Software Requirements Specification

Document Number 1

Project Name:The Central Website & Tenants Management System

Company Name: Golden Springs Realty LLC

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Revision History

Date	Revision	Description	Author
06/14/2018	1.0	Initial Version	Xujian Zhang Xinkai Zhang Luis Ortiz

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1. Introduction

1.1. Purpose

The purpose of this document is to describe the Golden Springs Realty IT system that we expect to put in place in order to alleviate many challenges the company is facing. The system will incorporate a number of subsystems that will all communicate and interact in order to make transactions and sales more efficient for tenants, customers and sales representatives.

1.2. Scope

A new IT system to optimize internet and social media sales, analyze customer demand, and provide customers and employees with features they desire. We need to provide employees with a system that they can utilize not only to drive customer interest, but also correspond with current and potential customers as well. By doing so we seek to bolster sales numbers and increase customer satisfaction. In addition we badly need to provide potential customers with more convenient ways of creating appointments for home inspections as well as provide current customers with a much more convenient method of paying their rent. We therefore want to construct a customized system that can be integrated and utilized alongside a company website that can be accessed via the internet from any platform.

The Golden Springs Realty LLC system (Golden Springs Realty System) will integrate account management, purchasing, allowing for faster service and turnaround time for customers.

The system will implement the following main features:

- Posting property information
- Online rent payment
- Maintenance messaging
- Sales tracking and reporting
- Online user to user messaging
- Online contract signing

1.3 Assumptions and Dependencies

The system and website will be constructed with bootstrap technology in order to be accessed from any operating system that has internet access. Due to the sensitivity of online contract signing safety and security considerations must be put into place in order to safeguard customer personal information.

2. SOFTWARE PRODUCT OVERVIEW

2.1 SYSTEM SCOPE

A new IT system to optimize internet and social media sales, analyze customer demand, and provide customers and employees with features they desire. We need to provide employees with a system that they can utilize not only to drive customer interest, but also correspond with current and potential customers as well. By doing so we seek to bolster sales numbers and increase customer satisfaction. In addition, we badly need to provide potential customers with more convenient ways of creating appointments for home inspections as well as provide current customers with a much more convenient method of paying their rent.

We therefore propose the construction of a customized system that can be integrated and utilized alongside a company website that can be accessed via the internet from any platform.

2.2 System Architecture

2.2.1 External View of Software Product

System Architecture:

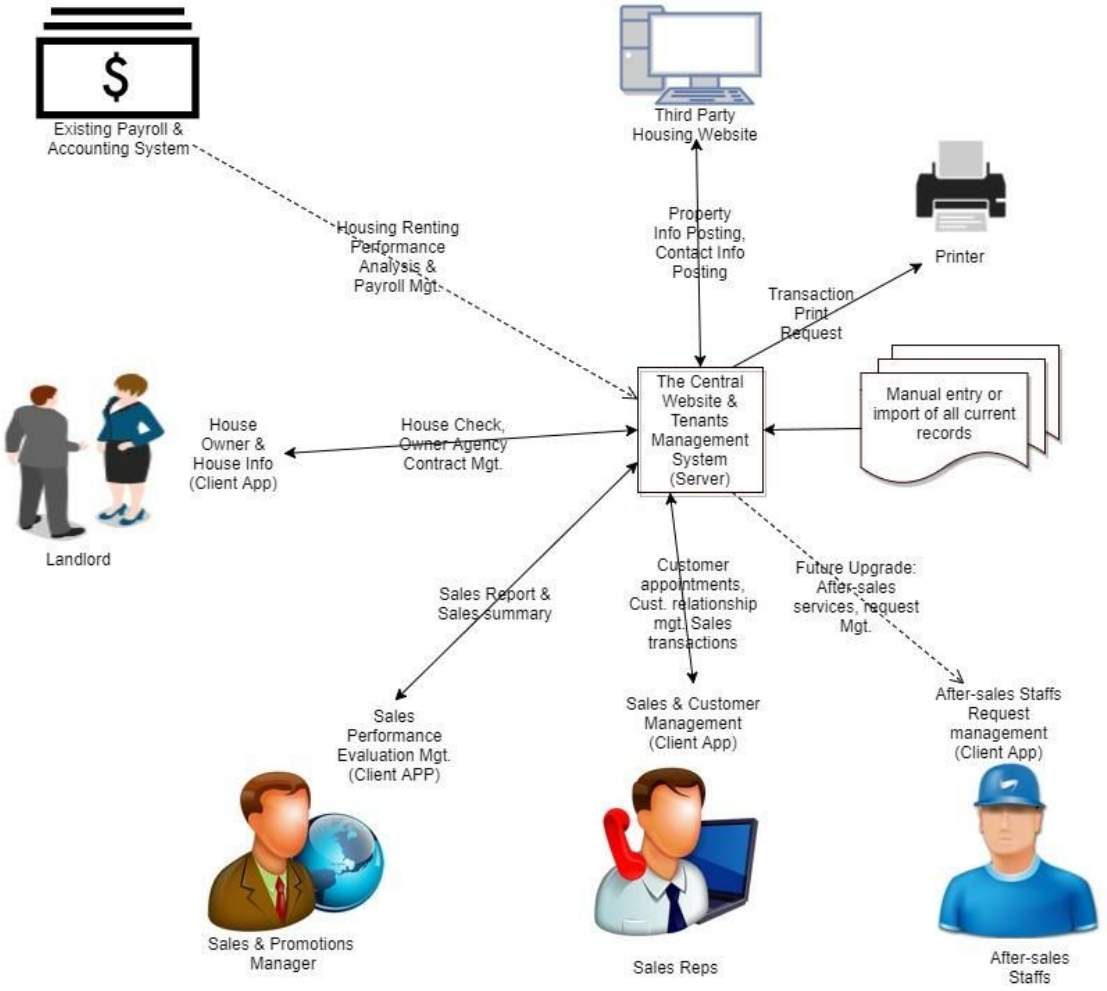


Figure 2.2.1 System Architecture

The system will be integrated with the current payroll & accounting, third party website and sales management system, and will be tied into the connection between after-sales staffs and tentans. The software system will be distributed across various users and hardware as shown in Figure 2.2.1, the System Architecture Diagram.

