wants to log out of the system.		
Description:	The actor can log out of the Interior Construction Quotation System web app.		
Preconditions:	PRE-1. The actor has an account that has registered with before.		
Post–conditions:	POST-1. The system redirects the actor to the original guest home page.		
Normal Flow:	**3.0 Logout** 1. The actor clicks the "Logout" button on the homepage. 2. The system redirects to the original guest homepage. (see 3.0.E1)		
Alternative Flows:	None		
Exceptions:	**3.0.E1 The request was not responded** The system does not redirect to the original guest home page.		

Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-04 : View profile**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Authenticated User	**Secondary Actors:**	None
Trigger:	The actor wants to view their information profile.		
Description:	The actor can view his/her email, phone number, and address.		
Preconditions:	PRE-1. The actor must login to their account.		
Post–conditions:	POST-1. The system shows a detailed information profile in the actor's account.		

Normal Flow:	**4.0 View profile**
	
	1. Actor clicks profile section in homepage
	2. The system redirects to the profile page showing: (see 4.0.E1)
	   - Email
	   - Phone Number
	   - Address		

Alternative Flows:	None		
Exceptions:	**4.0.E1 The request was not responded** The system does not show a detailed information profile.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	**UC-05 : Edit profile**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Authenticated User	**Secondary Actors:**	None
Trigger:	The actor wants to change their information profile.		
Description:	The actor can change his/her phone number, address.		
Preconditions:	PRE-1. The actor must login to their account.		
Post–conditions:	POST-1. If an actor changes information successfully, the system shows the changed information.		

Normal Flow:	**5.0 Edit profile**
	
	1. The actor clicks the profile section in the drop down.
	2. The system redirects to the profile page showing :
	   - Email
	   - Phone Number
	   - Address
	3. The actor inputs the form and clicks the "Save" button.
	4. The system shows a new information profile page. (see 5.0.E1)

Alternative Flows:	None
Exceptions:	**5.0.E1 The request was not responded** The system does not update new data.
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-06 : Change password**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Authenticated User	**Secondary Actors:**	None
Trigger:	The actor wants to change the password.		
Description:	The actor can change his/her password.		
Preconditions:	PRE-1. The actor must login to their account.		
Post–conditions:	POST-1. If an actor changes information successfully, the system shows the changed information.		
Normal Flow:	**6.0 Change password** 1. The actor clicks the "Change Password" button in the drop down. 2. The system shows a form with text boxes including "Old Password" and "New Password" for the actor to fill. 3. The actor clicks the "Submit" button. 4. The system shows the message "New password updated!". (see 6.0.E1)		
Alternative Flows:	None		
Exceptions:	**6.0.E1 The request was not responded** The system does not perform an action or show a message.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	UC-07 : View blog of interior construction		
Created By:	UyenTDT	Date Created:	25/01/2024
Primary Actor:	Guest	Secondary Actors:	Customer, Staff
Trigger:	The actor wants to view blogs about interiors.		
Description:	The actor can view the blog of interior construction about the experience in interior construction, actual customer's reviews.		
Preconditions:	PRE-1. The actor is on the homepage.		
Post–conditions:	POST-1. The system displays the interior blogs list.		
Normal Flow:	**7.0 View blog list** 1. On the homepage, the actor clicks the "Blogs" button. 2. The system redirects to the Blogs page showing a list of blogs. (see 7.0.E1)		
Alternative Flows:	None		
Exceptions:	**7.0.E1 The request was not responded** The system does not show the Blogs List.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	UC-08 : View detail blog		
Created By:	UyenTDT	Date Created:	25/01/2024
Primary Actor:	Guest	Secondary Actors:	Customer, Staff
Trigger:	The actor wants to view detailed blogs about interiors.		
Description:	The actor can view the detailed blog of interior construction about the experience in interior construction.		
Preconditions:	PRE-1. The actor is on the list blog page.		
Post–conditions:	POST-1. The system displays detailed blogs.		
Normal Flow:	**8.0 View blog detail** 1. On the homepage, the actor chooses the blog wanted view. 2. The system shows the chosen blogs. (see 8.0.E1)		
Alternative Flows:	None		
Exceptions:	**8.0.E1 The request was not responded**		

	The system does not show the detailed blog.
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-09 : View list interior**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Guest	**Secondary Actors:**	Customer, Staff
Trigger:	The actor wants to view the interior list.		
Description:	The actor can view the list of interiors which the actor chooses to construct.		
Preconditions:	PRE-1. The actor is on the homepage.		
Post–conditions:	POST-1. The system displays the interior list and detailed interior.		

Normal Flow:	**9.0 View list interior**
	
	     3. On the homepage, the actor clicks the "Interior" button.
	     4. The system redirects to the Interior List page showing a list of interior. (see 8.0.E1)		

Alternative Flows:	None		
Exceptions:	**9.0.E1 The request was not responded** The system does not show the Interior List.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	**UC-10 : View detail interior**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Guest	**Secondary Actors:**	Customer, Staff
Trigger:	The actor wants to view the interior detail.		
Description:	The actor can view the detail of interiors which the actor chooses to construct.		
Preconditions:	PRE-1. The actor is on the homepage.		
Post–conditions:	POST-1. The system displays the detailed interior.		
Normal Flow:	**10.0 View detail interior**		

	5. On the homepage, the actor chooses the interior wanted view. 6. The system shows a detailed interior. (see 10.0.E1)
Alternative Flows:	None
Exceptions:	**10.0.E1 The request was not responded** The system does not show the Interior detail.
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	UC-11 : Create a request of receiving quote		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Customer	**Secondary Actors:**	Guest
Trigger:	The actor wants to request a quote.		
Description:	The actor can create a request to receive a quote from staff.		
Preconditions:	PRE-1. The actor is authenticated.		
Post–conditions:	POST-1. The request is stored in the system's database.		
Normal Flow:	**11.0 Create a request of receiving quote** 1. In the interior details page, the actor clicks on "Request for other parameters". 2. The system redirects the actor to a similar interior detail page with additional parameters and a description box as required. (see 11.0.E1) 3. The actor chooses or enters the desired size and clicks "Get quote". 4. The system displays the message "Quotation request sent" and records it in the database. (see 11.0.E1)		
Alternative Flows:	None		
Exceptions:	**11.0.E1 The request was not responded** The system does not respond or show a message.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	UC-12 : View history request of receiving quote		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Customer	**Secondary Actors:**	None

Trigger:	Customers want to view the history request of receiving a quote.
Description:	Customers can monitor their request of receiving a quote.
Preconditions:	PRE-1. The actor is authenticated.
Post–conditions:	POST-1. The system shows the history request of receiving a quote.
Normal Flow:	**12.0 View history request of receiving quote** 1. The actor clicks on the "History Request" tab on the drop down. 2. The system displays the history request of receiving a quote. (see 12.0.E1)
Alternative Flows:	None
Exceptions:	**12.0.E1 The request was not responded** The system does not show the history request.
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-13 : View transaction list**		
Created By:	UyenTDT	**Date Created:**	12/3/2024
Primary Actor:	Customer	**Secondary Actors:**	None
Trigger:	Customers want to view a list contract.		
Description:	Customers can view a list of transactions including their contract.		
Preconditions:	PRE-1. The actor is authenticated.		
Post–conditions:	POST-1. The system shows a list contract.		
Normal Flow:	**13.0 View transaction list** 5. The actor clicks on the "Transaction" tab on the drop down. 6. The system displays list transactions. (see 13.0.E1)		
Alternative Flows:	None		
Exceptions:	**13.0.E1 The request was not responded** The system does not show a contract list.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	UC-14 : Pay deposit of contract		
Created By:	UyenTDT	Date Created:	25/01/2024
Primary Actor:	Customer	Secondary Actors:	VNPay
Trigger:	The actor wants to pay for the contract.		
Description:	The actor can pay for their contract.		
Preconditions:	PRE-1. The actor is authenticated.		
Post–conditions:	POST-1. The database will be updated and stored.		
Normal Flow:	**14.0 Pay deposit of contract** 1. The actor clicks on the "Transaction" tab on the drop down. 2. The system displays the transaction list. (see 14.0.E1) 3. The actor clicks "Payment" in the confirmed contract to start the construction progress. 4. The system redirects customers to the payment page. (see 14.0.E2)		
Alternative Flows:	None		
Exceptions:	**14.0.E1 The request was not responded** The system does not show a transaction list. **14.0.E2 The request was not responded** The system does not redirect to the payment page.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	UC-15 : Pay remaining balance		
Created By:	UyenTDT	Date Created:	25/01/2024
Primary Actor:	Customer	Secondary Actors:	None
Trigger:	Customers want to pay the contract.		
Description:	Customers can pay a remaining balance after paying a deposit of the contract.		
Preconditions:	PRE-1. The customer is authenticated.		
Post–conditions:	POST-1. The database will be updated and stored.		
Normal Flow:	**15.0 Pay remaining balance** 1. After the contract status has been updated, the customer will click "Pay contract". 2. The system will redirect customers to the payment page. (see 15.0.E1)		

	3. The customers pay to complete the contract. 4. The system records and updates databases.
Alternative Flows:	None
Exceptions:	**15.0.E1 The request was not responded** The system does not redirect to the payment page.
Priority:	High
Business Rules:	BR-01
Other Information:	None

Use Case ID and Name:	UC-16 : View information of customer		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to view information of the customer		
Description:	After viewing the request of the customer, staff can view the information of the customer about name, address, social link, phone number, …		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	None		
Normal Flow:	**16.0 View information of customer** 1. On the "View request" page, staff clicks on the name of the customer to view customers' information. 2. The system redirects to the "Detail Profile" page of the customer and shows information about the customer.		
Alternative Flows:	None		
Exceptions:	None		
Priority:	Medium		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	UC-17 : View contract list		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	Admin
Trigger:	Staff indicates that he / she wants to view the list of customers' contracts		

Description:	A staff of ICQS can view the list of the customer's contract on the "Manage Contract" page
Preconditions:	PRE-1: The staff is logged into ICQS by their account
Post–conditions:	POST-1: The list view of all contracts are shown
Normal Flow:	**17.0 View contract list** 1. On the "Manage Contract" page, the system shows the list of customers' contracts for staff, admin
Alternative Flows:	None
Exceptions:	None
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-18 : Create contract**		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to view the list of customers' contracts		
Description:	A staff of ICQS can view the list of the customer's contract on the "Manage Contract" page		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	POST-1. System notices a message "The Contract has been created successfully ! " and redirects to the "Manage Contract" page.		

Normal Flow:	**18.0 Create contract**
	    1. On the "Manage Contract" page, staff clicks on the "Create Contract" button
	    2. The system redirects to the "Create Contract" page and shows the creation form
	    3. An actor fills the form based on the request of the customer and clicks on the "Create" button
	    4. The system redirects to "Manage Contract" page and shows a new contract in contract list		

Alternative Flows:	None		
Exceptions:	None		
Priority:	High		

Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-19 : View the request**		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to view the request of a customer who wants to receive a quotation about the interior		
Description:	A staff of ICQS can view the list of the customer's request on the "Manage Request" page		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	POST-1: The list view of all requests are shown		

Normal Flow:	**19.0 View request**
	
	    1. In the homepage, the staff clicks on the "Manage Request" button on the drop down. (See 19.0.E1)
	    2. System shows a list of all customers' requests to receive a quotation about the interior.		

