



TRƯỜNG ĐẠI HỌC FPT

Real Estate Auction System Software Requirement Specification

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1 INTRODUCTION

1.1 Purpose

- In recent years, the demand of purchasing real estate has steadily increased, along with the development of the online sale system. Everyone tends to buy things online, especially houses, apartments, timeshares, and real estate...
- Real estate auction is a Web Application that supports the customer in purchasing assets through legal auction quickly and efficiently. The application will allow users to participate in ongoing auctions and bid for the assets as wishes.

1.2 Scope

- Register and login: users can create account, login to the system and interact with the system
- View property list: Display a available auction list for the user
- Participate in the auction: Allow user to join the auction
- Manage posting assets: Allow user to manage the assets for auction
- Manage user: Allow admin can manage user's account
- Manage auction: Allow admin and staff can manage auction
- Response assets post: Allow admin and staff can response to posting asset
- Mange deposit: Allow admin and staff to manage deposit, bidding winner

1.3 Definitions, Acronyms, and Abbreviations

Acronym	Definition
UC	Use case
SRS	Software Requirement Specification
Guest	A person using the application without signing in
Member	A person using the application signing in the system for selling and purchasing assets
Staff	A person using the application signing in the system for manage auction process, accounts
Admin	A person using the application signing it the system for manage auction, accounts includes staff

1.4 References

- References for designing application:
 - <https://batdongsan.com.vn/sellernet/dang-tin>
 - <https://www.invaluable.com/>
 - <https://www.ebay.com/>

1.5 Overview

- The Real Estate Auction System is an online platform designed to facilitate the buying and selling of properties through auction processes. It provides a user-friendly interface for both buyers and sellers to participate in auctions, manage their assets, and track auction outcomes. The system aims to streamline the property auction process, increase transparency, and enhance user experience in the real estate market.
- The Real Estate Auction System caters to a diverse audience, including property sellers, buyers,, and administrators overseeing auction processes. Sellers utilize the platform to showcase their properties to a wide audience of potential buyers, while buyers leverage the system to explore a variety of properties and make informed bidding decisions.

2 OVERALL DESCRIPTION

2.1 Product Overview

2.1.1 Guest requirement

Guests are people who have not been authenticated to the system. They only have limited access to the system:

- Sign up
- View auction list
- View auction detail

2.1.2 Member requirement

Members are people who have logged in to the system with the “Member” role. They can access the following functions:

- Sign in, sign out
- View auction list
- View auction detail
- Participate in the auction
- Sell assets

2.1.3 Staff requirement

Staff are people who have logged in to the system with the “Staff” role. They can access to the following functions:

- Sign in, sign out
- Manage auction process
- Manage assets posting
- Manage member account

2.1.4 Admin requirement

Admin are people who have logged in to the system with the “Admin” role. They can access to the following functions:

- Sign in, sign out
- Manage auction process
- Manage assets posting
- Manage member account
- Manage staff account

3 FUNCTIONAL REQUIREMENTS

3.1 Use Cases Diagram

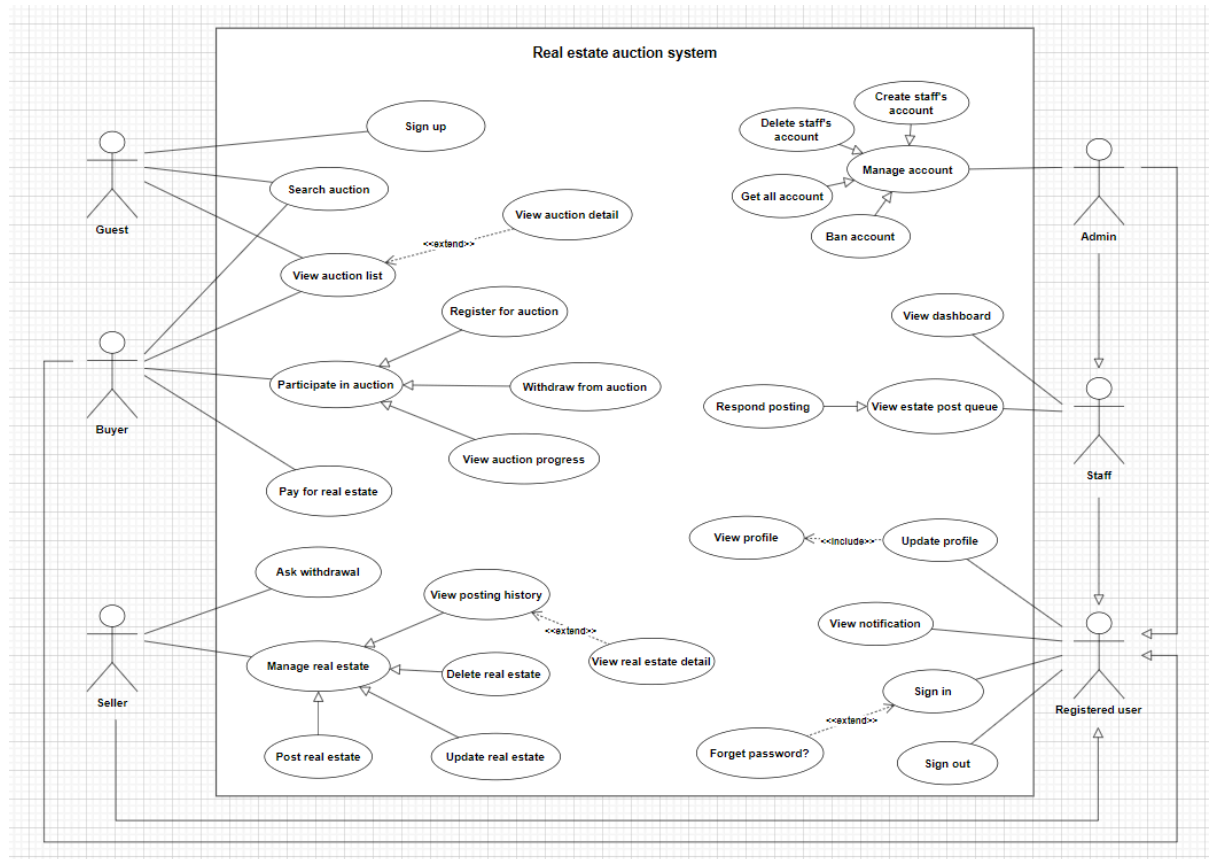


Figure 1: Use Case Diagram for Real estate auction system

3.2 View auction list

USE CASE-01 View auction list												
Use-case No.	UC-01	Use-case Version	1.0									
Use-case Name	View auction list											
Author	Nguyen The Anh											
Date	24/02/2024	Priority	Normal									
<p>Actor:</p> <ul style="list-style-type: none">- Guest, Buyer <p>Summary:</p> <ul style="list-style-type: none">- This use case allows the actor to view the list of available auctions in the Real Estate Auction System. <p>Goal:</p> <ul style="list-style-type: none">- To allow the actor to explore and browse through the list of real estate auctions. <p>Triggers</p> <ul style="list-style-type: none">- The actor goes to the Home Page or clicks on the logo brand. <p>Preconditions:</p> <ul style="list-style-type: none">- The system must be operational and have at least 1 auction to display. <p>Post Conditions:</p> <ul style="list-style-type: none">- The actor has been viewed with the current list of auctions. <p>Main Success Scenario:</p> <table><tr><th>Step</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>The actor goes to the Home Page [Alternative 1]</td><td>The system retrieves the most current list of auctions:<ul style="list-style-type: none">• Title: Text, maximum length: 255 characters.• Start price: Cannot be a negative, decimal value.• Status: Enum value("Upcoming", "Ongoing")</td></tr></table> <p>Alternative Scenario:</p> <table><tr><th>No.</th><th>Actor Action</th><th>System Response</th></tr></table>				Step	Actor Action	System Response	1	The actor goes to the Home Page [Alternative 1]	The system retrieves the most current list of auctions: <ul style="list-style-type: none">• Title: Text, maximum length: 255 characters.• Start price: Cannot be a negative, decimal value.• Status: Enum value("Upcoming", "Ongoing")	No.	Actor Action	System Response
Step	Actor Action	System Response										
1	The actor goes to the Home Page [Alternative 1]	The system retrieves the most current list of auctions: <ul style="list-style-type: none">• Title: Text, maximum length: 255 characters.• Start price: Cannot be a negative, decimal value.• Status: Enum value("Upcoming", "Ongoing")										
No.	Actor Action	System Response										

1	The actor clicks on the logo brand	<p>The system retrieves the most current list of auctions:</p> <ul style="list-style-type: none"> Title: Text, maximum length: 255 characters. Start price: Cannot be a negative, decimal value. Status: Enum value("Upcoming", "Ongoing")
<p>Exceptions:</p> <ul style="list-style-type: none"> N/A <p>Relationship:</p> <ul style="list-style-type: none"> None <p>Business Rules:</p> <ul style="list-style-type: none"> Only auctions that are approved by the staff and are within the auction date range are listed. 		