2.2.2 Internal View of Software Product

2.2.2.1 Logical Software Architecture

Currently, the Golden Springs Realty LLC does not have an IT system to support the company. The only IT system they have used are third-party websites that enable them to post property and contact information. When a tenant is interested in the property, the tenant can find the information on the third party website.

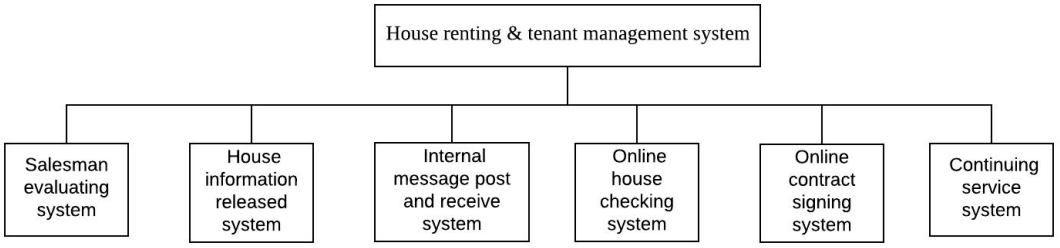


Figure 2.2.2.1 Logical system modules

Through salesman evaluating module, the manager can get the sales result from salesman, and add sales result on website. Then the system will evaluate sales result of everyone and return the result to manager. Then save the result online.
Through house information released module, landlord can put his house information on the website, then wait for manager contact him. After contacting, manager will check the house with landlord. If the house is good, manager will sign contract with landlord and get the house key. Also, after salesman get the key and the house information, he can put the house information on the website, then wait for tenant's contacting.
Through internal message post and receive module, if any users have any problem when using the website, he/she can send message directly to target user, and wait for the reply.
Through online house checking module, if a tenant cannot check the target house offline, he can choose search house and check the house online through house's images and videos. If the tenant has any question, he can talk to manager or salesman for more details.
Through online contract signing module, if tenant cannot sign contract offline, he can choose to sign contract online. After he finds the target house, he could contact with salesman and get contract online. If the contract is good, he can sign the contract and get it online.
Through continuing service module, manager can provide continuing service through the website. He can receive the problem detail online. Depends on the type of problem, he can contact different people to solve the problem. If the problem is solved, tenant will call manager and tell him the result.

2.2.2.2 Physical Software Architecture
The physical system software architecture will be structured as shown in Figure 2.2.2.2.

- This model shows the logical software components split into their physical components (software architecture modules to be implemented).
- The split of logical components into software applications is based on the product use-case.

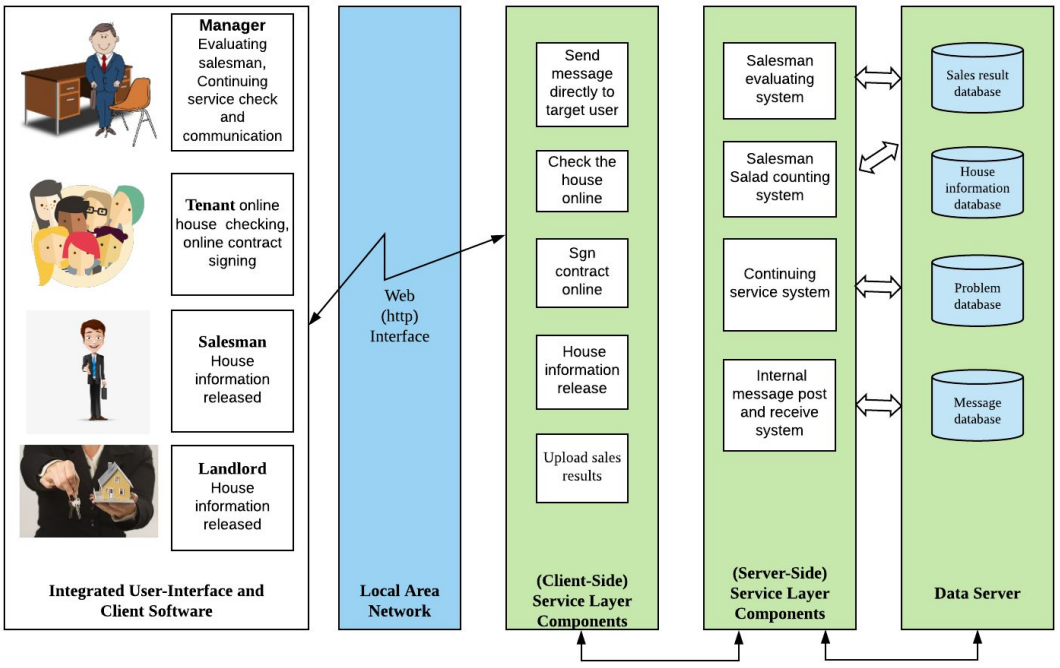


Figure 2.2.2.2 Golden Springs Realty LLC Physical Software Architecture

2. 3 Feature Overview

The product features described in this section and in the remainder of the Software Requirements Specification document are included in the first release of the Golden Springs Realty LLC System. First, an overview of system features is presented, followed by an event list, and a listing of the interfaces to be included in the first deliverable of the System.

The following features will be supported in the first release of the System:

FEA1:	Evaluating salesman based on sales result
FEA2:	House information released by landlord
FEA3:	House information released by salesman
FEA4:	Internal message post and receive
FEA5:	Check house online depends on images and videos
FEA6:	Signing contract online
FEA7:	Continuing service check and communication

3. System Use

This description must be in a form understandable to users, operators, and clients. This section should not be *design*-oriented, but should provide an overview of what functionality is supported, from multiple perspectives.

3.1 Support For User Workflows

The Workflows shown in Figure 3.1 will be supported by the system. The shaded processes indicate processes that are fully or partly automated by the House Agency system.