Alternative Flows:	None		
Exceptions:	**19.0.E1 No customer's request to system** 1. System shows error message "There is no request yet "		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	**UC-20 : Approve the request**		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to approve the request of a customer who wants to receive a quotation about the interior		
Description:	A staff of ICQS can approve the customer's request on the "Manage Request" page		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		

Post–conditions:	POST-1: The list view of all requests are shown
	POST-2 : The request removed from the lists
Normal Flow:	**20.0 Approve request**
	1. In the homepage, the staff clicks on the "Manage Request" button on the navigation bar
	2. System shows a list of all customers' requests to receive a quotation about the interior (See 26.1)
	3. The staff clicks on the "Accept" button on the request card
	4. The system shows a successful message "The request is accepted successfully" and the request card is removed from the list
	5. System re-render UI the list
Alternative Flows:	**20.1 Reject request**
	1. An actor clicks the "Reject" button.
	2. System shows the message "The request has been rejected !" and the request is removed out of the list
	3. System returns to the "Manage Request" page
Exceptions:	None
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-21 : Create blog**		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to create a blog about news, information about interior, …		
Description:	A staff of ICQS can create a blog		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	POST-1: System notices a message "Your blog is created successfully" and redirects to the Blogs List page		

Normal Flow:	**21.0 Create blog**
	1. On the home page, the actor clicks the "Blogs" button on the navigation bar 2. System redirects to the Blogs List page showing a detail list of blogs 3. Actor clicks the "Create Blog" button 4. System shows a form include : - Content of the blog - Add "Picture, Link" to your blog 5. Actor inputs content and clicks the "Post" button. 6. System notices a message "Your blog is created successfully" and redirects to the Blogs List page
Alternative Flows:	None
Exceptions:	None
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-22 : Update blog**		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to update a blog		
Description:	A staff of ICQS can update a blog		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	POST-1: System stores the changes to the database and the blog list is refreshed to reflect the changes		
Normal Flow:	**22.0 Update blog** 1. The staff clicks on "Update" on a blog 2. System shows a form including the blog contents and any attachments. (See 22.0.E1) 3. The staff updates the necessary form fields and submits the form. 4. System stores the changes to the database and the blog list is refreshed to reflect the changes.		
Alternative Flows:	None		
Exceptions:	**22.0.E1 Blog is no longer existed** 1. System shows an error page with status code 414 (not found).		

Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-23 : Remove blog**
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to remove a blog
Description:	A staff of ICQS can remove a blog
Preconditions:	PRE-1: The staff is logged into ICQS by their account
Post–conditions:	POST-1: System removes the blog in the database and the blog list is refreshed to reflect the changes
Normal Flow:	**23.0 Remove blog** 1. The staff clicks on "Delete" on a blog 2. System shows a confirmation prompt 3. The staff clicks on "Yes". 4. System removes the blog in the database and the blog list is refreshed to reflect the changes. (See 23.0.E1)
Alternative Flows:	None
Exceptions:	**23.0.E1 Blog is no longer existed** 1. System shows an error page with status code 414 (not found).
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-24 : Create interior**
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to create a interior
Description:	A staff of ICQS can create a interior
Preconditions:	PRE-1: The staff is logged into ICQS by their account

Post–conditions:	POST-1: System notices a message "Your interior is created successfully" and redirects to the Interior List page

Normal Flow:	**24.0 Create interior**
	
	1. On the home page, the actor clicks the "Interior" button on the navigation bar
	2. The system redirects to the Interior page showing a list of interiors
	3. The actor clicks the "Create Interior" button
	4. The system shows a form include :
	    - Name interior
	    - Content of the interior
	    - Price interior
	    - Picture interior
	5. The actor inputs content and clicks the "Post" button.
	6. The system notices a message "Interior is created successfully" and redirects to the Interior page. (see 24.0.E1)

Alternative Flows:	None
Exceptions:	**24.0.E1 The request was not responded** The system does not show a message.
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	**UC-25 : Update interior**		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to update a interior		
Description:	A staff of ICQS can update a interior		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	POST-1: System stores the changes to the database and the interior list is refreshed to reflect the changes		
Normal Flow:	**25.0 Update blog** 1. The staff clicks on "Update" on a interior 2. The system shows a form including the interior contents and any attachments. (See 25.0.E1) 3. The staff updates the necessary form fields and submits the form.		

	4. The system stores the changes to the database and the interior list is refreshed to reflect the changes. (see 25.0.E1)
Alternative Flows:	None
Exceptions:	**25.0.E1 The request was not responded** The system does not update new data.
Priority:	High
Business Rules:	None
Other Information:	None

Use Case ID and Name:	UC-26 : Remove blog		
Created By:	UyenTDT	**Date Created:**	25/01/2024
Primary Actor:	Staff	**Secondary Actors:**	None
Trigger:	Staff indicates that he / she wants to remove a interior		
Description:	A staff of ICQS can remove a interior		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	POST-1: System removes the interior in the database and the interior list is refreshed to reflect the changes		

Normal Flow:	**26.0 Remove interior**
	
	    5. The staff clicks on "Delete" on a interior
	    6. The system shows a confirmation prompt
	    7. The staff clicks on "Yes".
	    8. The system removes the interior in the database and the interior list is refreshed to reflect the changes. (See 26.0.E1)		

Alternative Flows:	None		
Exceptions:	**26.0.E1 The request was not responded** The system does not update new data.		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	UC-27 : View dashboard and reports	
Created By:	KhangBH	**Date Created:**	25/01/2024

Primary Actor:	Admin	Secondary Actors:	None
Trigger:	Admin indicates that he / she wants to view the dashboard and reports		
Description:	An Admin can view the dashboard and reports of the system. This can include revenue, number of registered customers, number of orders placed and in progress, reviews and reports.		
Preconditions:	PRE-1: The staff is logged into ICQS by their account		
Post–conditions:	POST-1: The ICQS displays the dashboard and reports of the system.		
Normal Flow:	**27.0 View dashboard and reports** 1. The actor clicks on the "Dashboard" tab on the Navigation Bar. 2. The ICQS displays the dashboard and reports of the system.		
Alternative Flows:	None		
Exceptions:	None		
Priority:	High		
Business Rules:	None		
Other Information:	None		

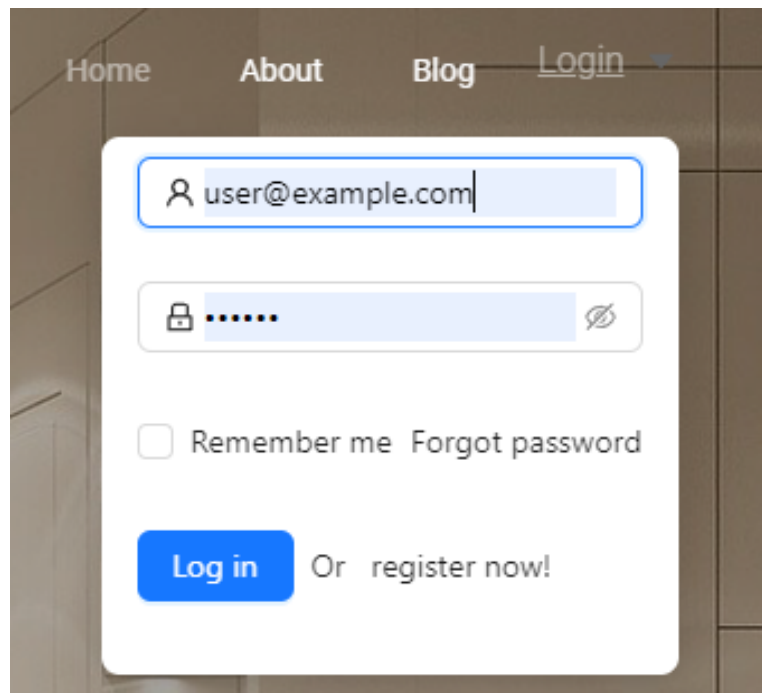| Use Case ID and Name:	**UC-28 : View accounts' detail**		
Created By:	KhangBH	Date Created:	25/01/2024
Primary Actor:	Admin	Secondary Actors:	None
Trigger:	Admin indicates that he / she wants to view account details		
Description:	The Admin can view account details		
Preconditions:	PRE-1: The Admin is logged into ICQS by their account		
Post–conditions:	POST-1: ICQS displays the selected account details		
Normal Flow:	**28.0 View accounts' details** 1. The actor clicks on the "Manage Account" tab on the Navigation Bar 2. The ICQS displays the account list 3. The Actor clicks on "Detail" on an account 4. ICQS displays the selected account details		
Alternative Flows:	None		
Exceptions:	None		
Priority:	High		
Business Rules:	None		

Other Information:	None

Use Case ID and Name:	**UC-29 : Create account**		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Admin	**Secondary Actors:**	None
Trigger:	Admin indicates that he / she wants to create an account		
Description:	Admin of ICQS can can create an account		
Preconditions:	PRE-1: Admin is logged into ICQS by his / her account		
Post–conditions:	POST-1: ICQS stores the new account to the database POST-2 : The account list is updated to include the new account		
Normal Flow:	**29.0 Create account** 1. The actor clicks on the "Manage Account" tab on the Navigation Bar. 2. The ICQS displays the account list. 3. The actor clicks on "Add new account" 4. The ICQS displays an account creation form. 5. Actor fills in necessary fields and submits the form. (See 29.0.E1) 6. ICQS stores the account in the database and the account list is refreshed.		
Alternative Flows:	None		
Exceptions:	**29.0.E1 Email is already existed** 1. ICQS displays a notification and cancels the account creation		
Priority:	High		
Business Rules:	None		
Other Information:	None		

Use Case ID and Name:	**UC-30 : Remove account**		
Created By:	KhangBH	**Date Created:**	25/01/2024
Primary Actor:	Admin	**Secondary Actors:**	None
Trigger:	Admin indicates that he / she wants to remove an account		
Description:	An admin of ICQS can remove an account		
Preconditions:	PRE-1: Admin is logged into ICQS by their account		
Post–conditions:	POST-1: ICQS removes the account in the database. POST-2 : The account list is updated to exclude the deleted account		

Normal Flow:	**30.0 Remove account** 1. The Actor clicks on the "Manage Account" tab on the Navigation Bar. 2. The ICQS displays the account list. 3. The Actor clicks on "Remove" on an account. 4. The ICQS displays a confirmation prompt. 5. Actor confirms the deletion. 6. ICQS removes the account in the database and the account list is refreshed. (See 30.0.E1)
Alternative Flows:	None
Exceptions:	**30.0.E1 Account is no longer existed** 1. ICQS displays a notification and cancels the account deletion
Priority:	High
Business Rules:	None
Other Information:	None