3.3 View auction detail

USE CASE-02 View auction detail			
Use-case No.	UC-02	Use-case Version	1.0
Use-case Name	View auction detail		
Author	Nguyen The Anh		
Date	24/02/2024	Priority	Normal
<p>Actor:</p> <ul style="list-style-type: none"> Guest, Buyer <p>Summary:</p> <ul style="list-style-type: none"> This use case allows actors to view detailed information about the auctions. <p>Goal:</p> <ul style="list-style-type: none"> To provide actors with comprehensive details about an auction to make informed decisions on bidding or monitoring auction progress. <p>Triggers</p> <ul style="list-style-type: none"> The actor clicks "Detail" on each item of the auction. <p>Preconditions:</p>			

- The auction exists and is listed in the system.
- The actors click "Ongoing auctions" or "Upcoming auctions" on the navigation.

Post Conditions:

- The actors have viewed the details of the auction.

Main Success Scenario:

Step	Actor Action	System Response
1	The actor selects an auction and clicks on the "Detail" button to view details.	<p>The system retrieves and displays detailed information about the selected auction, including:</p> <ul style="list-style-type: none">• Estate ID: BDS-XXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Registration opening time: DD/MM/YYYY, hh/mm/ss• Registration end time: DD/MM/YYYY, hh/mm/ss• Start price: Cannot be a negative, numeric, decimal value.• Register fee for auction: Numeric, decimal value• Type of auction: a select field with automatic and manual.• Price step: Cannot be a negative, numeric, decimal value• Name of owner: Text, maximum length: 255 characters.• Bidding start time: DD/MM/YYYY, hh/mm/ss.• Bidding end time: DD/MM/YYYY, hh/mm/ss.

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationship:

- UC-01

Business Rules:

- N/A

3.4 Search auction

USE CASE-03 Search auction															
Use-case No.	UC-03	Use-case Version	1.0												
Use-case Name	Search auction														
Author	Nguyen The Anh														
Date	23/02/2024	Priority	High												
<p>Actor:</p> <ul style="list-style-type: none">- Guest, Buyer <p>Summary:</p> <ul style="list-style-type: none">- This use case allows actors to search for auction listed in the real estate auction system. <p>Goal:</p> <ul style="list-style-type: none">- To enable actors to find properties that match their criteria. <p>Triggers</p> <ul style="list-style-type: none">- The actor selects the option to search for properties. <p>Preconditions:</p> <ul style="list-style-type: none">- The system is operational and accessible.- Properties are listed in the system with relevant details. <p>Post Conditions:</p> <ul style="list-style-type: none">- The actors are presented with search results.- The system records the search parameters for future analytics. <p>Main Success Scenario:</p> <table><tr><th>Step</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>Actors select the search field.</td><td>The system requires the actors to enter search criteria.</td></tr><tr><td>2</td><td>Actors choose the category filter including "Price", "Location", and "Statement"</td><td>The system shows options for each category filter.</td></tr><tr><td>3</td><td>Actors click on the button "Search" or press Enter.</td><td>The system shows the list of auction results by searching for actors. [Exception]</td></tr></table> <p>Alternative Scenario:</p> <ul style="list-style-type: none">- N/A <p>Exceptions:</p>				Step	Actor Action	System Response	1	Actors select the search field.	The system requires the actors to enter search criteria.	2	Actors choose the category filter including "Price", "Location", and "Statement"	The system shows options for each category filter.	3	Actors click on the button "Search" or press Enter.	The system shows the list of auction results by searching for actors. [Exception]
Step	Actor Action	System Response													
1	Actors select the search field.	The system requires the actors to enter search criteria.													
2	Actors choose the category filter including "Price", "Location", and "Statement"	The system shows options for each category filter.													
3	Actors click on the button "Search" or press Enter.	The system shows the list of auction results by searching for actors. [Exception]													

No.	Cause	System Response
1	Search result not found	The screen displays “Not Found”

Relationship:

- N/A

Business Rules:

- Guest and Buyer can search properties without needing to log in.
- Search results must include properties’ status, price range, and location.

3.5 Sign up

USE CASE-04 Sign up			
Use-case No.	UC-04	Use-case Version	1.0
Use-case Name	Sign up		
Author	Nguyen Viet Nam Khanh		
Date	17/01/2024	Priority	Normal
<p>Actor:</p> <ul style="list-style-type: none"> - Guest <p>Summary:</p> <ul style="list-style-type: none"> - The actor registers basic information. <p>Goal:</p> <ul style="list-style-type: none"> - The actor can join in auction fields. <p>Triggers</p> <ul style="list-style-type: none"> - An actor clicks on the “Sign up” link. - An actor clicks on the “Join auction” link. <p>Preconditions:</p> <ul style="list-style-type: none"> - An actor is on the Sign-up page. - An actor has a valid email. <p>Post Conditions:</p> <ul style="list-style-type: none"> - An actor successfully registered and logged in to the website. 			

Main Success Scenario:		
No.	Actor Actions	System Responses
1	On the home page, an actor clicks on the “Sign up” button in the navigation bar.	The system displays a new page including fields input: <ul style="list-style-type: none"> • First name: text, maximum length: 255 characters. • Last Name: text, maximum length: 255 characters. • Email: text, valid email address • Password: text, maximum length: 255 characters. • Confirm password: text, maximum length: 255 characters.
2	An actor inputs information on each field.	The system checks the validation email and password. [Exception 1]
3	Click on the “Continue” button.	Display the notification “Register successful”
Alternative Scenario:		
- N/A		
Exceptions:		
No.	Cause	System Response
1	Invalid email and password.	The system will report an error: <ul style="list-style-type: none"> • Wrong email format. • Confirm password no matches.
Relationships:		
- N/A		
Business Rules:		
- N/A		