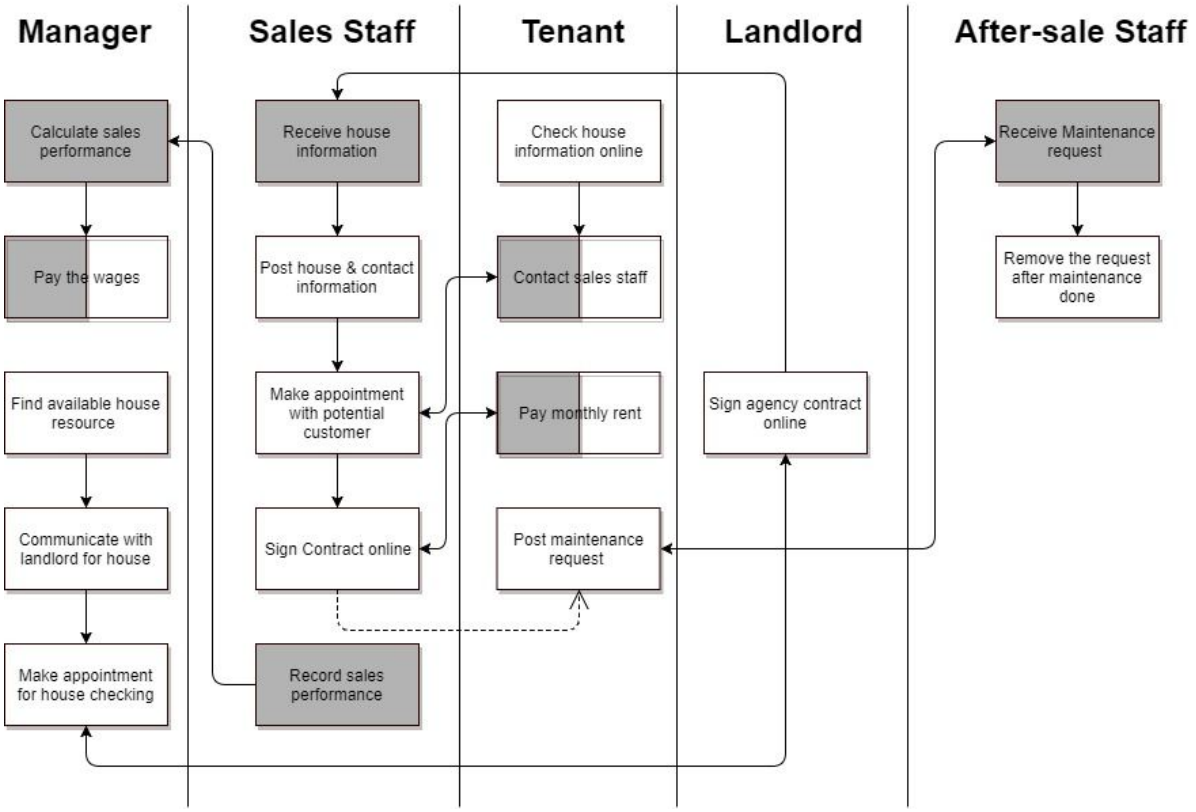


Figure 3.1 System Workflows Supported

3.2 Actor Survey

Three different user groups exist for the House Agency system. First, property provider will have the ability to find available house resources online using the system resource search function, communicate with landlord for house by using online chat tool in the system, make appointment for house checking and sign agency contract online. The property provider group will include the majority of manager and landlord.

Second, general sales operators will have the ability to receive house information, post property and contract information online, online communicate function, appointment function and able to sign contract and pay rent online. Also, general sales operators will have the ability to calculate sales performance and pay their wages. The general sales operators group will include the manager, sales staff and majority of tenant.

Third, maintenance provider will have the ability to post maintenance request, receive request and close the request. The maintenance provider group will include the tenant and after-sale staff.

3.2 Use-Case Model and System Events

3.2.1 Property Provider Group Profile

Members:	Manager, Landlord
Description:	Members of property provider group need the House Agency system for faster resources search, easier communication and easier contract signing.
Typical Tasks:	Manager can search in the system for new house resource. Manager and Landlord can communicate to each other through the House Agency system. Manager and Landlord can make appointment for house checking through the House Agency system. Manager and Landlord can sign the agency contract online through the House Agency system.
Goals:	All members of this group want easy communicate to each other and easier contract signing. Manager wants easier and faster to get property resources. Currently, keys are build a bridge between landlord and manager. The goal in this situation is to provide a database and allow every members in this group share their information in the system.

3.2.2 General Sales Operators Group Profile

Members:	Manager, Sales Staff, Tenant

Description:	Members of general sales operators group need the House Agency system for easier house info post & receive, faster communication, easier contract signing & rent paying and automatic wages calculating & paying.
Typical Tasks:	Manager can calcualte sales performance and pay sales their wages. Sales Staff can post house & contact information online. Tenant can check house info online and reach the sales staff online. Sales Staff and tenant can communicate to each other through the House Agency system. Sales Staff and tenant can make appointment for house checking through the House Agency system. Sales Staff and tenant can sign the rent contract online through the House Agency system. Tenant can pay their rent online through the House Agency system.
Goals:	All members of this group want easy communicate to each other, easier contract signing and easier for online rent paying. Sales Staff wants easier and faster to get property posted. Tenant wants easier and faster to make appointment.] Manager wants easier to calculate sales performance and pay their wages. Currently, keys are build a bridge between Sales Staff and tenant. Also system can automaticly record and calculate every sales' performance. The goal in this situation is to provide a website to allow every members in this group share their information in the system record datas.

3.2.3 Maintenance Provider Group Profile

Members:	Tenant, After-sale Staff
Description:	Members of maintenance provider group need the House Agency system for easier request posting and faster request receiving.
Typical Tasks:	Tenant can post maintenance request online through the House Agency system. After-sale Staff can automatically receive maintenance request from the House Agency system. After-sale Staff can remove request online through the House Agency system.
Goals:	All members of this group want easy and faster request posting and receiving. After-sale Staff wants easier to remove the request after maintenance done. Currently, keys are build a bridge between tenant and after-sale staff. The goal in this situation is to provide a resident portal and allow every members in this group post or remove request in the system.