3. Business Rules

ID	Rule Definition
BR-01	The customer has paid the contract deposit but later cancels or fails to pay the remaining amount, the deposit will be lost and the product will be revoked.
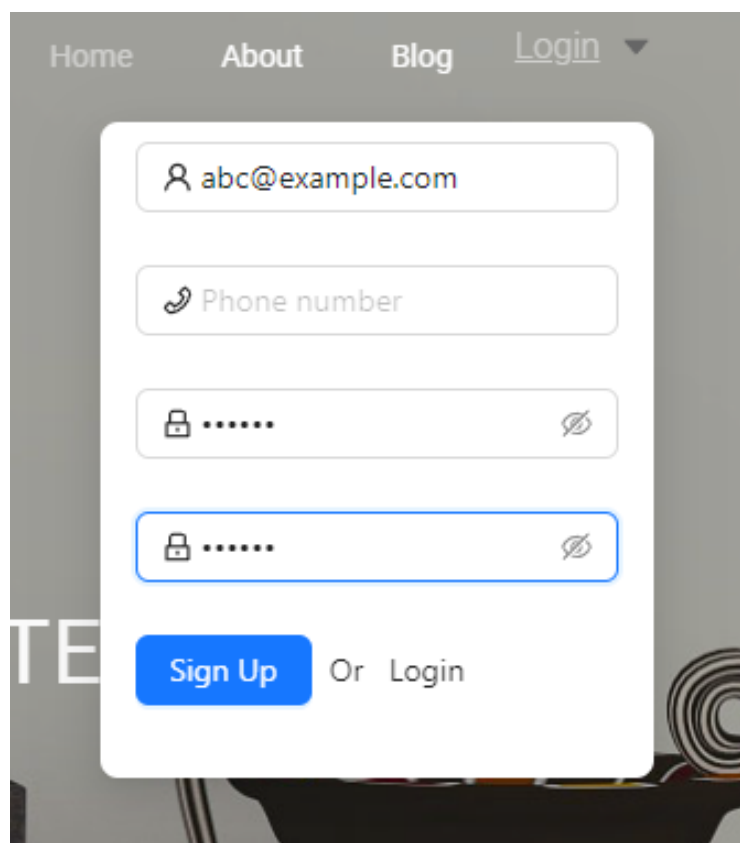
IV. Functional Requirements

- Guest : non-register
  - **Login :**

■ Visitors or guests who have an existing account to the system can log in. When a guest login account, that account will be accessed privileges corresponding to the role of a customer user within the system.

○ **Register an account :**

- - Visitors or guests who do not have an existing account to the system can sign up and register for a new account. When a guest registers for a new account, by default that account will be set up with access privileges corresponding to the role of a customer user within the system.
  - **View list interiors :**
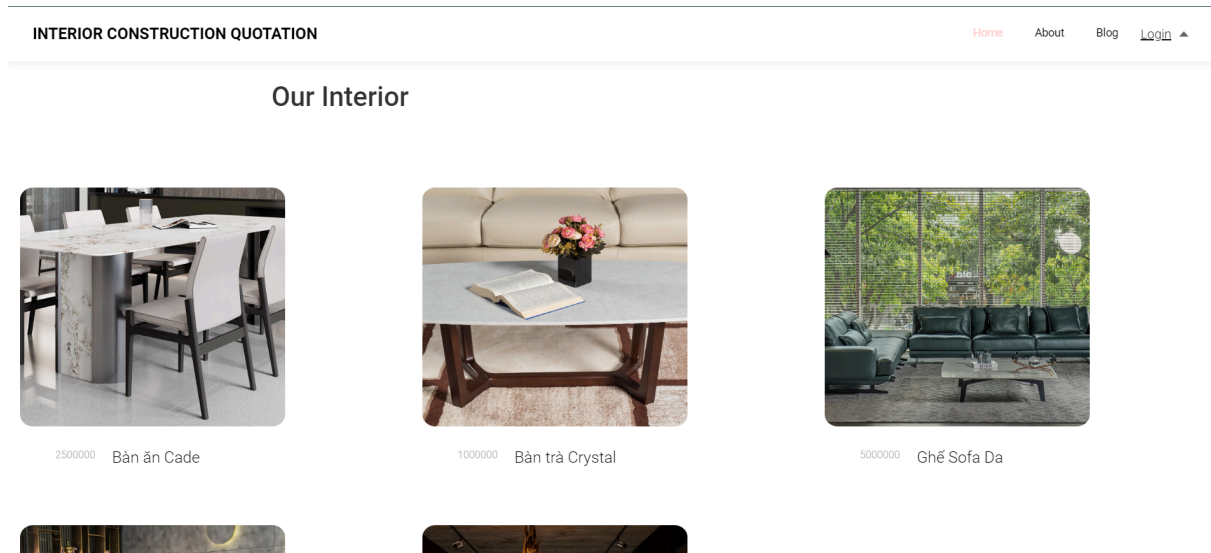
- - - Visitors or guests can view the list of interiors such as table, chair, windows, door curtain , … which they choose to construct
  - **View blog of interior construction :**
    - - Visitors or guests can view the blog of interior construction about the experience in interior construction, actual customer's reviews.
  - **View detail of interior :**
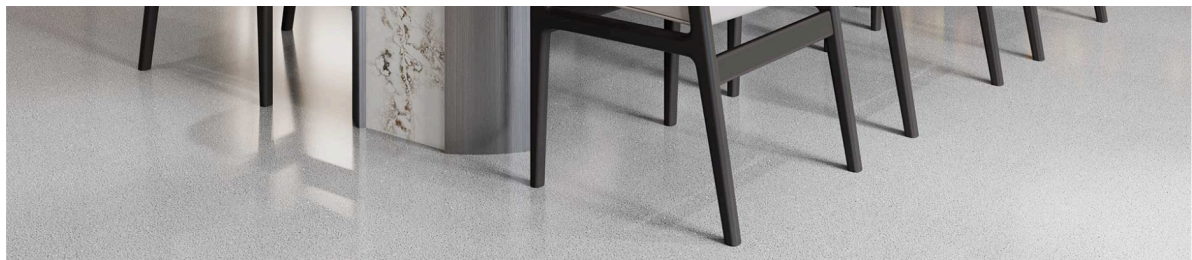
Bàn ăn Cade

Chất liệu đá phủ từ mặt xuống chân bàn, tạo cảm giác như có một dòng thác đá kỳ vĩ chảy từ trên xuống dưới. Tất cả làm nên vẻ đẹp đặc biệt của Cade.

Details	
Created at:	7/3/2024
Price:	2500000 VND
Quantity:	24

- - - After viewing the list of interior, guests or visitors can view the details of the interior such as parameters, colour, material, … And they can :
    - - View the standard quote of interior construction
    - Calculate the estimated construction price
  - **Create a request for receiving a quote :**

Create New Request

* Email:

* Phone Number:

* Address:

* Content:

Choose interior:

Submit

- ■ After viewing list interiors on the website, customers can create a request to staff for receiving a quote about which interiors they want to construct. The system then stores the request in the database, notifies the user, and redirects to the home page
- ● Customer : must login to do this function
  - ○ **Create a request for receiving a quote :**

Create New Request

* Email :

* Phone Number :

* Address :

* Content :

Choose interior :

Submit

- After viewing list interiors on the website, customers can create a request to staff for receiving a quote about which interiors they want to construct. The system then stores the request in the database, notifies the user, and redirects to the home page
  ○ **View history request for receiving a quote :**

History Request

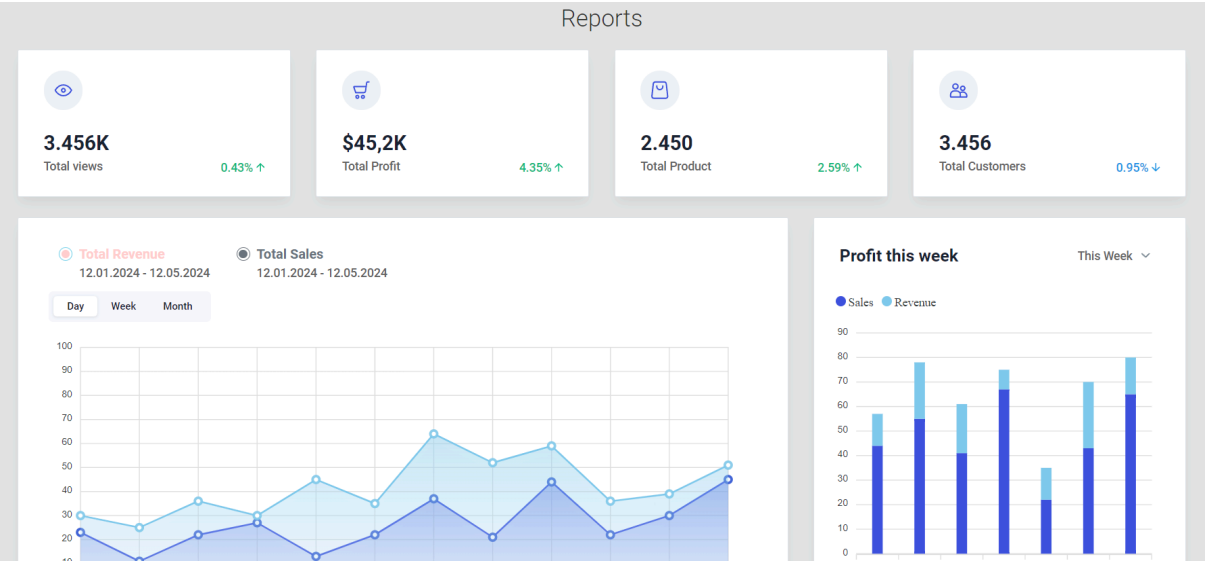| Request Id	Email	Created At	Status	Action
	aaa@gmail.com	2024-03-13T17:55:45.081Z		View
	aaa@example.com	2024-03-13T17:56:23.783Z		View
	nle75234@gmail.com	2024-03-13T18:02:53.374Z		View
	aaa@example.com	2024-03-13T18:08:48.065Z		View
	aaa@example.com	2024-03-13T19:01:26.489Z		View

< 1 >

- After creating a request to staff for receiving a quote, customers can view a history request for receiving a quote by clicking "History Request" on the navigation bar
  ○ **Manage contract :**
    - After approving a request by staff, customers accept a contract in "Manage Contract" on the navigation bar. Customers can :

- View the contract list
- Approve the contract, check the content inside the contract
- Pay contract

- ○ **View blog of interior construction :**
  - ■ Visitors or guests can view the blog of interior construction about the experience in interior construction, actual customer's reviews.

- Staff : must login to do this function
  - ○ **View information of customer :**
    - ■ After customers register their information to request a quote or sign a contract, in the "Customer Management" section, employees can view their information.
  - ○ **Manage request :**
    - ■ After receiving customer requests in the "Request Management" section, employees can:
      - See list of requirements
      - Approve and execute requests
  - ○ **Manage contract :**
    - ■ After approving the request, the employee signs and executes the contract in the "Contract Management" section of the navigation bar. Staff can:
      - See contract list
      - Approve the contract
      - Payment contract
      - Manage projects
      - Monitor implementation progress
  - ○ **Manage blogs :**
    - ■ In the blog management section, employees can create new blog posts, edit, delete, etc. present design construction samples for guests and customers to see and refer to.
  - ○ **Manage interior:**
    - ■ In the interior management section, employees can create new interior, edit, delete, etc. present product construction for guests and customers to see and refer to.