3.6 Sign in

USE CASE-05 Sign in			
Use-case No.	UC-05	Use-case Version	1.0

Use-case Name	Sign in																				
Author	Trinh Quoc Thai																				
Date	17/01/2024	Priority	Normal																		
<p>Actor:</p> <ul style="list-style-type: none">- registered user <p>Summary:</p> <ul style="list-style-type: none">- this use case allows the actor to sign in to the system. <p>Goal:</p> <ul style="list-style-type: none">- System authenticates the guest and grants them access to the system. <p>Triggers</p> <ul style="list-style-type: none">- An actor clicks on the "Sign in" button. <p>Preconditions:</p> <ul style="list-style-type: none">- The actor must have a registered account with the real estate auction system. <p>Post Conditions:</p> <ul style="list-style-type: none">- The actor is successfully signed in and gains access to the real estate auction system.- The actor may utilize the system's features according to their role and permissions. <p>Main Success Scenario:</p> <table border="1"><thead><tr><th>No.</th><th>Actor actions</th><th>System responses</th></tr></thead><tbody><tr><td>1</td><td>Actor access to the login page</td><td>System displays the login page</td></tr><tr><td>2</td><td>Actor input username and password and submit</td><td>System redirect actor to home page with authorized credential [Exception]</td></tr></tbody></table> <p>Alternative Scenario:</p> <ul style="list-style-type: none">- N/A <p>Exceptions:</p> <table border="1"><thead><tr><th>No</th><th>Actor actions</th><th>System responses</th></tr></thead><tbody><tr><td>1.</td><td>Input fields are null</td><td>System shows messages indicating actor to input again</td></tr><tr><td>2</td><td>Email or Password is wrong</td><td>System shows wrong email or password</td></tr></tbody></table> <p>Relationships:</p> <ul style="list-style-type: none">- UC-06 <p>Business Rules:</p> <ul style="list-style-type: none">- N/A				No.	Actor actions	System responses	1	Actor access to the login page	System displays the login page	2	Actor input username and password and submit	System redirect actor to home page with authorized credential [Exception]	No	Actor actions	System responses	1.	Input fields are null	System shows messages indicating actor to input again	2	Email or Password is wrong	System shows wrong email or password
No.	Actor actions	System responses																			
1	Actor access to the login page	System displays the login page																			
2	Actor input username and password and submit	System redirect actor to home page with authorized credential [Exception]																			
No	Actor actions	System responses																			
1.	Input fields are null	System shows messages indicating actor to input again																			
2	Email or Password is wrong	System shows wrong email or password																			

3.7 Forgot password

USE CASE-06 Forgot password												
Use-case No.	UC-06	Use-case Version	1.0									
Use-case Name	Forget password											
Author	Nguyen The Anh											
Date	23/02/2024	Priority	High									
<p>Actor:</p> <ul style="list-style-type: none">- Registered user <p>Summary:</p> <ul style="list-style-type: none">- This use case allows actor to reset their password. <p>Goal:</p> <ul style="list-style-type: none">- To enable actors to regain access to their accounts by resetting their passwords. <p>Triggers</p> <ul style="list-style-type: none">- The actor selects the “Forgot password” option. <p>Preconditions:</p> <ul style="list-style-type: none">- The actor has an existing account.- The actor must have access to their registered email address. <p>Post Conditions:</p> <ul style="list-style-type: none">- The actor password is reset.- The actor gains access to their account. <p>Main Success Scenario:</p> <table><tr><th>Step</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>The actor clicks on the “Forgot password” link.</td><td>The system will go to the forgot password page and display the email field.</td></tr><tr><td>2</td><td>The actor enters their registered email address and clicks on the “Request info” button.</td><td>The system verifies the email and then shows the number code field that the actor must enter by registered email address. [Exception 1]</td></tr></table> <p>Alternative Scenario:</p>				Step	Actor Action	System Response	1	The actor clicks on the “Forgot password” link.	The system will go to the forgot password page and display the email field.	2	The actor enters their registered email address and clicks on the “Request info” button.	The system verifies the email and then shows the number code field that the actor must enter by registered email address. [Exception 1]
Step	Actor Action	System Response										
1	The actor clicks on the “Forgot password” link.	The system will go to the forgot password page and display the email field.										
2	The actor enters their registered email address and clicks on the “Request info” button.	The system verifies the email and then shows the number code field that the actor must enter by registered email address. [Exception 1]										

No.	Actor Action	System Response
1	The actor input number code is sent via email.	The system verifies the number code and then displays the field: <ul style="list-style-type: none"> • Password • Confirm password
2	The actor inputs the "Password" and "Confirm password" fields, then clicks on the "Submit" button.	The notification "Password has changed" displays on the screen, the actor can sign in with a new password. [Exception 2]

Exceptions:

No.	Actor Action	System Response
1	Invalid registered email.	The notification "Wrong registered email" displays on the screen.
2	Wrong input number code.	The notification "Wrong number code" displays on the screen and requires the actor to send a request again.

Relationship:

- UC-05

Business Rules:

- The email service is operational.
- Password reset links expire after a predefined time for security.
- The new password must comply with the system's password strength requirements.

3.8 View auction progress

USE CASE-07 View auction progress			
Use-case No.	UC-07	Use-case Version	1.0
Use-case Name	View auction progress		
Author	Nguyen Viet Nam Khanh		

Date	01/03/2024	Priority	High
Actor: <ul style="list-style-type: none">- Buyer			
Summary: <ul style="list-style-type: none">- This use case lets the actor view the progress of an ongoing auction.			
Goal: <ul style="list-style-type: none">- The actor can view the detailed progress of an ongoing auction.			
Triggers <ul style="list-style-type: none">- The actor clicks on the “Ongoing” button from specific auction details.			
Preconditions: <ul style="list-style-type: none">- The actors are logged into the system.- The real estate auction event is an ongoing auction.			
Post Conditions: <ul style="list-style-type: none">- The actor can see the detailed progress of an ongoing auction.			
Main Success Scenario:			
No.	Actor actions	System responses	
1	The actor clicks on the “Ongoing” button of a specific auction from the auction list.	<div>The system retrieves detailed information about the asset and auction progress, including:</div> <ul style="list-style-type: none">• Estate name: text, maximum length: 255 characters• Estate image• Auction time: DateTime• Competing bid amount: float, maximum length: 30 characters.• Fair warning amount: float, maximum length: 30 characters.• “Set Max Bid” drop-down box: 50 values• “Set Bid step” drop-down box: 50 values• “Place Bid Automatically” button• Manual Bid amount drop-down box• “Place Bid Manually” button• “Withdraw from auction” button• Overview drop-down box: text, maximum length: 255 characters• Payment drop-down box: text, maximum length: 255 characters• Term drop-down box: text, maximum length: 255 characters	
Alternative Scenario:			

- N/A
Exceptions:
- N/A
Relationships:
- N/A
Business Rules:
- Bidding amount is equal to starting bid plus bid step and so on.
- Minimum bid step is equal to 1% of starting bid
- Bid step can be many times minimum bid step
- The max bidding amount and the manual bidding amount dropdown list has 50 values from the current bidding price, each value is above 1 bidding step amount from the previous value.

3.9 Register for auction

USE CASE-08 Register for auction			
Use-case No.	UC-08	Use-case Version	1.0
Use-case Name	Register for auction		
Author	Nguyen Viet Nam Khanh		
Date	24/02/2024	Priority	Normal
<p>Actor:</p> <ul style="list-style-type: none"> - Buyer <p>Summary:</p> <ul style="list-style-type: none"> - This use case lets the actor register to participate in an auction on the system. <p>Goal:</p> <ul style="list-style-type: none"> - The actor can register for an auction. <p>Triggers</p> <ul style="list-style-type: none"> - The actor clicks on the "Register for auction" link on the property's auction page. <p>Preconditions:</p> <ul style="list-style-type: none"> - The actor must be signed into the system. - The state of an auction must be "Ongoing". <p>Post Conditions:</p> <ul style="list-style-type: none"> - The actor is registered to bid in the selected auction. - The system has recorded the actor details for participation. 			