3. 3 Use-Case Model and System Events

3.3.1 Product Use-Case

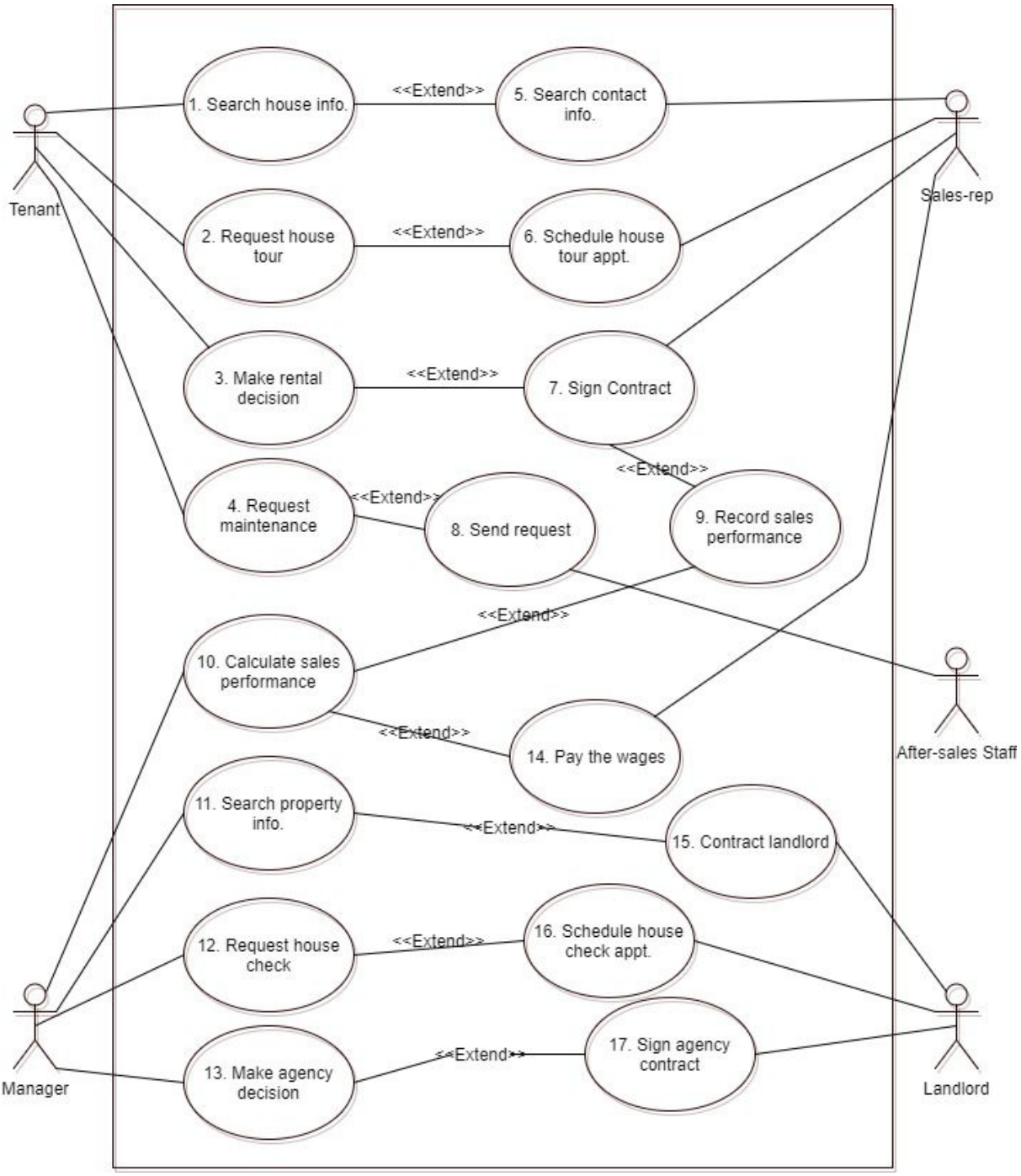


Figure 3.3.1. The System Product Use-Case

3.3.2 System-Flow Event List

The following table lists all House Agency System events that will occur in the first product rollout. These events range from manager events to sales staff events to tenant events to After-sale staff events. Only the manager and a selected salesperson will have full privileges for perform all of the events listed below, such as posting and removing house information from website.

Flow Event	System Processing Action	User Interactions
New Property available in the search system.	Notice the manager about the new property.	Manager check the property and reach out the landlord to schedule house check appointment.
Agency contract signed by manager and landlord.	Assign the house to a sales staff. Add house info. into property database.	Sign contract online with landlord.
Sales member needs house information from manager.	Send house information to the sales staff.	Post house information and sales staff's contract information.
Customer contact sales staff.	Send customer info. with available house, follow up by phone & email.	Record sales lead (customer) detail, check house availablity, provide house info.
Customer house tour request.	Book appointment record customer info. follow up by phone & email.	Reserve house for house tour, update customer info. and record customer info. into sales database.
Customer Signed rental contract.	Record sales performances and update customer info. into sales database.	Sign contract online with customer.
Sales person completes a retal contract.	Removes house information from the system, update sales record in sales staff database.	Enter sales person sales record and the final rental price.
Manager make a sales wages payment.	Calculate sales performance based on their sales record.	Enter number of wages, select the name of sales staff and transfer the wages.
Tenant make a monthly rental payment.	Transfer money from tenant's bank to company's bank, update tenant database.	Access resedent portal, check current account balance and make a rental payment.
New maintenance request posted.	Generate a maintenance request in the system, add request info. into maintenance database and assign a after-sale to the	Access resedent portal and enter request detail info.

	request.	
Maintenance request complete.	Send a notification to tenant about the completion, update tenant database.	Access employee portal and change the status for the request.

3.3.3 Management Event List

The following is a list of strictly management events that will be incorporated into the first product rollout. These events are very basic managerial duties to grant and remove user accounts.

Management Event	System Processing Action	User Interactions
Manager hires a new employee.	System creates account for new user.	Manager enter new employee info. including username and password.
Manager fires an employee.	System disables the user's account.	Manager enters username of employee to terminate at the UI.
Business owner rental reporting.	System reconciles and categorizes rental status and price range.	Business owner requests rental report and specifies parameters to order report by.
Landlord property status reporting.	System Reconciles and list landlord properties status.	Landlord requests property status report and specifies parameters to order report by.

3. 4 System Interfaces

This section defines the main system interfaces to user features.

3.4.1 User Interface Navigation

The interface interaction diagram shown in Figure 3.4.1 shows the main navigation screens displayed to the user, to support various system features.