- Admin : must login to do this function
  - ○ **Manage account :**

Manage User Account

Index	Email	Phone Number	Password	Role	Action
1	1user@example.com			Staff	View Delete
2	aaa@example.com			Customer	View Delete
3	aaa@gmail.com			Staff	View Delete
4	abaotran@gmail.com			Staff	View Delete
5	abc@example.com			Staff	View Delete

< 1 2 3 4 5 6 >

■ In the "Account Management" section, admins can:
- ● Create accounts for users
- ● View account details
- ● Delete the account
○ **View dashboard and reports :**

Reports

3.456K — Total views — 0.43% ↑
$45,2K — Total Profit — 4.35% ↑
2.450 — Total Product — 2.59% ↑
3.456 — Total Customers — 0.95% ↓

Total Revenue 12.01.2024 - 12.05.2024
Total Sales 12.01.2024 - 12.05.2024
Day Week Month

Profit this week — This Week
● Sales ● Revenue

■ In the "Data management and reporting" section, administrators can view statistics on the number of orders, customers, revenue, etc.

V. Non-Functional Requirements

1 External Interfaces

1.1 User Interfaces

UI-1	The Interior Construction Quotation System screen displays shall conform to the *Process*

	Impact Internet Application User Interface Standard, Version 2.0 [3].
UI-2	Home Page Interface :
	- The Interior Construction Quotation web system's home page interface shall display the interior construction quotation's logo and name prominently.
	- The home page shall have clear and easy-to-use navigation menus to access all functions of the interior construction quotation web system.
	- The home page shall display any news or updates about the interior construction quotation and its activities about the project of interior construction .
UI-3	Member Login Interface :
	- The user login interface shall request the customer's email and password to access the interior construction quotation web system.
	- The login page shall provide a "forgot password" function to reset user passwords
UI-4	Admin Dashboard Interface
	- The admin dashboard interface shall display a summary of the number of customers, blogs, contract's revenue on the interior construction quotation web system.
	- The dashboard display shall be responsive for different screen sizes and orientations.

1.2 Software Interfaces

| SI-1	VNPay System
SI-1.1	The ICQS shall transfer the details of payment requests to the VNPay System through an application program interface.
SI-1.2	When the VNPay System notifies that the payment process has failed, the ICQS shall mark the payment request as failed and store it in the database to let the requester to reattempt the payment later.

1.3 Hardware Interfaces

HI-1 : *Server Configuration*	Application Server	
	CPU	: Intel Xeon Silver 4310 Processor Core 2.10 GHz
	Memory Space	: 16 GB RAM 3200 MHz
	Storage Space	: 2 TB
	Operating System	: MS Windows Server 2022
	Software	: Microsoft IIS 10.x, .NET Framework 7.0
	Database Server	
	CPU	: Intel Xeon Silver 4310 Processor 2.10 GHz
	Memory Space	: 256 GB RAM 3200 MHz
	Storage Space	: 5 TB
	Operating System	: MS Windows Server 2022
	Software	: Microsoft SQL Server 2019
HI-2 : *Client Configuration*	**- PC Device**	
	CPU	: Intel Core i5 2.80 GHz
	Memory Space	: 8 GB RAM
	Storage Space	: SSD: 128GB
	Operating System	: Windows Win7/Win8/Win10/Win11
	Operator Display	: 18.5-inch widescreen, 16:9 format 1280 x 720 pixel, 1024 x 768 pixel
	- Mobile Device	
	CPU	: Snapdragon 4 Core
	Memory Space	: 3 GB
	Storage Space	: 32 GB
	Operating System	: Android 11.0
	Wifi Standard	: 5GHz Wi-fi
	Operator Display	: 7.0 inches 1280 x 800 Pixels
HI-3 : *Network*	LAN Network	: Speed ≥ 1Gbps
	WAN Network	: Speed ≥ 2Mbps/10 Users operate together

2. Quality Attributes

2.1 Usability

USE-1	All text in the application shall be kept in English
USE-2	95% of new users will be able to use all the system's blog-related functions within 5 minutes of using the application
USE-3	95% of new users will be able to use all the system's request-related functions within 15 minutes of using the application

2.2 Performance

PER-1	The system shall accommodate a total of 200 users and a maximum of 50 concurrent users, with an estimated average session duration of 10 minutes.

PER-2	95% of web pages generated by the ICQS shall download completely within 5 seconds from the time the user requests the page over a 20 Mbps or faster Internet connection.
PER-3	The system shall display notification messages to users within an average of 5 seconds and a maximum of 10 seconds after the user submits information to the system.

2.3 Security

SEC-1	All passwords stored in the database shall be encrypted with the PBKDF2 algorithm.