Main Success Scenario:

Step	Actor Action	System Response
1	The actor clicks on the “Register for auction” link. [Alternative 1]	The system goes to the “Register for auction” page and displays the fields: <ul style="list-style-type: none"> • Full name: text, maximum length: 255 characters. • Select your country: drop-down list (195 countries) • Date of birth: Date(YYYY-MM-DD) • Phone: number, maximum length: 10 characters. • Credit card: Number, maximum length: 16 characters, valid Credit card. • MM: drop-down list (12 months) • YY: drop-down list (5 years from now on) • CVN: Number, last three digits printed on Credit card. • Card holder: text, maximum length: 255 characters. [Exception 1]
2	The actor inputs all the fields and clicks on the “Register” button.	The system ensures all the input fields are complete and sends data to the system. [Exception 2]

Alternative Scenario:

No.	Actor Action	System Response
1	On the home page, an actor clicks on the “Ongoing” button.	The system retrieves detailed information about the asset and auction progress including <ul style="list-style-type: none"> • Asset’s name: text, maximum length: 255 characters • Asset’s image • Auction time: DateTime • Competing bid amount: float, maximum length: 30 characters. • Fair warning amount: float, maximum length: 30 characters. • “Set Max Bid” drop-down box: 50 values • “Set Bid step” drop-down box: 50 values • “Place Bid Automatically” button • Manual Bid amount drop-down box: 50 values • “Place Bid Manually” button

		<ul style="list-style-type: none"> • “Withdraw from auction” button • Overview drop-down box: text, maximum length: 255 characters • Payment drop-down box: text, maximum length: 255 characters • Term drop-down box: text, maximum length: 255 characters
2	On the home page, an actor clicks on the “Place Bid Automatically ” or “Place Bid Manually” button.	<p>The system goes to the “register to bid page” and displays the fields:</p> <ul style="list-style-type: none"> • First name: text, maximum length: 255 characters. • Last Name: text, maximum length: 255 characters. • Select your country: drop-down list (195 countries) • Date of birth: Date(YYYY-MM-DD) • Phone: number, maximum length: 10 characters. • Credit card: Number, maximum length: 16 characters, valid Credit card. • MM: drop-down list (12 months) • YY: drop-down list (5 years from now on) • CVN: Number, last three digits printed on Credit card. • Card holder: text, maximum length: 255 characters.

Exceptions:

No.	Cause	System Response
1	The actor hasn't signed in to the system and clicks on the “Register for auction” on the home page.	The system went back to the “Sign in page”.
2	Input fields are null.	The system shows messages indicate the actor to fill in again.

Relationships:

-

Business Rules:

- N/A

3.10 Withdraw from auction

USE CASE-09 Withdraw from auction			
Use-case No.	UC-09	Use-case Version	1.0
Use-case Name	Withdraw from auction		
Author	Nguyen Viet Nam Khanh		
Date	03/02/2024	Priority	Normal
Actor: Buyer			
Summary: <ul style="list-style-type: none">- The Withdraw from Auction use case involves a bidder deciding to withdraw from an ongoing auction before it concludes.			
Goal: <ul style="list-style-type: none">- The actor can withdraw from an auction they have been participating in, ensuring fairness and transparency in the bidding process.			
Triggers <ul style="list-style-type: none">- The actor clicks on the “Withdraw from auction” button on the ongoing bidding auction.			
Preconditions: <ul style="list-style-type: none">- The bidder must be actively participating in the auction.- The auction must be ongoing.- The user must have registered to bid.			
Post Conditions: <ul style="list-style-type: none">- The bidder's withdrawal is successfully processed, and their bids are removed from consideration.- Other bidders and the auctioneer are notified about the withdrawal if necessary.			
Main Success Scenario:			
No.	Actor action	System response	
1	The actor clicks on the “Withdraw from auction” button on the bidding screen	The system authenticates information and shows the “Agree” or “Cancel” option for the bidder.	
2	The actor chooses “Agree” to withdraw from the auction [Alternative 1]	The system redirects screen to home page.	

Alternative Scenario:		
No.	Actor action	System response
1.	The actor chooses "Cancel" to withdraw from the auction.	The system redirects to the current bidding screen.
Exceptions:		
- N/A		
Relationship:		
- N/A		
Business Rules:		
- N/A		

3.11 Post real estate

USE CASE-10 Post real estate			
Use-case No.	UC-10	Use-case Version	1.0
Use-case Name	Post real estate		
Author	Nguyen The Anh		
Date	01/03/2024	Priority	Normal
Actor: <ul style="list-style-type: none"> - Seller Summary: <ul style="list-style-type: none"> - This use case allows the actor to post details about an estate. Goal: <ul style="list-style-type: none"> - To enable an actor to list an estate for auction, providing all necessary details for potential Buyers. Triggers <ul style="list-style-type: none"> - The actor decides to auction an estate and chooses to post it on the platform. Preconditions: <ul style="list-style-type: none"> - The actor must have all the required information for the estate. Post Conditions:			

- The estate is listed in the auction system for Buyers to view.

Main Success Scenario:

No.	Actor Actions	System Responses
1	The actor clicks on the button "Post estate"	<p>The system provides a form for the actor to fill in estate details, including:</p> <ul style="list-style-type: none"> • Registration opening time: DD/MM/YYYY, hh/mm/ss • Registration end time: DD/MM/YYYY, hh/mm/ss • Start price: Cannot be a negative, numeric, decimal value. • Type of auction: a select field with automatic and manual. • Price step: Cannot be a negative, numeric, decimal value • Full name: Text, maximum length: 255 characters. • Place to view: Text, maximum length: 255 characters. • Bidding start time: DD/MM/YYYY, hh/mm/ss. • Bidding end time: DD/MM/YYYY, hh/mm/ss. <p>[Exception 1]</p>
2	The actor submits the form for auction.	<p>The system records the data and redirects to the property page of the auction member.</p> <p>[Exception 2]</p>

Alternative Scenario:

- N/A

Exceptions:

No	Cause	System response
1	Input fields are null.	The system messages for "The fields do not allow for null".
2	The system rejects auction posts because the seller does not comply with the system's rules.	The system sends an error message to the actor "The post was rejected because there are some invalid things in your post, please read the rules carefully when posting".

Relationships:

-

Business Rules:

- All estates must be approved by the system's staff before being listed.

- The estate information must include a minimum set of details like address, starting bid, estate size, etc.

3.12 View posting history

USE CASE-11 View posting history									
Use-case No.	UC-11	Use-case Version	1.0						
Use-case Name	View posting history								
Author	Nguyen The Anh								
Date	24/02/2024	Priority	Normal						
<p>Actor:</p> <ul style="list-style-type: none">- Seller <p>Summary:</p> <ul style="list-style-type: none">- This use case allows the actor to view the history of the estates they have posted on the real estate auction system. <p>Goal:</p> <ul style="list-style-type: none">- The actor tracks their estate postings' status and history. <p>Triggers</p> <ul style="list-style-type: none">- The actor chooses to view the history of their posted estates. <p>Preconditions:</p> <ul style="list-style-type: none">- The actor must have previously posted an estate for auction. <p>Post Conditions:</p> <ul style="list-style-type: none">- The actor has successfully viewed the history and status of their estate postings. <p>Main Success Scenario:</p> <table><tr><th>Step</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>The actor selects the option “View history posting” to view history from their profile interface.</td><td><p>The system displays a list of estates that the seller has posted in the past including</p><ul style="list-style-type: none">• Estate ID: BDS-XXXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Type of auction: a select field with automatic and manual.<p>[Exception 1]</p></td></tr></table>				Step	Actor Action	System Response	1	The actor selects the option “View history posting” to view history from their profile interface.	<p>The system displays a list of estates that the seller has posted in the past including</p> <ul style="list-style-type: none">• Estate ID: BDS-XXXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Type of auction: a select field with automatic and manual. <p>[Exception 1]</p>
Step	Actor Action	System Response							
1	The actor selects the option “View history posting” to view history from their profile interface.	<p>The system displays a list of estates that the seller has posted in the past including</p> <ul style="list-style-type: none">• Estate ID: BDS-XXXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Type of auction: a select field with automatic and manual. <p>[Exception 1]</p>							

Alternative Scenario:

- N/A

Exceptions:

No.	Cause	System Response
1	There are no properties listed for auction.	The system will notify the actor "No posted property found".