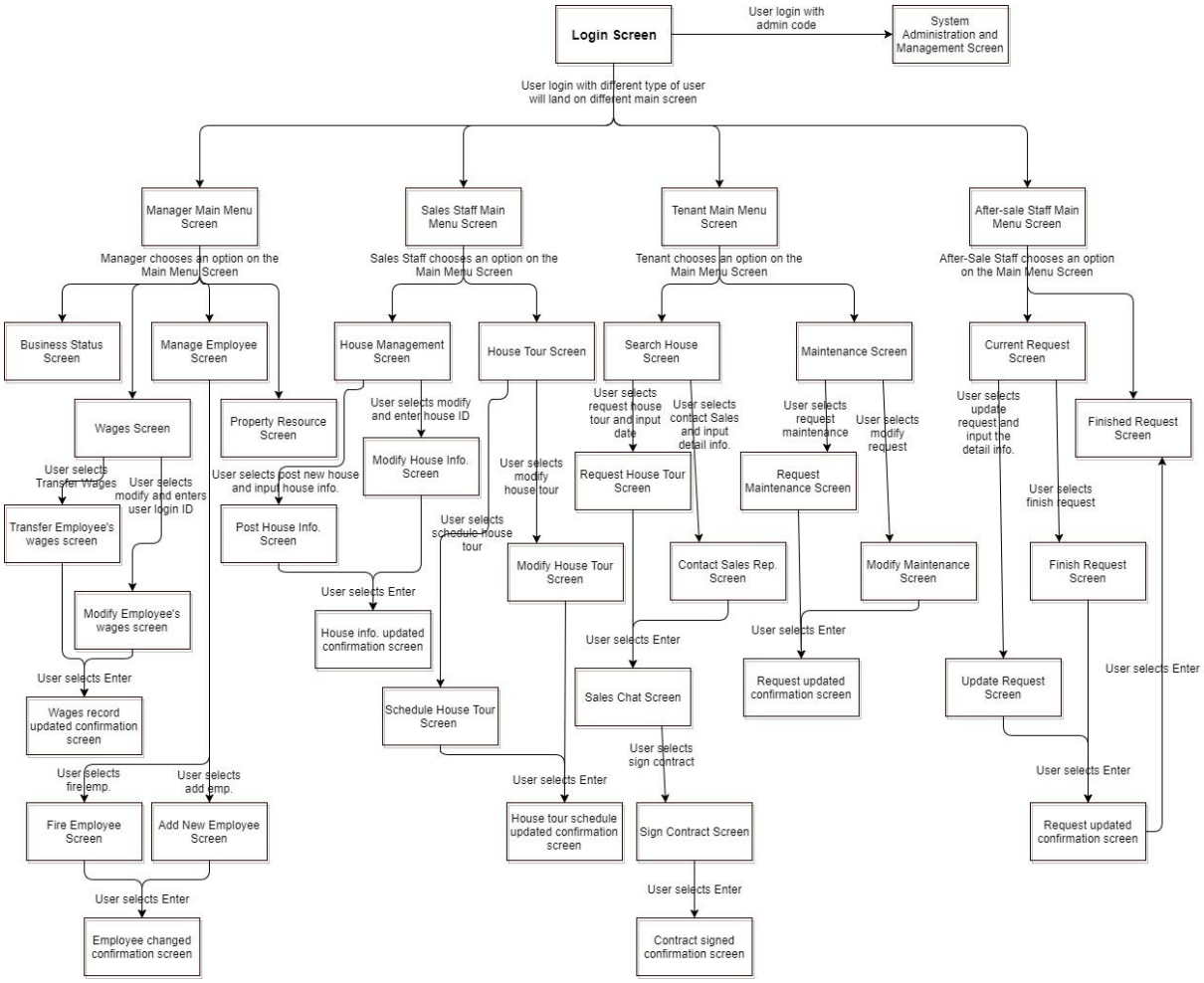


Figure 3.4.1. System Navigation Interfaces

3.4.2 List of User Interfaces

This user interface list describes the few simple user interfaces used by the House Agency System. Interfaces are needed for everything including user login, house browsing, house info posting, employee management, wages transferring, business status checking, request maintenance, change or finish request, displaying house information to the customer and schedule house tour. An interface interaction diagram is found above. The interfaces in bold depict the screens that all users have access to.

IF1:	User Login with user name and password interface
IF2 :	Manager main menu interface allow manager select business status, manage employee, wages management and property resource.
IF3 :	Business status interface allow manager chack entire business statue report.
IF4:	Wages interface allow manager transfer or modify employees' wages.
IF5:	Transfer employee's wages interface allow manager pay wages to employees.

IF6:	Modify employee's wages interface allow manager change employee's wages manually.
IF7:	Wages record updated confirmation screen shows manager the result after manager transfered or modified the wages.
IF8:	Manager Employee interface allow manager add new employee or fire an employee.
IF9:	Fire employee interface allow manager choose an employee to fire by type in employee's username.
IF10:	Add new employee interface allow manager add a new employee by enter new employee's information.
IF11:	Employee changed confirmation interface shows manager the result after manager fired or hired an employee.
IF12:	Property resource interface allow manager to find a new property and sign a agency contract.
IF13:	Sales staff main menu interface allow sales staff to manage house, and manager house tour.
IF14:	House management interface allow sales staff to post a new house information or modify current house information.
IF15:	Post house info. interface allow sales staff to enter and post the new house information and his/her contact information as well.
IF16:	Modify house info. interface allow sales staff to edit current house info. and his/her contact information.
IF17:	House info. updated confirmation interface shows sales staff the result after sales staff posted or modified house info.
IF18:	House tour interface allow sales staff to schedule a house tour or modify a current house tour.
IF19:	Schedule house tour interface allow sales staff to schedule a house tour with customer.
IF20:	Modify house tour interface allow sales staff to edit a current house tour.
IF21:	House tour schedule updated confirmation interface shows sales staff the result after sales staff scheduled or modified house tour.
IF22:	Tenant main menu interface allow tenant to search a house or request a house maintenance.
IF23:	Search house screen allow tenant to search a house then contact sales staff or request a house tour.
IF24:	Request house tour interface allow tenant to request a house tour with sales staff.