VI. SOFTWARE DESIGN DESCRIPTION

1. System Architecture
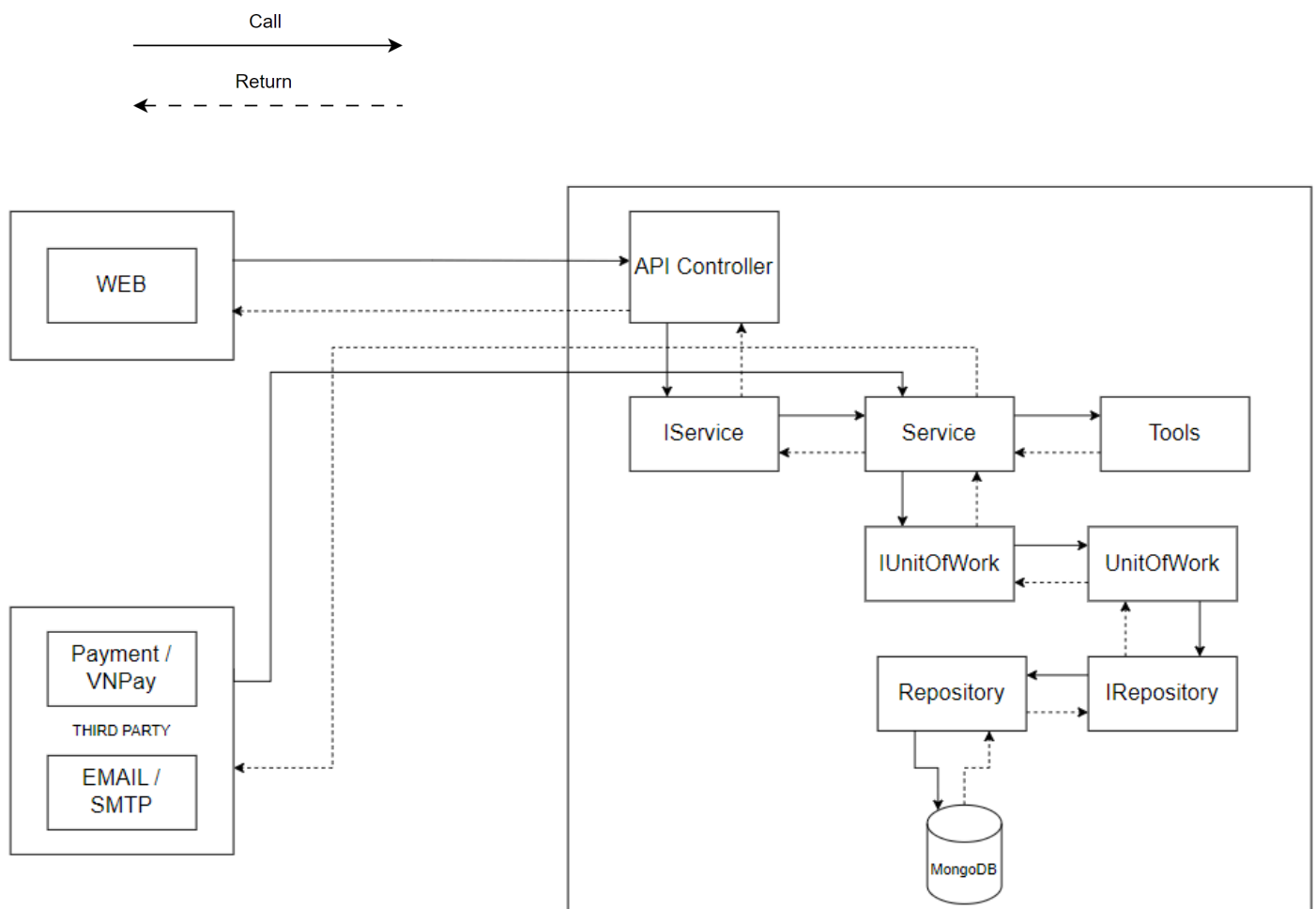
2. Class Diagram
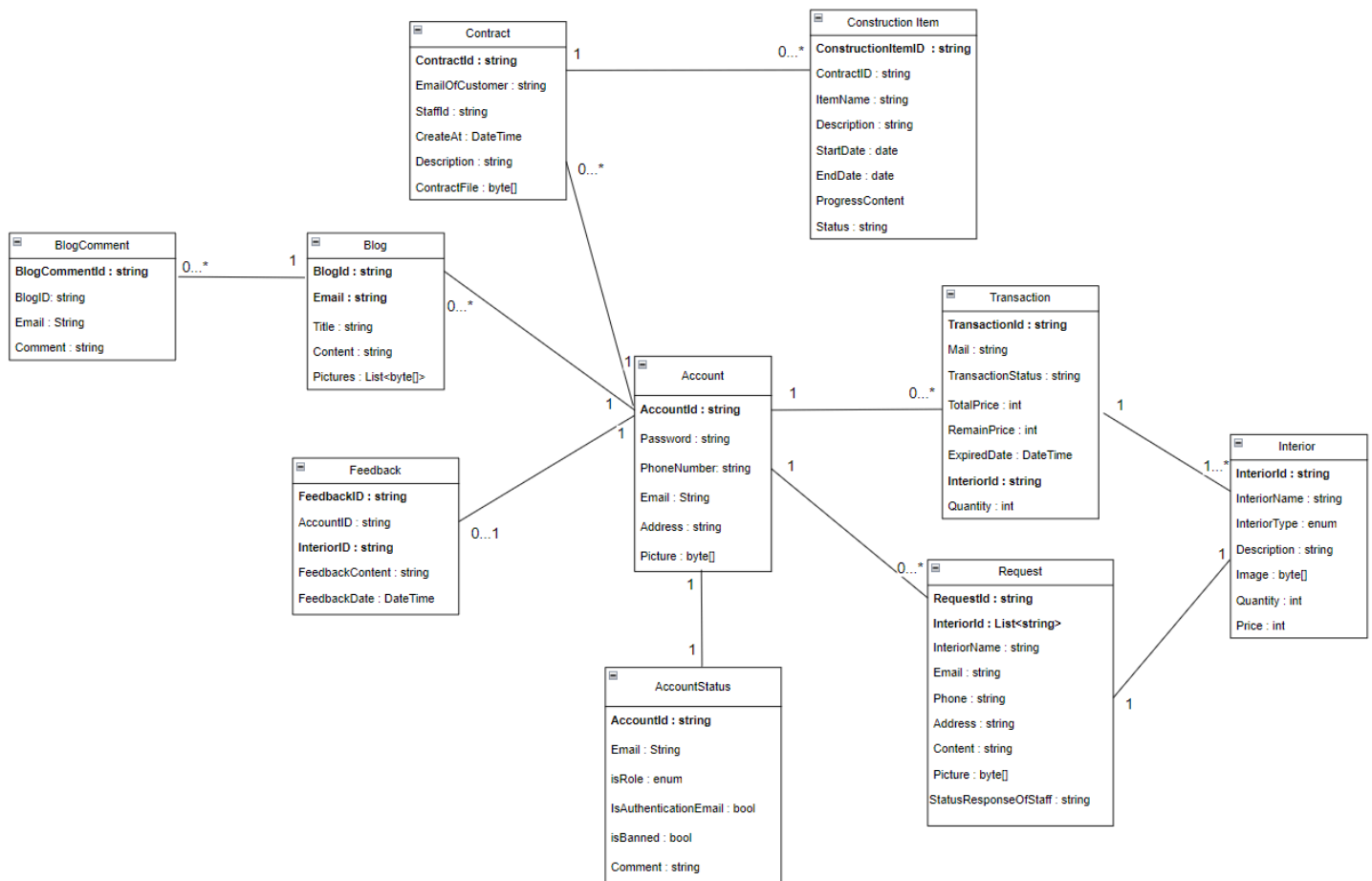
3. Detail Design
3.1. Login
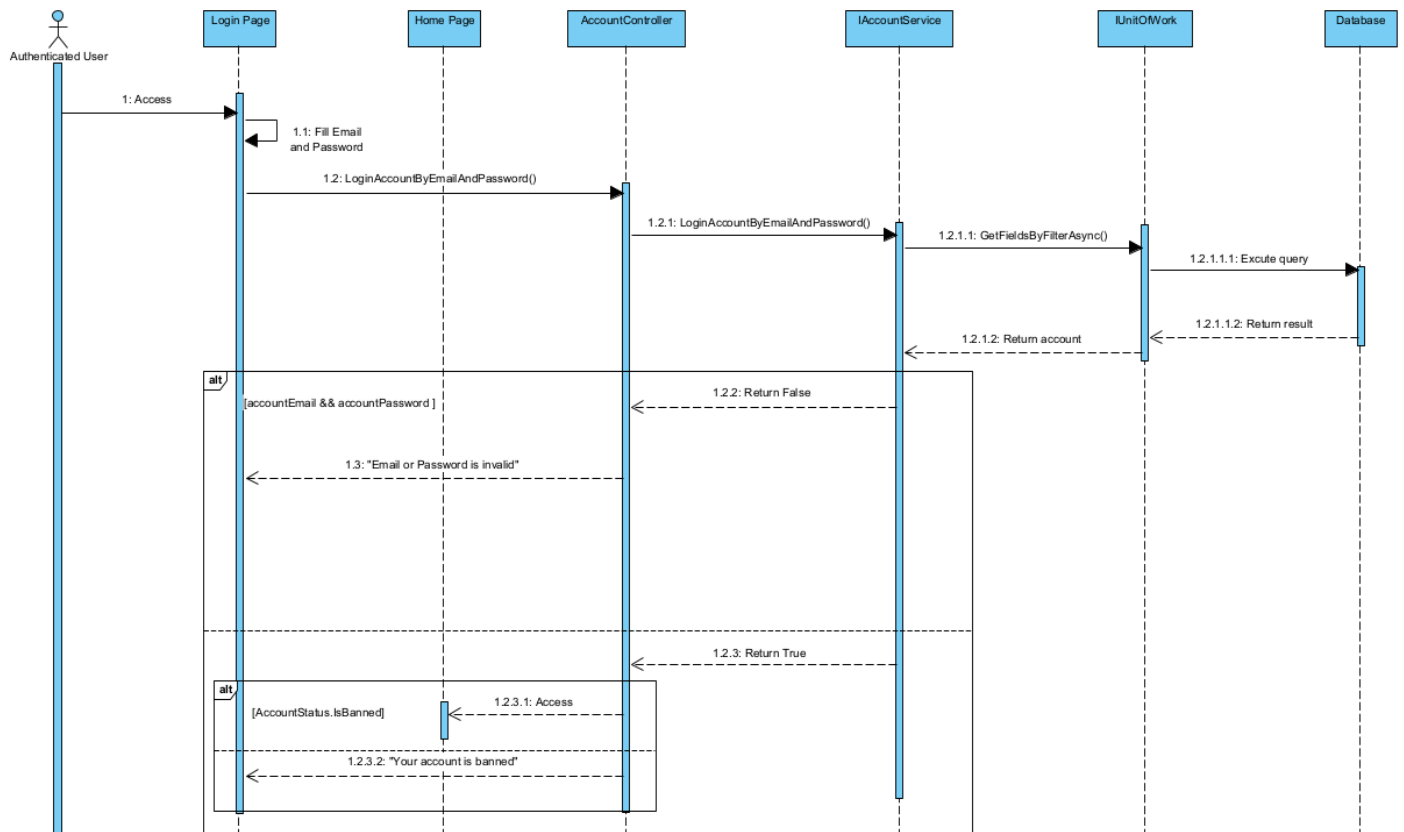
3.2. Register