Relationship:

- UC-011

Business Rules:

- N/A

3.13 View real estate detail

USE CASE-12 View real estate detail			
Use-case No.	UC-12	Use-case Version	1.0
Use-case Name	View real estate detail		
Author	Nguyen The Anh		
Date	24/02/2024	Priority	Normal
Actor: <ul style="list-style-type: none"> - Seller Summary: <ul style="list-style-type: none"> - This use case allows the actors to view the details of a specific estate listed in the real estate auction system. Goal: <ul style="list-style-type: none"> - The purpose is to provide detailed information about an estate to interested buyers. Triggers <ul style="list-style-type: none"> - The actor selects an estate from the list to view its details. Preconditions: <ul style="list-style-type: none"> - The estate must be listed in the system. 			

Post Conditions:

- The actor has accessed the detailed information of the estate.

Main Success Scenario:

Step	Actor Action	System Response
1	The actor selects the option "View estate detail" to view details from their view history estate posting interface.	<p>The system displays information about the estate that the actor has posted in the past including</p> <ul style="list-style-type: none">• Estate ID: BDS-XXXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Image: The image file must be in PNG or JPG format.• Type of auction: a select field with automatic and manual.• Registration opening time: DD/MM/YYYY, hh/mm/ss• Registration end time: DD/MM/YYYY, hh/mm/ss• Start price: Cannot be a negative, numeric, decimal value.• Type of auction: a select field with automatic and manual.• Price step: Cannot be a negative, numeric, decimal value• Full name: Text, maximum length: 255 characters.• Place to view: Text, maximum length: 255 characters.• Bidding start time: DD/MM/YYYY, hh/mm/ss.• Bidding end time: DD/MM/YYYY, hh/mm/ss.

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationship:

- UC-010

Business Rules:

- Only the details of estates currently listed for auction can be viewed.
- Personal information about the sellers or the bidders is not disclosed in the estate details.

3.14 Update real estate

USE CASE-13 Update real estate									
Use-case No.	UC-13	Use-case Version	1.0						
Use-case Name	Update real estate								
Author	Nguyen The Anh								
Date	25/02/2024	Priority	High						
<p>Actor:</p> <ul style="list-style-type: none">- Seller <p>Summary:</p> <ul style="list-style-type: none">- This use case allows the actor to update the details of an estate that they have posted for auction. <p>Goal:</p> <ul style="list-style-type: none">- To ensure the estate information is current and accurate. <p>Triggers</p> <ul style="list-style-type: none">- The actor decides to change the information of a posted estate. <p>Preconditions:</p> <ul style="list-style-type: none">- The seller must have an estate posted on the system. <p>Post Conditions:</p> <ul style="list-style-type: none">- Estate details are updated in the system. <p>Main Success Scenario:</p> <table><tr><th>Step</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>The actor clicks on the “Estate detail” [Alternative 1]</td><td>The system loads and display the estate’s current information including<ul style="list-style-type: none">• Estate ID: BDS-XXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Image: The image file must be in PNG or JPG format.• Type of auction: a select field with automatic and manual.• Registration opening time: DD/MM/YYYY, hh/mm/ss• Registration end time: DD/MM/YYYY, hh/mm/ss</td></tr></table>				Step	Actor Action	System Response	1	The actor clicks on the “Estate detail” [Alternative 1]	The system loads and display the estate’s current information including <ul style="list-style-type: none">• Estate ID: BDS-XXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Image: The image file must be in PNG or JPG format.• Type of auction: a select field with automatic and manual.• Registration opening time: DD/MM/YYYY, hh/mm/ss• Registration end time: DD/MM/YYYY, hh/mm/ss
Step	Actor Action	System Response							
1	The actor clicks on the “Estate detail” [Alternative 1]	The system loads and display the estate’s current information including <ul style="list-style-type: none">• Estate ID: BDS-XXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Image: The image file must be in PNG or JPG format.• Type of auction: a select field with automatic and manual.• Registration opening time: DD/MM/YYYY, hh/mm/ss• Registration end time: DD/MM/YYYY, hh/mm/ss							

		<ul style="list-style-type: none"> • Start price: Cannot be a negative, numeric, decimal value. • Type of auction: a select field with automatic and manual. • Price step: Cannot be a negative, numeric, decimal value • Full name: Text, maximum length: 255 characters. • Place to view: Text, maximum length: 255 characters. • Bidding start time: DD/MM/YYYY, hh/mm/ss. • Bidding end time: DD/MM/YYYY, hh/mm/ss.
2	The actor modifies the desired fields in their estate.	The system allows the actor to input and modify information. [Exception 2]
3	The actor clicks on the "Update" button.	The system informs "Your estate information is updated".

Alternative Scenario:

No.	Actor Actions	System Response
1	The actor selects the estate they wish to update from their list of posted estates.	<p>The system displays information about the estate including</p> <ul style="list-style-type: none"> • Estate ID: BDS-XXXXXX(X is the digit from 1 to 9) • Estate name: Text, maximum length: 255 characters. • Image: The image file must be in PNG or JPG format. • Type of auction: a select field with automatic and manual. • Registration opening time: DD/MM/YYYY, hh/mm/ss • Registration end time: DD/MM/YYYY, hh/mm/ss • Start price: Cannot be a negative, numeric, decimal value. • Type of auction: a select field with automatic and manual. • Price step: Cannot be a negative, numeric, decimal value • Full name: Text, maximum length: 255 characters. • Place to view: Text, maximum length: 255 characters. • Bidding start time: DD/MM/YYYY, hh/mm/ss. • Bidding end time: DD/MM/YYYY, hh/mm/ss.

		<ul style="list-style-type: none"> • “Save” button • “Cancel” button 						
Exceptions: <table> <tr> <th>No.</th><th>Cause</th><th>System Response</th></tr> <tr> <td>1</td><td>The actor fills in invalid information about real estate.</td><td>The system informs “Your input is invalid”.</td></tr> </table>			No.	Cause	System Response	1	The actor fills in invalid information about real estate.	The system informs “Your input is invalid”.
No.	Cause	System Response						
1	The actor fills in invalid information about real estate.	The system informs “Your input is invalid”.						
Relationship: <ul style="list-style-type: none"> - None 								
Business Rules: <ul style="list-style-type: none"> - Sellers can only update estates that they have posted themselves. - Certain details may not be editable once an auction has started. 								

3.15 Delete real estate

USE CASE-14 Delete real estate			
Use-case No.	UC-14	Use-case Version	1.0
Use-case Name	Delete real estate		
Author	Nguyen The Anh		
Date	25/02/2024	Priority	High
Actor: <ul style="list-style-type: none"> - Seller Summary: <ul style="list-style-type: none"> - This use case describes the process by which an actor can delete an estate listing from the real estate auction system. Goal: <ul style="list-style-type: none"> - To successfully remove an estate listing from the system database. Triggers <ul style="list-style-type: none"> - The actor chooses to no longer sell their estate through the auction. 			

Preconditions:

- The estate listing exists in the system.

Post Conditions:

- The estate is no longer listed in the auction system.

Main Success Scenario:

Step	Actor Action	System Response
1	The actor clicks on the "Estate detail" button on the real estate management page.	The system loads and shows the data including <ul style="list-style-type: none">• Estate ID: BDS-XXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Image: The image file must be in PNG or JPG format.• Type of auction: a select field with automatic and manual.• Registration opening time: DD/MM/YYYY, hh/mm/ss• Registration end time: DD/MM/YYYY, hh/mm/ss• Start price: Cannot be a negative, numeric, decimal value.• Type of auction: a select field with automatic and manual.• Price step: Cannot be a negative, numeric, decimal value• Full name: Text, maximum length: 255 characters.• Place to view: Text, maximum length: 255 characters.• Bidding start time: DD/MM/YYYY, hh/mm/ss.• Bidding end time: DD/MM/YYYY, hh/mm/ss.
2	The actor clicks on the "Confirm" button.	The system shows a message "Delete real estate successfully" and redirects to View posting history.