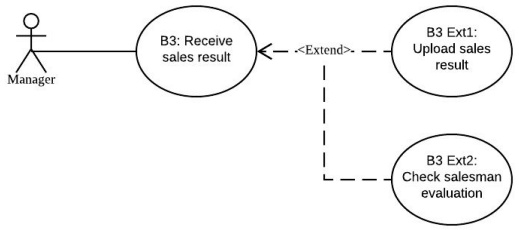
IF25:	contact sales rep. interface allow tenant to contact sales staff though system's online chat function.
IF26:	Sales chat interface shows tenant what he/she asked or requested and what is the sales staff reply.
IF27:	Sign contract interface allow tenant to sign the contract online with sales staff.
IF28:	Contract signed confirmation interface shows tenant the result after tenant signed the leasing contract.
IF29:	Maintenance interface allow tenant to post a maintenance request or modify current maintenance request.
IF30:	Request maintenance interface allow tenant to post his/her maintenance request by enter request detail information.
IF31:	Modify maintenance interface allow tenant to edit an exciting maintenance request post by him/her before.
IF32:	Request updated confirmation interface shows tenants the result after tenant posted of modified a maintenance request.
IF33:	After-sale staff main menu interface allow after-sale staff check current maintenance request or look about a closed maintenance request.
IF34:	Current request interface allow after-sale staff to check current request then update the request or close the request.
IF35:	Update request interface allow after-sale staff to update request current status.
IF36:	Finish Request interface allow after-sales staff to close a maintenance request after after-sale staff finish the quest.
IF37:	Request updated confirmation interface shows after-sales the result after after-sale updated or closed a maintenance request.
IF38:	Finished request interface allow after-sales staff to check all closed request that he/she has done.

4. SPECIFIC REQUIREMENTS

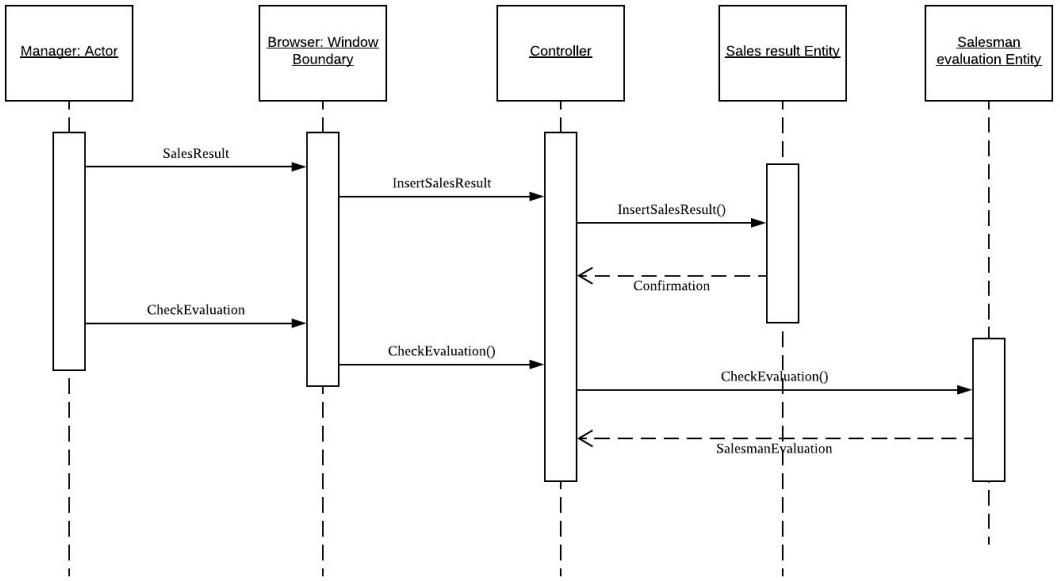
4.1 System Use-Cases

Luis Ortiz:

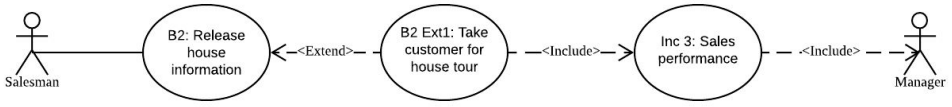
Use-Case diagram:



Sequence Diagram:



Xinkai Zhang:
Use-Case diagram:



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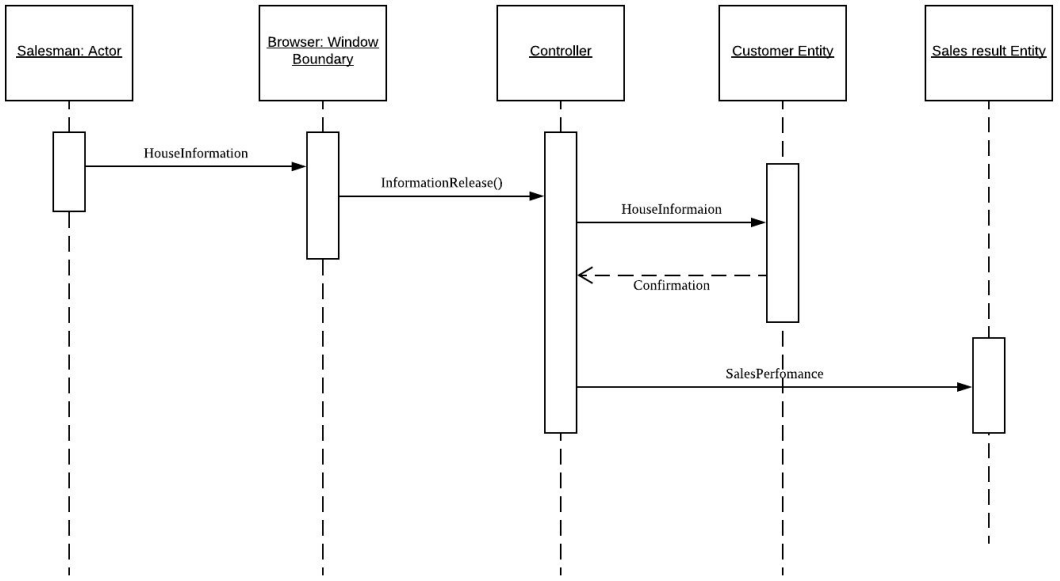
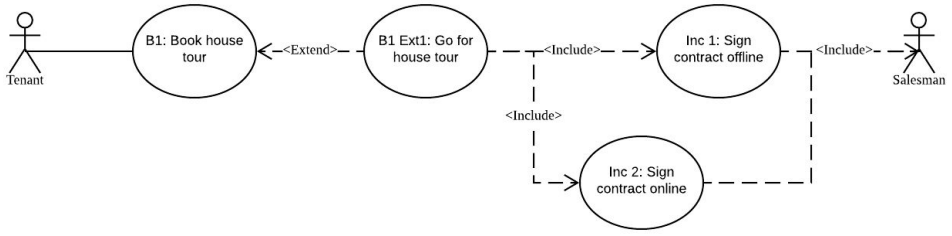