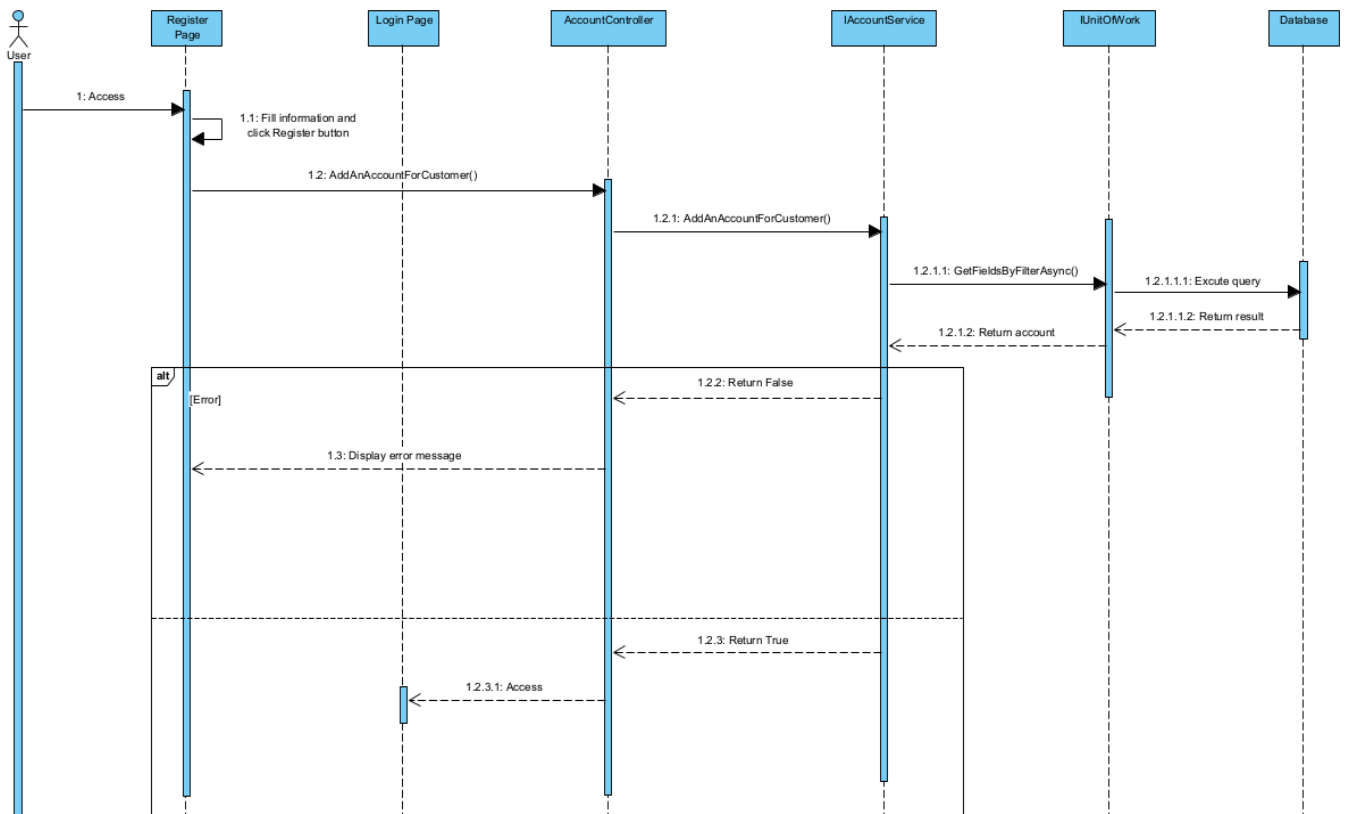
3.3. View Blog
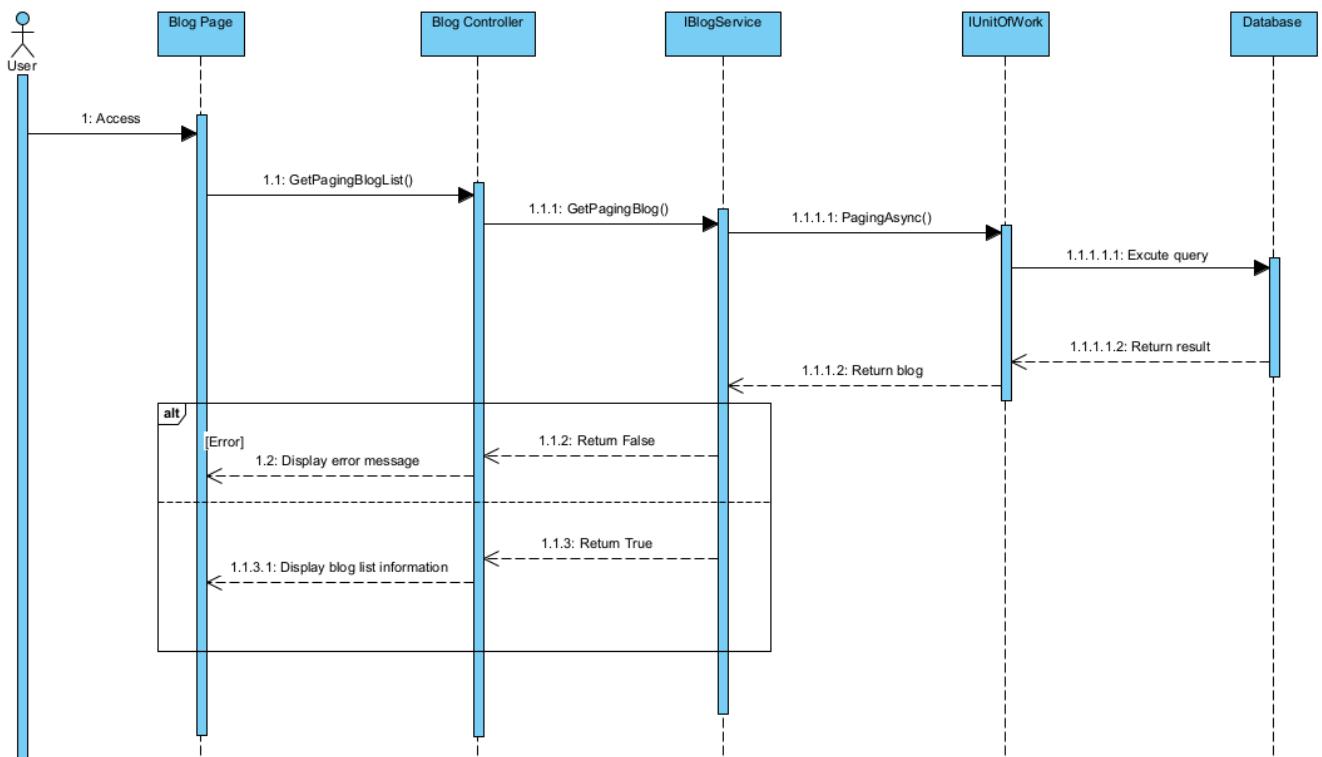
3.4. View Interior
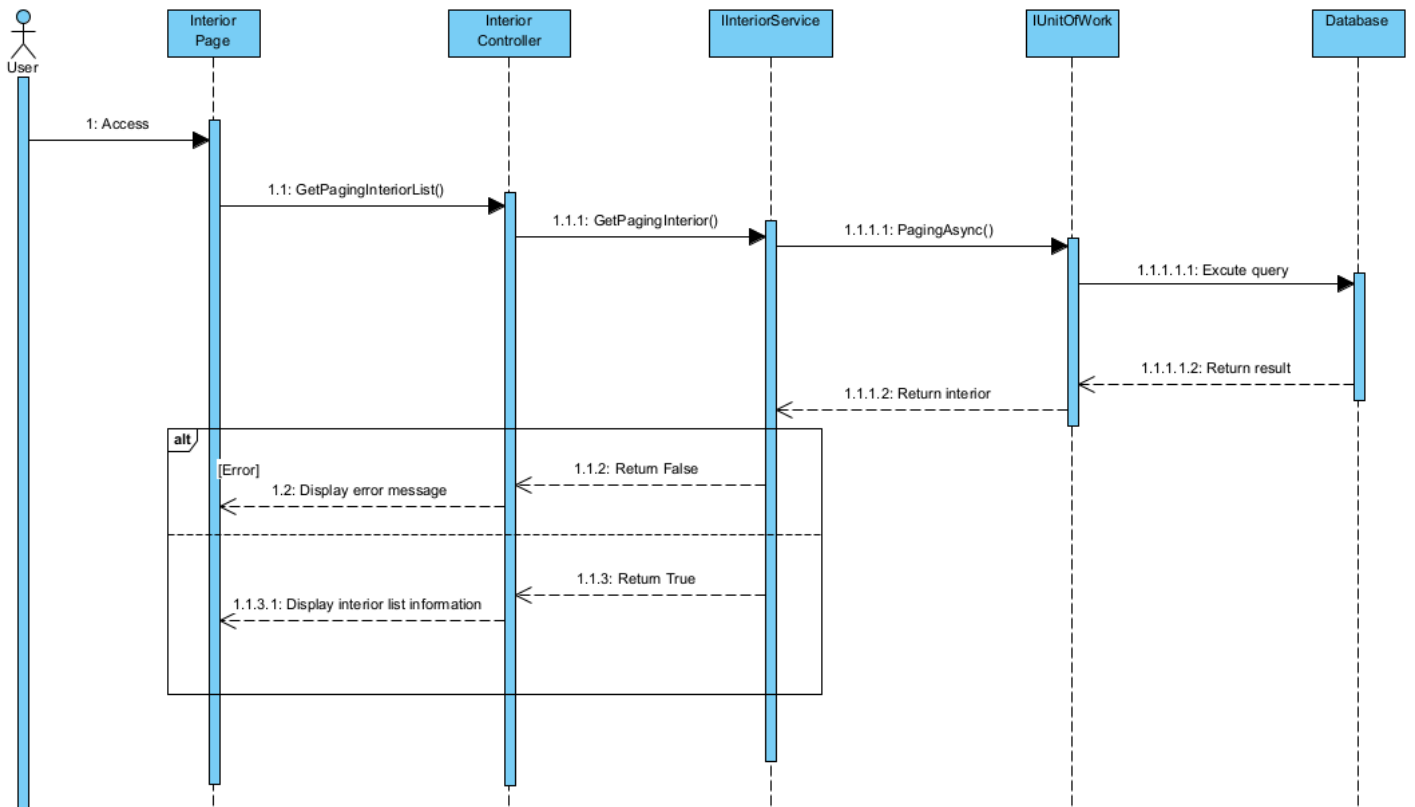
3.5. Manage Create Interior
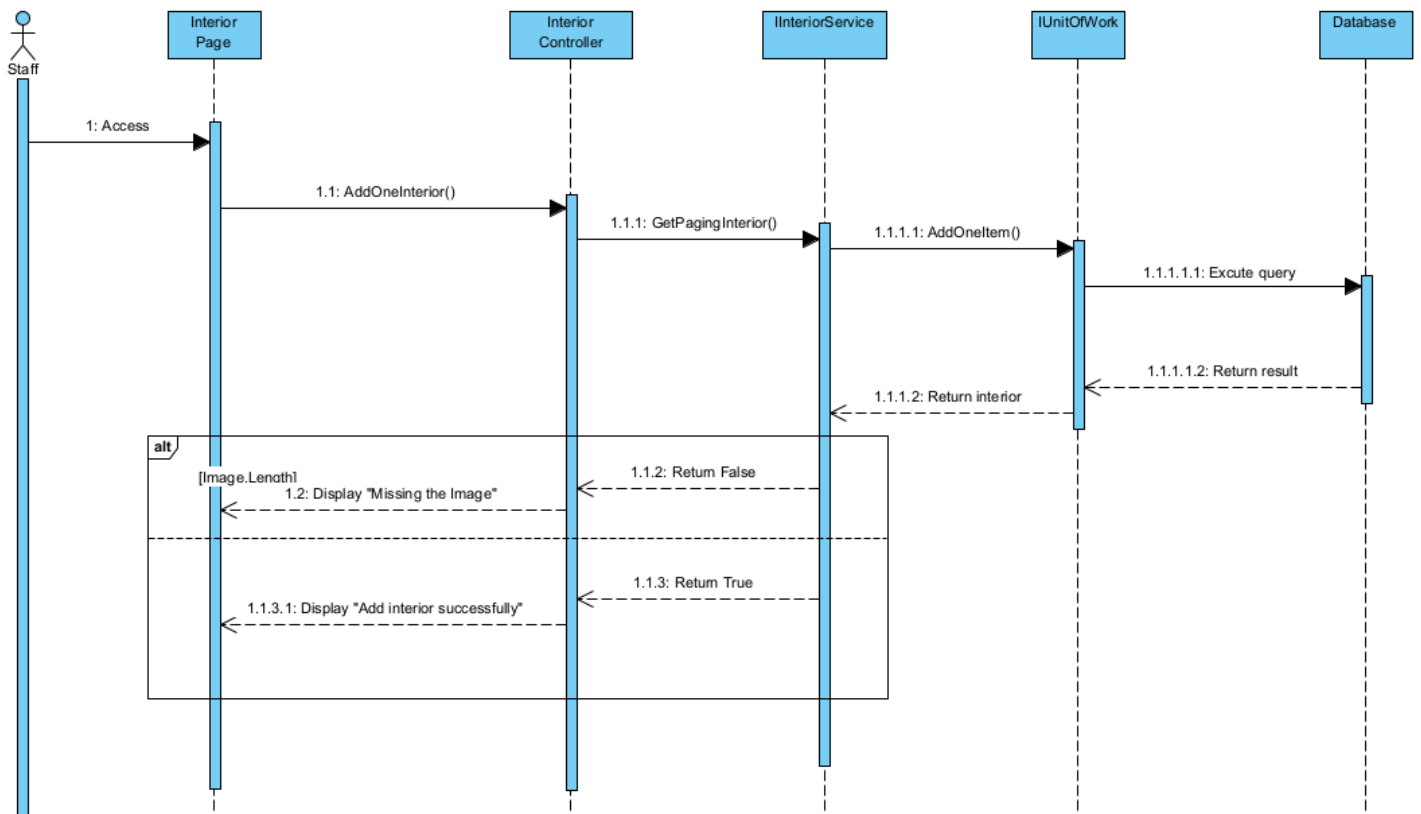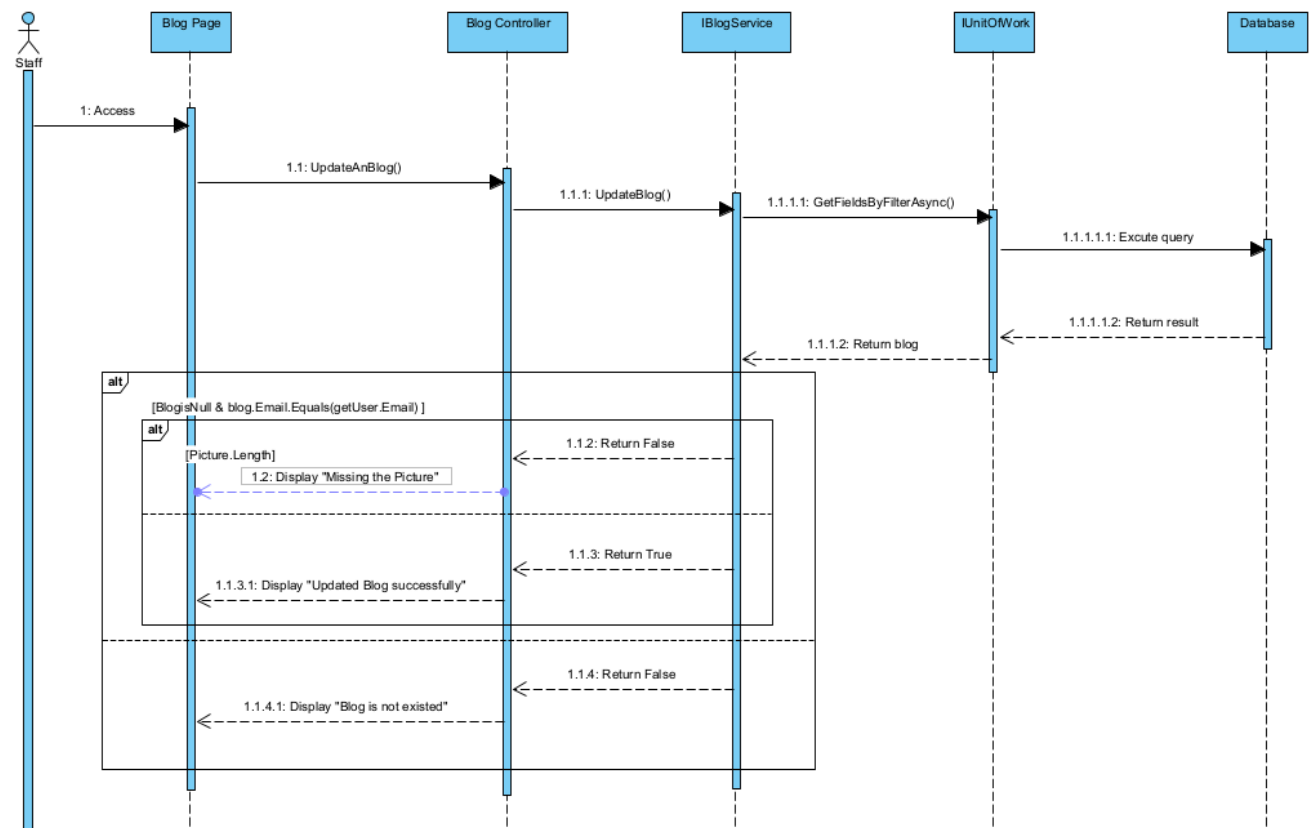