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationship:

- None

Business Rules:

- Only the owner of the estate or a staff member can delete an estate.
- Estates involved in active transactions cannot be deleted.

3.16 View profile

USE CASE-14 View profile									
Use-case No.	UC-14	Use-case Version	1.0						
Use-case Name	View profile								
Author	NGUYEN VIET NAM KHANH								
Date	23/02/2024	Priority	Normal						
<p>Actor:</p> <ul style="list-style-type: none">- Admin, Staff, Buyer, Seller <p>Summary:</p> <ul style="list-style-type: none">- The View profile use case lets user see their profile information. <p>Goal:</p> <ul style="list-style-type: none">- The actor can see their personal information. <p>Triggers</p> <ul style="list-style-type: none">- The actor clicks on the “View profile” button. <p>Preconditions:</p> <ul style="list-style-type: none">- The actor is logged in to the website.- The profile being viewed must exist in the system. <p>Post Conditions:</p> <ul style="list-style-type: none">- Success: The system shows the user’s profile information.- Fail: The system shows a message error. <p>Main Success Scenario:</p> <table><tr><th>No.</th><th>Actor action</th><th>System response</th></tr><tr><td>1.</td><td>On the home page, the actor clicks on the avatar icon in the navigation bar, and the user continues clicking on “View profile” in the generated list.</td><td>The system redirects to the profile page and shows their personal information including<ul style="list-style-type: none">- Full name- Date of birth- Sex- ID front image- ID back image- Bank information</td></tr></table>				No.	Actor action	System response	1.	On the home page, the actor clicks on the avatar icon in the navigation bar, and the user continues clicking on “View profile” in the generated list.	The system redirects to the profile page and shows their personal information including <ul style="list-style-type: none">- Full name- Date of birth- Sex- ID front image- ID back image- Bank information
No.	Actor action	System response							
1.	On the home page, the actor clicks on the avatar icon in the navigation bar, and the user continues clicking on “View profile” in the generated list.	The system redirects to the profile page and shows their personal information including <ul style="list-style-type: none">- Full name- Date of birth- Sex- ID front image- ID back image- Bank information							

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationship:

- UC-015

Business Rules:

- N/A

3.17 Update profile

USE CASE-15 Update profile			
Use-case No.	UC-15	Use-case Version	<1.0>
Use-case Name	Update profile		
Author	NGUYEN VIET NAM KHANH		
Date	23-02-2023	Priority	Normal
<p>Actor:</p> <ul style="list-style-type: none"> - Registered user <p>Summary:</p> <ul style="list-style-type: none"> - The "Update Profile" use case involves a user modifying their profile information within the real estate auction system. <p>Goal:</p> <ul style="list-style-type: none"> - The goal of the "Update Profile" use case is to allow the actor to edit and update their profile details as needed. <p>Triggers</p> <ul style="list-style-type: none"> - The actor clicks on the "Update profile" button on the View profile page <p>Preconditions:</p> <ul style="list-style-type: none"> - The actor must be logged into the real estate auction system. - The actor must have an existing profile in the system. <p>Post Conditions:</p> <p>An actor's profile information is successfully updated.</p>			

The changes made to the profile are reflected in the system.

Main Success Scenario:

Step	Actor action	System response
1.	In the View profile page, the actor clicks on the "Update profile" button.	The system retrieves the user's existing profile information and displays it for editing.
2.	The actor modifies profile information.	The system validates the changes made by user, ensure the required field is filled with the correct format. [Exception 1]
3.	The actor clicks on the "Update" button. [Alternative 1]	The system updates the user's profile information with the changes made by the actor and informs "successfully updated".

Alternative Scenario:

No	Actor action	System response
1.	The actor clicks the "Cancel" button.	The system cancels to update information about the user and redirects to the current updating page.

Exceptions:

No	Actor action	System response
1.	Input fields are null.	The system sends messages to the user to fill in the required fields.

Relationships:

- UC-14

Business Rules:

- N/A

3.18 Ban account

USE CASE-15 Ban account

Use-case No.	UC-16	Use-case Version	1.0
Use-case Name	Ban account		
Author	Nguyen The Anh		
Date	24/02/2024	Priority	High
Actor: <ul style="list-style-type: none">- Admin			
Summary: <ul style="list-style-type: none">- The 'Ban account' use case allows an administrator to ban a user account within the real estate auction system.			
Goal: <ul style="list-style-type: none">- To ensure the integrity and security of the real estate auction system by allowing administrators to remove the access of problematic or malicious users.			
Triggers <ul style="list-style-type: none">- A report of misuse or breach of terms and conditions by a user account.			
Preconditions: <ul style="list-style-type: none">- The admin must be logged into the system.			
Post Conditions: <ul style="list-style-type: none">- The user account is banned and cannot access the system.- The banned user receives a notification of the ban.			
Main Success Scenario:			
Step	Actor Action	System Response	
1	The actor identifies an account requiring a ban and selects the "Ban Account" option from the user management interface.	The system redirects the actor to user management page	
2	The actor notes down the reason and provides any relevant information.	The system shows information about this account: <ul style="list-style-type: none">• Image• ID: Numeric characters, maximum length 6 characters, unique.• Citizen identification number: Numeric characters, maximum length 12 characters, unique.• Full name: Text, maximum length of 50 characters.• Email: username@gmail.com format.• Address: Text, maximum length of 255 characters.• Phone: Numeric characters,	

		<p>maximum length 10 characters, unique.</p> <p>System requirement actors provide reasons to ban accounts:</p> <ul style="list-style-type: none"> Reason for account ban: Text, maximum length of 50 characters. Ban time: DD/MM/YYYY <p>"Ban" button</p>
3	The actor clicks on the "Ban" button.	<p>The system confirms the ban action and displays a success message.</p> <p>The banned account is immediately disabled, and a notification is sent to the registered email address</p> <p>The system indicates to the account management page.</p>

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationship:

- None

Business Rules:

- Only accounts that violate the terms of service or are involved in malicious activities should be banned.
- Banned users must be notified and given a reason for the ban.

3.19 Get all accounts

USE CASE-17 Get all accounts			
Use-case No.	UC-17	Use-case Version	1.0
Use-case Name	Get all account		
Author	Nguyen The Anh		
Date	24/02/2024	Priority	High

Actor:

- Admin

Summary:

- This use case allows the actor to retrieve a list of all users in the system.

Goal:

- To enable the actor to view and manage the list of all users.

Triggers

- The actor selects the option to retrieve the list of users.

Preconditions:

- The actor must be signed in.

Post Conditions:

- A list of users is displayed to the admin.
- The system remains in a state where the admin can take further actions regarding user management.

Main Success Scenario:

Step	Actor Action	System Response
1	The actor clicks on the "View all users" on the administration interface.	The system shows information about a user including <ul style="list-style-type: none">• Image• ID: Numeric characters, maximum-length 6 characters, unique.• Citizen identification number: Numeric characters, maximum length 12 characters, unique.• Full name: Text, maximum length of 50 characters.• Email: username@gmail.com format.• Address: Text, maximum length of 255 characters.• Phone: Numeric characters, maximum length 10 characters, unique.
2	The actor continues to click on the "Ban account" button or back to the administration page.	The system indicates to the "Ban account" or back to the administration page.

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationship:

- N/A

Business Rules:

- Only admins can retrieve the complete list of users.
- User data must be protected and not exposed to unauthorised personnel.