Xujian Zhang:
Use-Case diagram:



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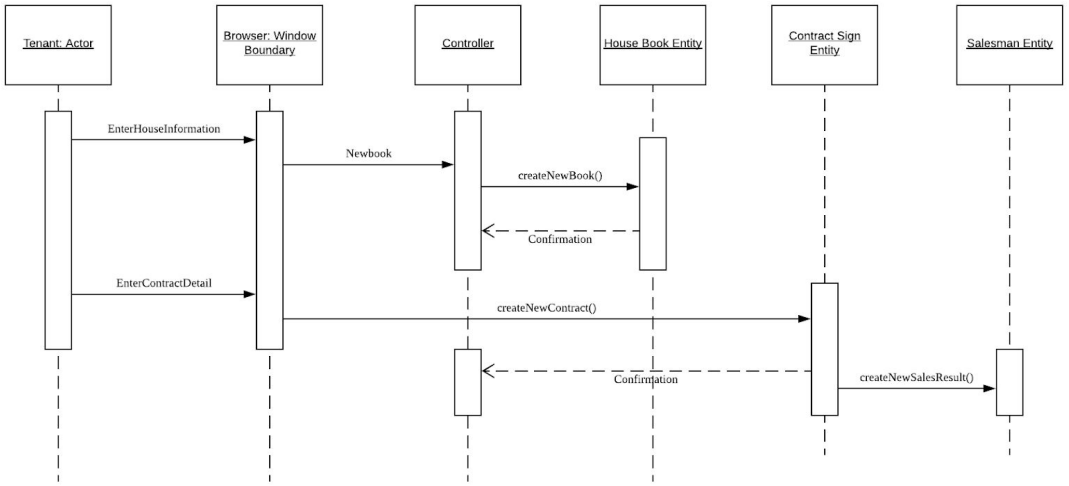
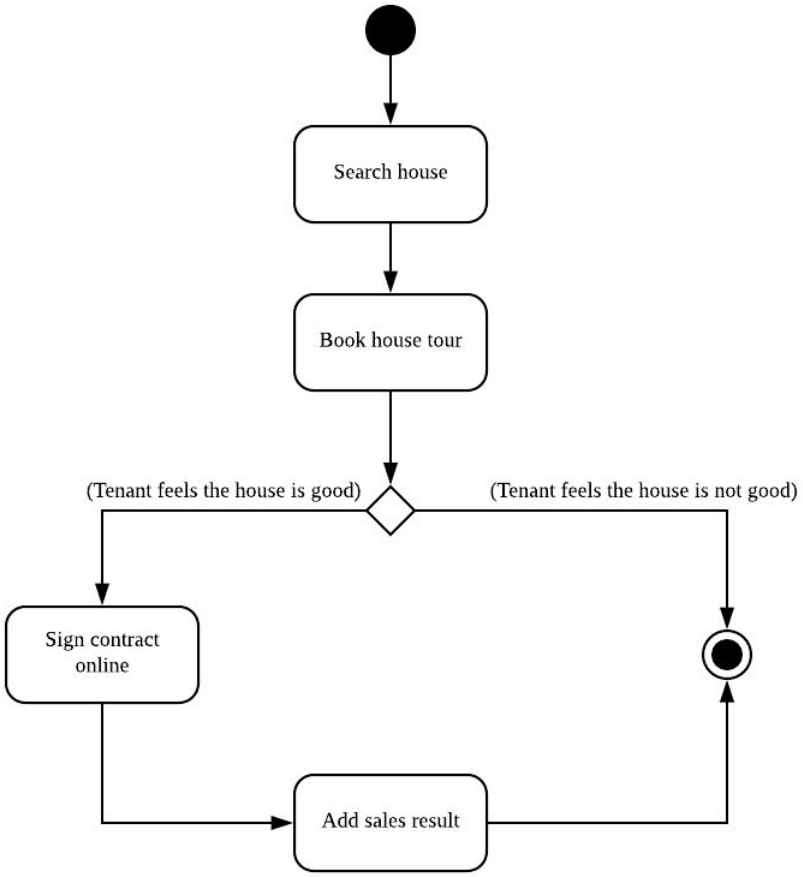


4.1.1 Use Case 1, Book house tour

Use-case name	Book house tour
Actors	Tenant
Brief Description	The use case explains how the tenant book a house

	tour via the system.
Basic flow of events	Basic flow begins when tenant selects the book house tour screen: 1. The tenant should enter the house detail which he wants to check. 2. The system will show all the result which match the conditions the tenant gave before. 3. When the tenant makes sure that a house is good to go, he need to choose to book a house tour for this house. 4. The system will return the confirmation for this book. 5. After the house tour, if the tenant feels good, he can choose sign contract online. 6. After tenant provide the necessary detail for contract, he should upload the contract. 7. The system will return confirmation message when the contract complete. 8. After a contract complete, a new sales result will add to salesman.
Pre-conditions	The tenant has logged in the system.
Post-condition(s)	The user-selected operation is completed, the success message is displayed, or is not completed, and an error message is displayed to the user. The system is waiting for further input.
Extension points	Availability: The system will provide a data entry form, which is intuitive for people who use high school education. 90% of business owners should not need special training to use the system. Performance: The system download data should not exceed 30 seconds, or it takes more than 1 minute to calculate the sales forecast.