3.6. Manage Update Interior
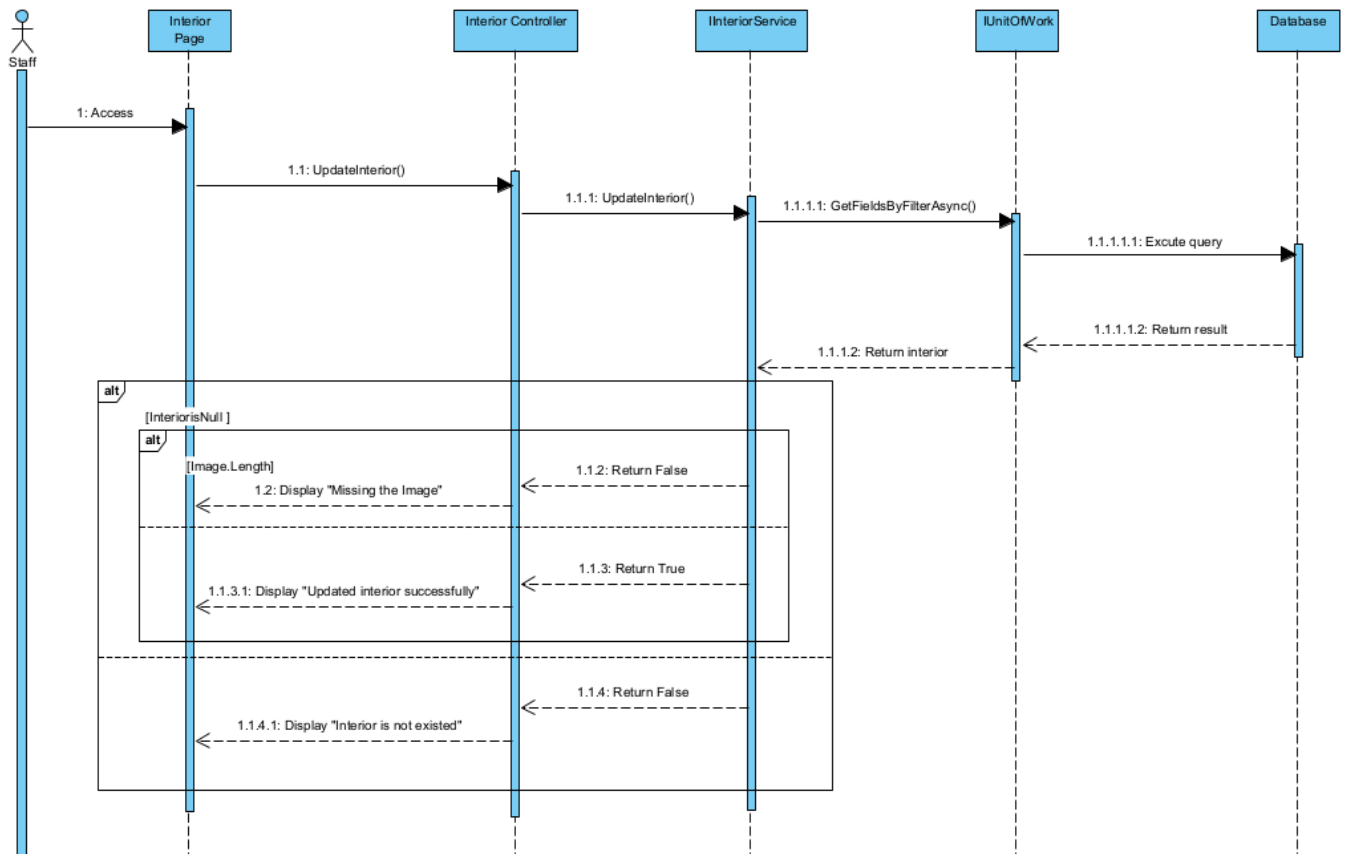
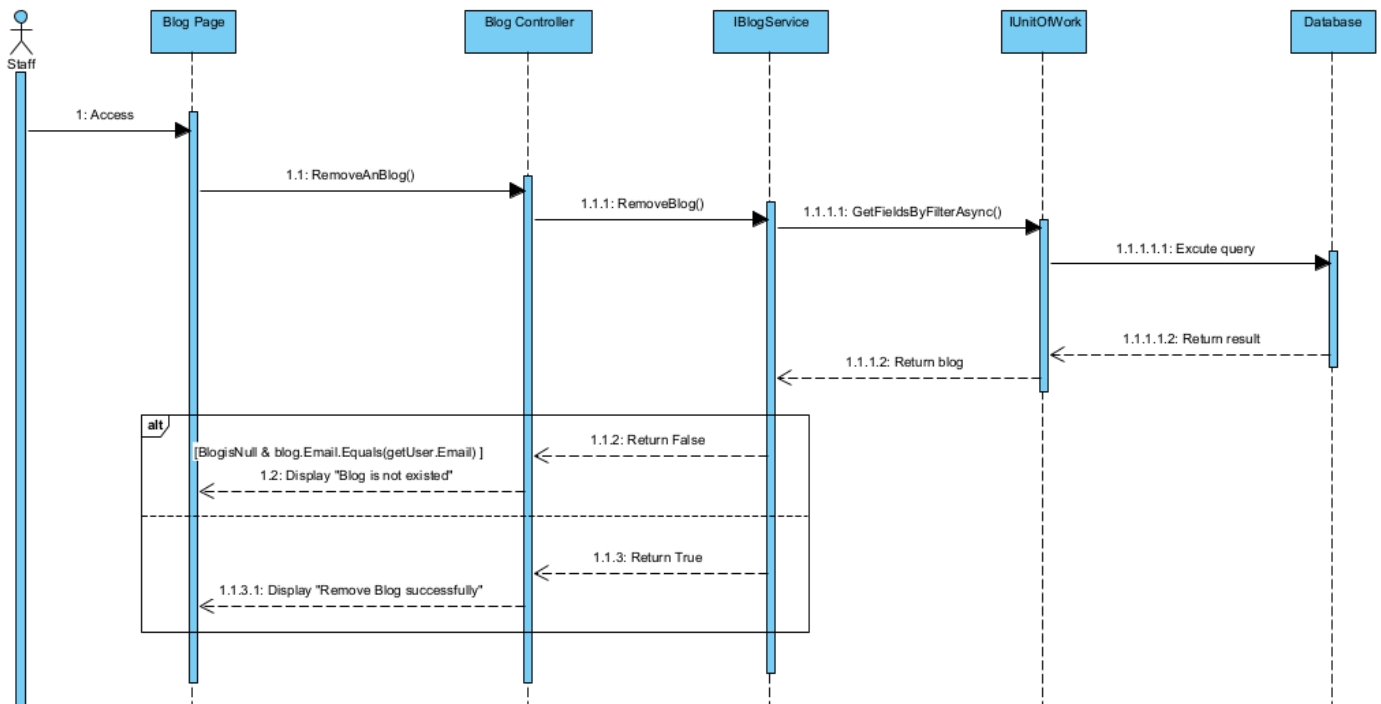### 3.7. Manage Delete Interior
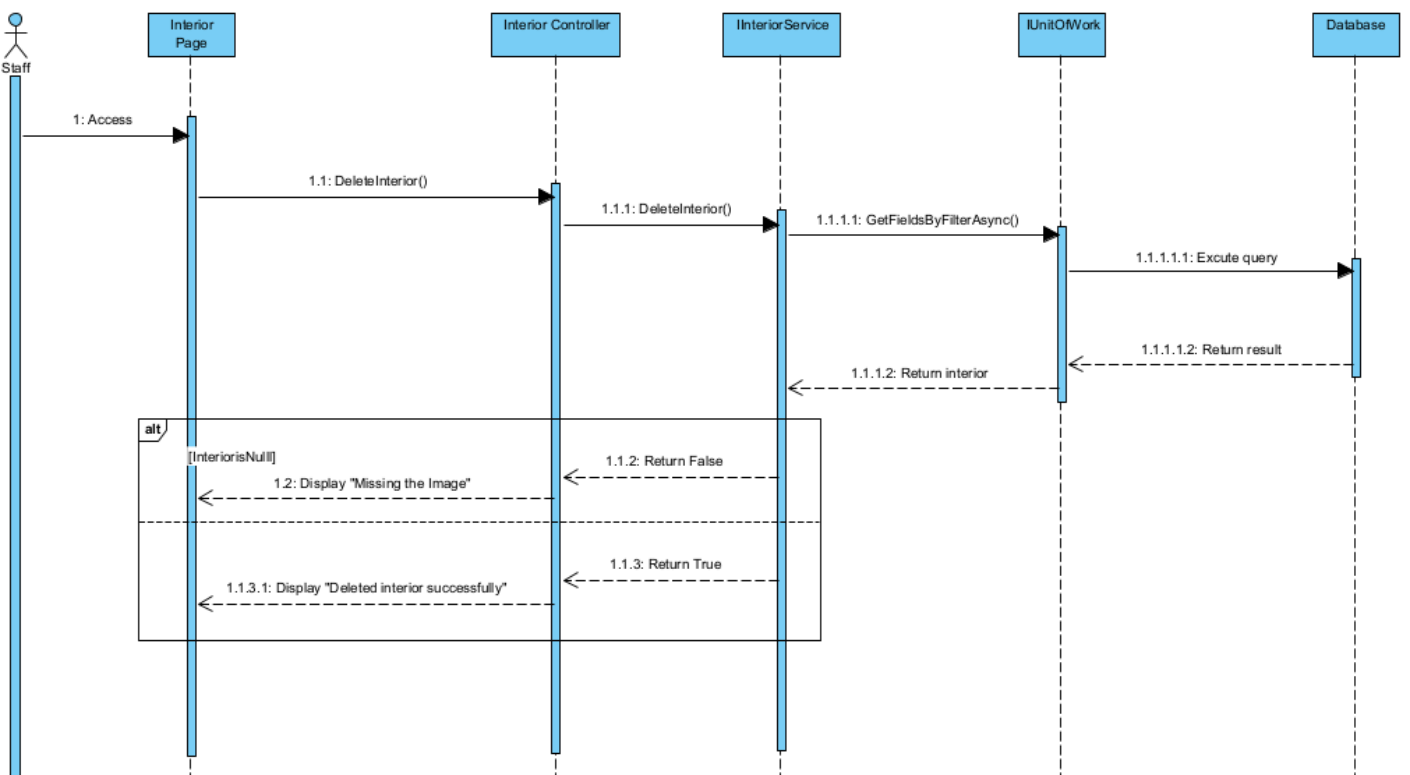
3.8. Manage Create Blog