3.20 Create staff's account

USE CASE-18 Create staff's account			
Use-case No.	UC-18	Use-case Version	1.0
Use-case Name	Create staff's account		
Author	Nguyen The Anh		
Date	23/02/2024	Priority	Normal
Actor: <ul style="list-style-type: none">- Admin			
Summary: <ul style="list-style-type: none">- The "Create staff" use case involves an administrator creating a new staff account in the real estate auction system			
Goal: <ul style="list-style-type: none">- Actor can add new staff to the system.			
Triggers <ul style="list-style-type: none">- The trigger for this use case is when the administrator needs to create a new staff account.			
Preconditions: <ul style="list-style-type: none">- The actor must be logged into the real estate auction system.			
Post Conditions: <ul style="list-style-type: none">- A new staff account is successfully created in the system.- The new staff can log in to the system using the credentials provided by the administrator.			
Main Success Scenario:			
No	Actor action	System response	
1.	The actor clicks on the “Create staff” button.	The system presents a form or interface for the administrator to input details including <ul style="list-style-type: none">• Image• ID: Numeric characters, maximum-length	

		6 characters, unique. <ul style="list-style-type: none"> • Citizen identification number: Numeric characters, maximum length 12 characters, unique. • Full name: Text, maximum length of 50 characters. • Email: username@gmail.com format. • Address: Text, maximum length of 255 characters. • Phone: Numeric characters, maximum length 10 characters, unique.
2.	The actor clicks on the “Create” button.	The system informs “Successful” and creates a new staff account with the provided creation request information. [Exception 1]

Alternative Scenario:

- N/A

Exceptions:

No	Cause	System Response
1	The actor misses some of the required fields.	The system shows the message “Please fill in the missing information fields” and requests a rewrite.

Relationships:

- N/A

Business Rules:

- N/A

3.21 Delete staff's account

USE CASE-19 Delete staff's account			
Use-case No.	UC-19	Use-case Version	1.0
Use-case Name	Delete staff's account		
Author	Nguyen The Anh		

Date	23/02/2024	Priority	Normal
Actor: <ul style="list-style-type: none">- Admin			
Summary: <ul style="list-style-type: none">- This use case allows the actor to delete a staff member's account from the real estate auction system.			
Goal: <ul style="list-style-type: none">- To successfully remove a staff member's access to the system.			
Triggers <ul style="list-style-type: none">- A staff member's privileges need to be revoked for security or administrative reasons.			
Preconditions: <ul style="list-style-type: none">- The staff member's account exists in the system.			
Post Conditions: <ul style="list-style-type: none">- The staff member's account is no longer accessible.			
Main Success Scenario:			
Step	Actor actions	System response	
1	The actor clicks on the "Delete staff" button they want to delete on the user management page.	The system presents the staff's current information <ul style="list-style-type: none">• Image• ID: Numeric characters, maximum length 6 characters, unique.• Citizen identification number: Numeric characters, maximum length 12 characters, unique.• Full name: Text, maximum length of 50 characters.• Email: username@gmail.com format.• Address: Text, maximum length of 255 characters.• Phone: Numeric characters, maximum length 10 characters, unique.	
2	The actor clicks on the "Confirm" button.	The system shows the message "Delete staff's account successfully" and redirects to View all accounts.	
Alternative Scenario: <ul style="list-style-type: none">- N/A			
Exceptions: <ul style="list-style-type: none">- N/A			
Relationships:			

- N/A

Business Rules:

- N/A

3.22 Respond estate posting

USE CASE-20 Response estate posting									
Use-case No.	UC-020	Use-case Version	1.0						
Use-case Name	Respond estate posting								
Author	Nguyen Viet Nam Khanh								
Date	02/03/2024	Priority	High						
<p>Actor:</p> <p>Admin, Staff</p> <p>Summary:</p> <ul style="list-style-type: none">- This use case lets actors respond to estate post from member <p>Goal:</p> <ul style="list-style-type: none">- The actor can accept or deny post from the member <p>Triggers</p> <ul style="list-style-type: none">- The actor clicks on the “Respond post” in an auction management page. <p>Preconditions:</p> <ul style="list-style-type: none">- The actor must be authenticated and have appropriate permissions to respond to estate posts.- The estate post must exist within the system and be open for responses. <p>Post Conditions:</p> <ul style="list-style-type: none">- The estate post is successfully accepted or denied for auction based on the actor's decision.- Members are notified of the decision regarding the estate post. <p>Main Success Scenario:</p> <table><tr><th>Step</th><th>Actor action</th><th>System response</th></tr><tr><td>1</td><td>The actor accesses the specified estate post from the</td><td>System and presents the information of the estate post.</td></tr></table>				Step	Actor action	System response	1	The actor accesses the specified estate post from the	System and presents the information of the estate post.
Step	Actor action	System response							
1	The actor accesses the specified estate post from the	System and presents the information of the estate post.							

	estate post queue.	
2.	The actor clicks on the "Accept" button [Alternative]	System approves the estate for auctioning and display on the system. System sends a notification to members about the exception.
Alternative Scenario:		
No	Actor action	System response
1.	The actor clicks on the "Deny" button	System deletes the post from the system and sends notification to member about the denial
Exceptions:		
- N/A		
Business Rules:		
- N/A		

3.23 View dashboard

USE CASE-21 View dashboard			
Use-case No.	UC-21	Use-case Version	1.0
Use-case Name	View dashboard		
Author	Nguyen The Anh		
Date	25/02/2024	Priority	Normal
Actor: <ul style="list-style-type: none"> - Admin, Staff Summary: <ul style="list-style-type: none"> - This use case describes how the actor can view the dashboard within the real estate auction system. Goal:			

- The goal of this use case is to allow the actor to view an overview of auction activities, including response assets' posts, revenue activities, and other relevant auction information.

Triggers

- The actor signed into the system.
- The actor selects the dashboard option from the menu.

Preconditions:

- The actor must be signed into the system.
- The actor must have the necessary permissions to view the dashboard.

Post Conditions:

- The system will display the most recent and relevant information on the dashboard.

Main Success Scenario:

Step	Actor Action	System Response
1	In the home page, the actor signs in the system.	The system is authorized, then displays staff and admin interface.
2	In the admin and staff interface, the actor clicks on the "Dashboard" menu.	The system will display a report chart of: <ul style="list-style-type: none"> • Revenue up till present • The number of auction participants

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationship:

- N/A

Business Rules:

- N/A

3.24 Pay for estate

USE CASE-22 Pay for real estate			
Use-case No.	UC-22	Use-case Version	1.0
Use-case Name	Pay for real estate		

Author	Nguyen The Anh		
Date	25/02/2024	Priority	High
Actor: <ul style="list-style-type: none">- Buyer Summary: <ul style="list-style-type: none">- This use case allows the actor to make a payment for an auction they have won in the real estate auction system. Goal: <ul style="list-style-type: none">- The goal of this use case is to ensure a secure and successful transfer of funds from an actor to the auction seller. Triggers <ul style="list-style-type: none">- An actor wins an auction and clicks on "Payments". Preconditions: <ul style="list-style-type: none">- An actor must be registered and logged into the system.- An actor must have won an auction.- An actor must have a valid payment method registered with the system. Post Conditions: <ul style="list-style-type: none">- The payment is processed and recorded in the system.- An actor receives a confirmation of the payment.- The seller is notified of the received payment. Main Success Scenario:			
Step	Actor Action	System Response	
1	The actor clicks on the "Pay" button.	The system will display information about an estate which the actor won, including: <ul style="list-style-type: none">• Estate ID: BDS-XXXXX(X is the digit from 1 to 9)• Estate name: Text, maximum length: 255 characters.• Register fee for auction: Numeric, decimal value• Type of auction: a select field with automatic and manual.• Name of owner: Text, maximum length: 255 characters.• Registration opening time: DD/MM/YYYY, hh/mm/ss• Registration end time: DD/MM/YYYY, hh/mm/ss	
2	An actor chooses a method of payment. [Alternative 1] [Alternative 2] [Alternative 3]	The system will display a method of payment including <ul style="list-style-type: none">• Paypal• Visa• Banking	

3	An actor clicks "Pay for the estate"	The system records payer data and issues invoices.
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Alternative Scenario:

No.	Actor Action	System Response
1	An actor chooses the "Paypal" method.	<p>The system displays a form input including:</p> <ul style="list-style-type: none"> Email: user@gmail.com Amount: Cannot be a negative, decimal value. Unit: \$ or VNĐ Full name: Text, maximum length: 255 characters. <p>[Exception 1]</p>
2	An actor chooses the "Visa" method.	<p>The system displays a form input including:</p> <ul style="list-style-type: none"> Card number: Maximum length is 16 digits, start with the number 4, alphanumeric characters Expiry date: MM/YY CVV/CVC2: Maximum length is 3 digits <p>[Exception 2] [Exception 3]</p>
3	An actor chooses the "Banking" method.	<p>The system displays a form input including:</p> <ul style="list-style-type: none"> Account number: account number is a digit with length from 10 to 14 digits. Full name: Text, maximum length: 255 characters. Transfer: All banks are allowed to use it. <p>[Exception 4]</p>

Exceptions:

No.	Cause	System Response
1	The actor entered the wrong email.	Display on-screen "The email account has not been verified by PayPal" and request to retry again.
2	The actor entered the wrong CVV/CVC2.	Display on-screen "Invalid CVV or CVC2 number" and request to retry again.
3	The actor entered the wrong card number.	Display on-screen "Invalid card number" and request to retry again.
4	The actor entered the wrong account number	Display on-screen "Invalid account number" and request to retry again.

Relationship:

- None

Business Rules:

- N/A

3.25 View notification

USE CASE-23 View notification			
Use-case No.	UC-023	Use-case Version	1.0
Use-case Name	View notification		
Author	Trinh Quoc Thai		
Date	23-02-2024	Priority	Normal
<p>Actor:</p> <ul style="list-style-type: none"> - Registered user <p>Summary:</p> <ul style="list-style-type: none"> - This use case enables actors to view the winners of the auctions. <p>Goal:</p> <ul style="list-style-type: none"> - To provide immediate and easy access to auction outcomes for record-keeping, winner acknowledgement, and further processing. <p>Triggers</p> <ul style="list-style-type: none"> - An actor clicks on the "Notification" button. <p>Preconditions:</p> <ul style="list-style-type: none"> - Actors must be logged in with sufficient permissions. - Notifications are enabled for the actor's account. - There must be a concluded auction with a determined winner. <p>Post Conditions:</p> <ul style="list-style-type: none"> - Actors are informed about the auction winners through notifications. - The system logs access to notifications for auditing and tracking purposes. <p>Main Success Scenario:</p>			

Step	Actor action	System response
1	Actor clicks on the notification icon/bell.	The system displays the list of recent notifications, including auction winner announcements.
2	Actor selects a "Winner Notification" from the list.	The system displays detailed information about the auction winner, including: <ul style="list-style-type: none"> • ID: Numeric characters, maximum length 6 characters, unique. • Full name: Text, maximum length 255 characters. • Estate ID: BDS-XXXXX (X is a digit from 1 to 9). • Status: "Win"
3	Actor acknowledges the notification.	The system marks the notification as read and optionally redirects the actor to the previous page.

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationships:

- N/A

Business Rules:

- Notifications must accurately reflect the outcomes of auctions to maintain the integrity and trustworthiness of the system.

3.26 Ask for withdrawal

USE CASE-24 Ask for withdrawal			
Use-case No.	UC-24	Use-case Version	1.0
Use-case Name	Ask for withdrawal		
Author	Nguyen The Anh		

Date	03/03/2024	Priority	Normal
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Actor:

- Seller

Summary:

- This use case allows the actor to withdraw funds from their account balance within the real estate auction system.

Goal:

- To allow an actor to safely and successfully withdraw their earned money from the system after a transaction.

Triggers

- A transaction has been completed, and the actor has a balance available to withdraw.

Preconditions:

- The actor must have a positive balance available to withdraw.

Post Conditions:

- The actor’s account balance is updated to reflect the withdrawn amount.
- The withdrawal amount is transferred to the actor’s bank account.

Main Success Scenario:

Step	Actor action	System response
1	The actor clicks on the “Ask for withdrawal” button on the seller page.	The system shows information for the seller to check, including <ul style="list-style-type: none">• Full name: Text, and the maximum length of 255 characters.• Credit card: Number, maximum length: 16 characters, valid Credit card.
2	The actor clicks the “confirm” button.	The system retrieves request data from the actor, processes them and notifies the actor "Your request has been sent, please wait for processing".

Alternative Scenario:

- N/A

Exceptions:

- N/A

Relationships:

- N/A

Business Rules:

- An actor can only withdraw available funds, not funds that are pending from ongoing auctions.

3.27 Sign out

USE CASE-25 Sign out												
Use-case No.	UC-25	Use-case Version	<1.0>									
Use-case Name	Sign out											
Author	NGUYEN VIET NAM KHANH											
Date	23-02-2024	Priority	Normal									
<p>Actor:</p> <ul style="list-style-type: none">- Registered user <p>Summary:</p> <ul style="list-style-type: none">- The “Sign out” use case lets the actor sign out from the system. <p>Goal:</p> <ul style="list-style-type: none">- The actor successfully signed out. <p>Triggers</p> <ul style="list-style-type: none">- The actor clicks on the “Sign out” button. <p>Preconditions:</p> <ul style="list-style-type: none">- The user must be currently signed in to the real estate auction system. <p>Post Conditions:</p> <ul style="list-style-type: none">- The user is successfully signed out of the real estate auction system.- The user’s access to system functionalities and data is terminated until they sign in again. <p>Main Success Scenario:</p> <table><tr><th>Step</th><th>Actor action</th><th>System response</th></tr><tr><td>1.</td><td>The actor clicks on the “Sign out” button from the account image bar</td><td>System retrieves a confirmation message</td></tr><tr><td>2.</td><td>The actor clicks on the “Agree” button [Alternative]</td><td>System invalidates the user's session and removes their authentication token. The system redirects the user to the homepage indicating they have been successfully signed out.</td></tr></table>				Step	Actor action	System response	1.	The actor clicks on the “Sign out” button from the account image bar	System retrieves a confirmation message	2.	The actor clicks on the “Agree” button [Alternative]	System invalidates the user's session and removes their authentication token. The system redirects the user to the homepage indicating they have been successfully signed out.
Step	Actor action	System response										
1.	The actor clicks on the “Sign out” button from the account image bar	System retrieves a confirmation message										
2.	The actor clicks on the “Agree” button [Alternative]	System invalidates the user's session and removes their authentication token. The system redirects the user to the homepage indicating they have been successfully signed out.										

Alternative Scenario:

No.	Actor action	System response
1.	The actor clicks on the "Cancel" button	System redirects to the previous screen without logging out the user.

Exceptions:

N/A

Relationships:

- None

Business Rules:

- N/A

4 NON-FUNCTIONAL REQUIREMENT

4.1 Usability

- Users should be able to perform common tasks within the real estate auction system with minimal training.
- Normal users should achieve productivity within 1 hour of training, while power users should achieve productivity within 30 minutes of training.

4.2 Reliability

- The real estate auction system shall have an availability of 99.9% during normal operating hours.
- Mean Time Between Failures (MTBF) shall be at least 10,000 hours.
- Mean Time To Repair (MTTR) shall not exceed 2 hours.
- The system's accuracy shall meet industry standards for precision and accuracy in output.
- The maximum acceptable bug or defect rate shall be 1 bug per 1000 lines of code (1 bug/KLOC), with critical bugs defined as those causing complete loss of data or significant system functionality.

4.3 Performance

- The average response time for a transaction shall be under 2 minutes, with a maximum response time of 5 minutes.
- The system shall support a throughput of at least 100 transactions per minute during peak usage.
- The system shall have the capacity to accommodate at least 1000 simultaneous users or transactions.
- In degradation modes, the system shall gracefully transition to basic functionality, ensuring users can still access critical features.
- Resource utilization, including memory, disk, and network communications, shall be optimized to ensure efficient system performance.