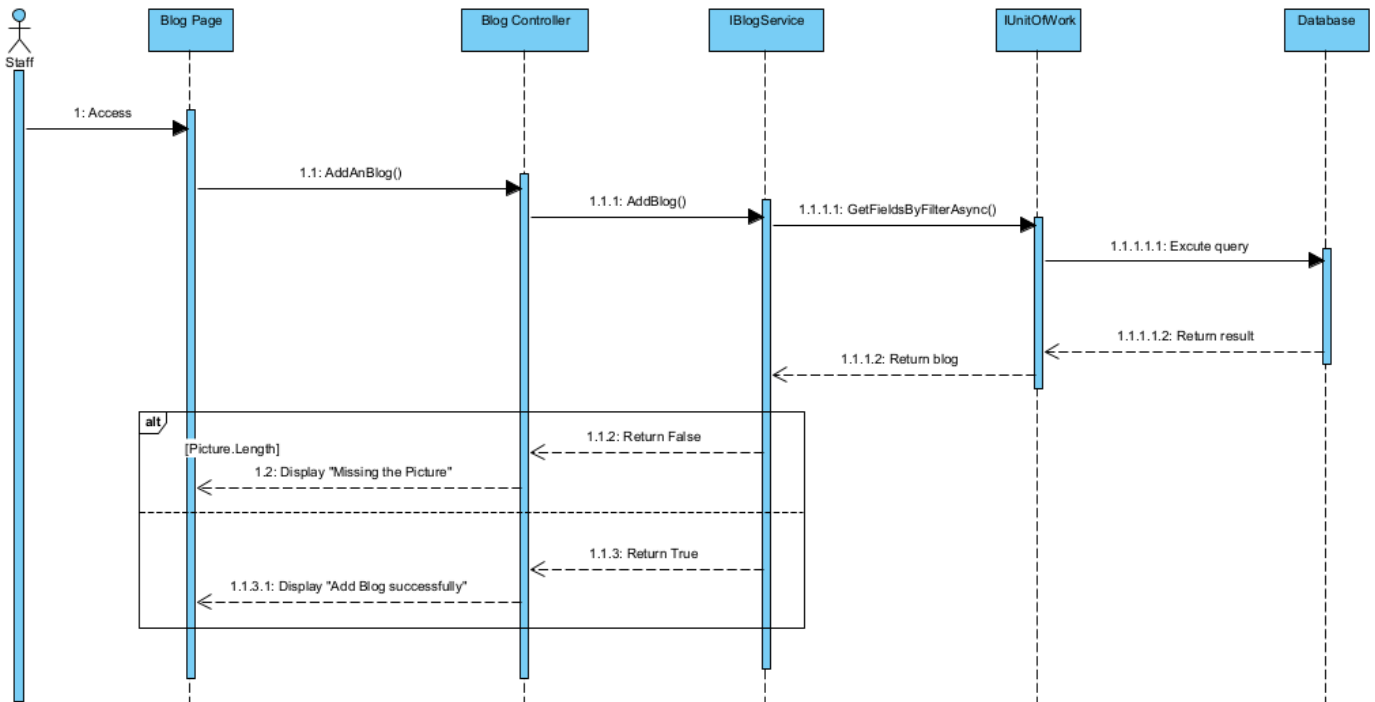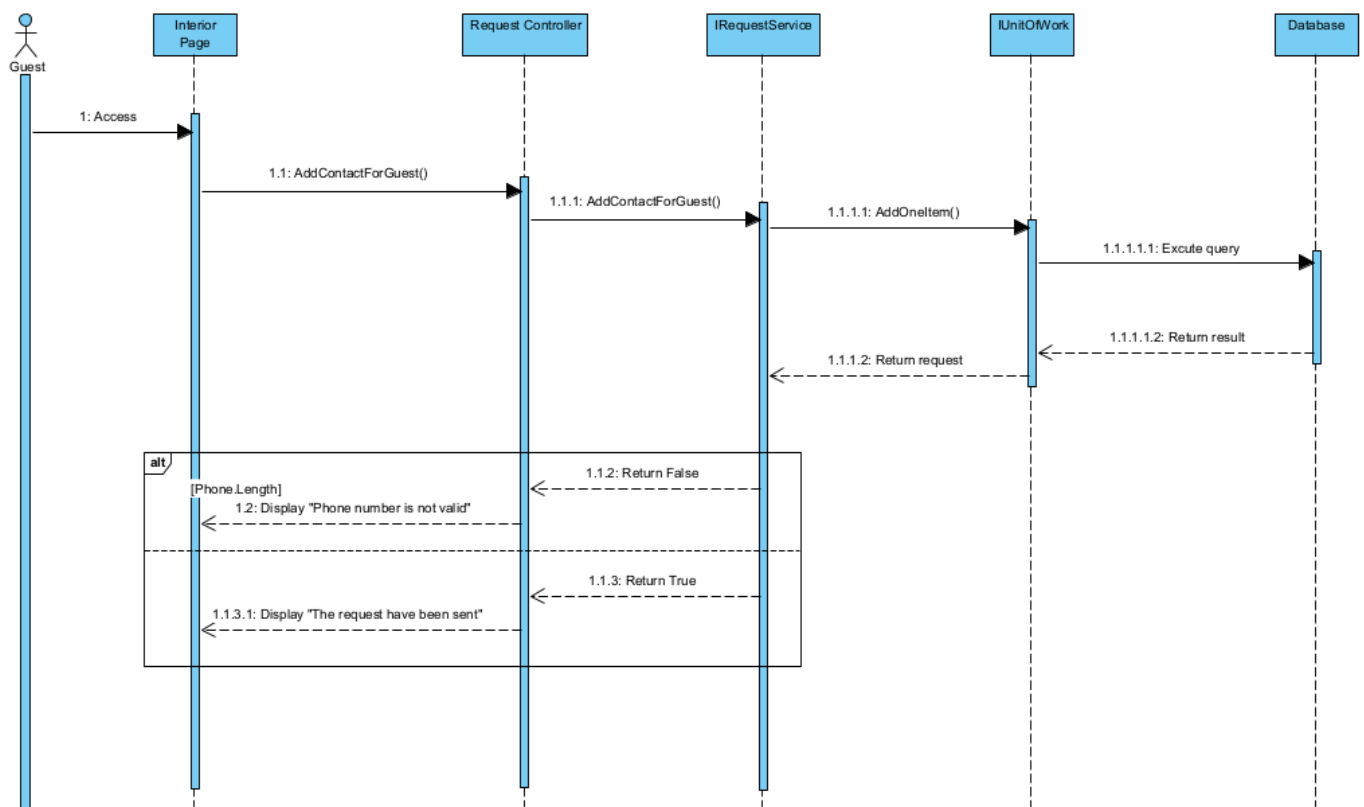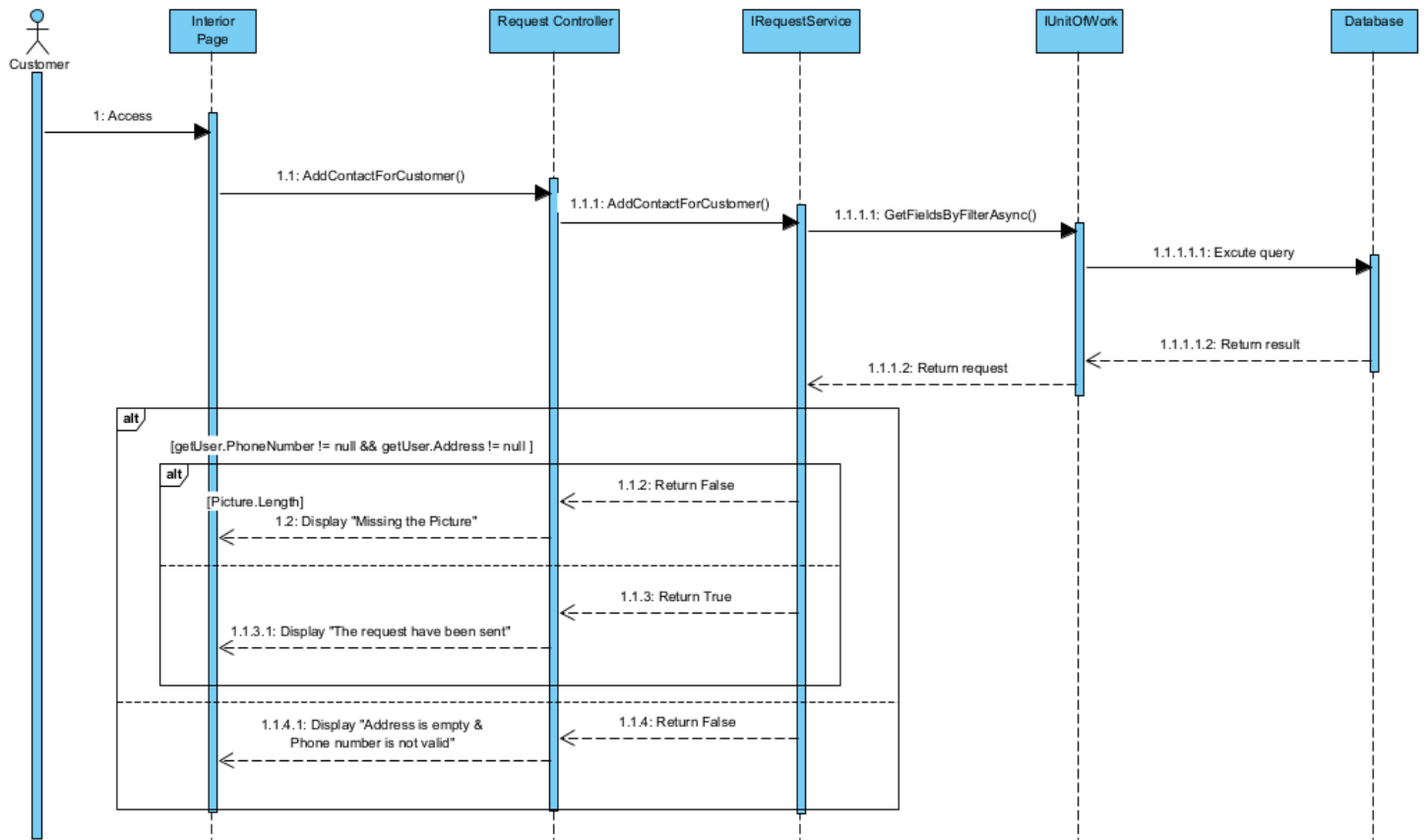
3.9. Manage Update Blog

3.10. Manage Remove Blog

3.11. Send Request From Guest

3.12. Send Request From Customer

Transaction State Transition