UML Activity Diagram:

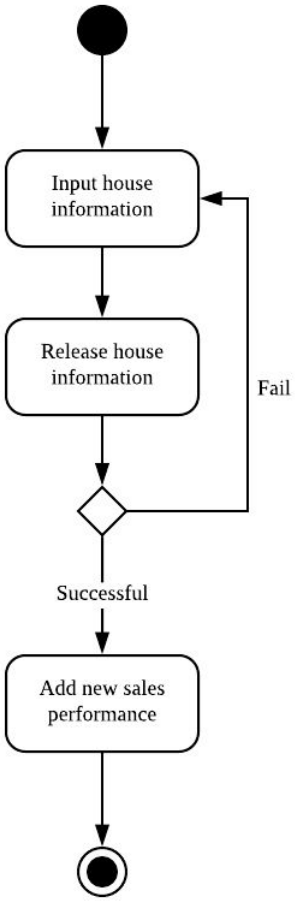


4.1.2 Use Case 2, Release house information

Use-case name	Release house information
Actors	Salesman
Brief Description	The use case explains how the salesman release house information via the system.
Basic flow of events	Basic flow begins when salesman selects release house information screen: 1. The salesman should enter the house detail which he wants to release. 2. The system will return a confirmation when the releasing is complete. 3. After a releasing complete, a new sales performance will add to salesman.
Pre-conditions	The salesman has logged in the system.
Post-condition(s)	The salesman operation is completed, the success message is displayed, or is not completed, and an error message is displayed to the salesman. The system is waiting for further input.
Extension points	Availability: The system will provide a data entry form, which is intuitive for people who use high school education. 90% of business owners should not

	need special training to use the system. Performance: The system download data should not exceed 30 seconds, or it takes more than 1 minute to calculate the sales forecast.

UML Activity Diagram:



4.1.3 Use Case 3, Receive sales result

Use-case name	Receive sales result
Actors	Manager
Brief Description	The use case explains how the manager handle sales result via the system.
Basic flow of events	Basic flow begins when manager selects sales result screen: 1. The manager could upload a sales result for a salesman. 2. The system will return a confirmation when the adding is complete. 3. The manager also could check the salesman evaluation 4. The system will return the evaluation depends on the sales result.

Pre-conditions	The manager has logged in the system.
Post-condition(s)	The manager operation is completed, the success message is displayed, or is not completed, and an error message is displayed to the manager. The system is waiting for further input.
Extension points	Availability: The system will provide a data entry form, which is intuitive for people who use high school education. 90% of business owners should not need special training to use the system. Performance: The system download data should not exceed 30 seconds, or it takes more than 1 minute to calculate the sales forecast.

UML Activity Diagram:

4.2 System Functional Specification

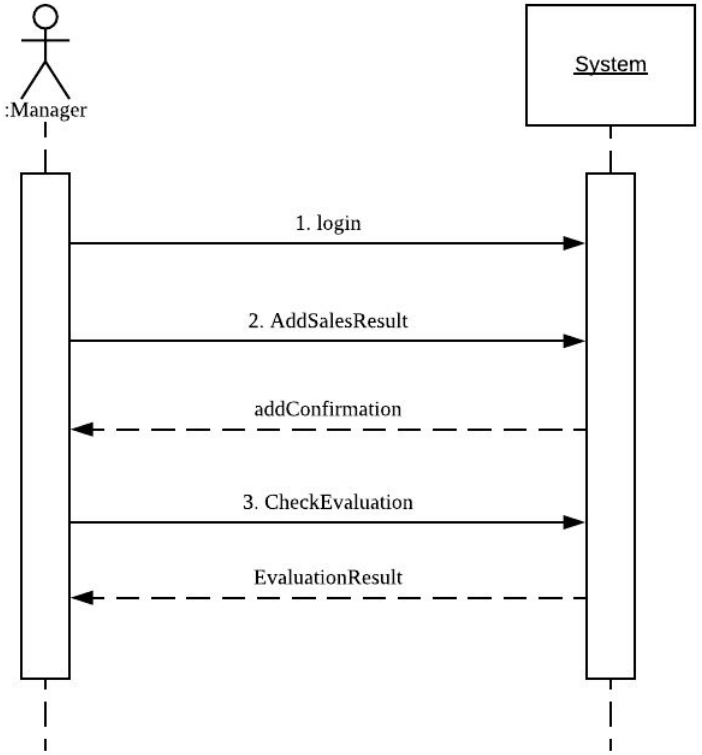
4.2.1 Functional Requirements

FEA5:	
FEA6:	
FEA7:	

FEA1: Evaluating salesman based on sales result

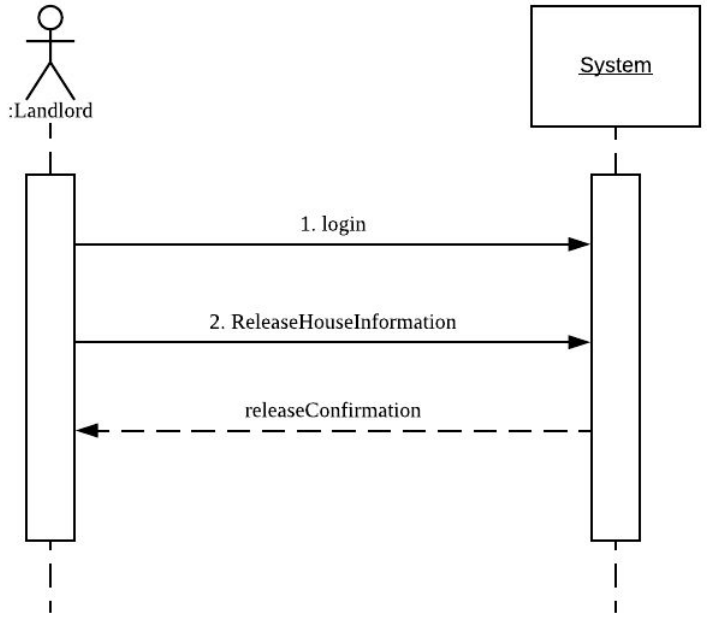
Abbreviation:	FEA1: Evaluating salesman based on sales result
Pre-Condition(s):	The manager is logged in.
Post-Condition(s):	A new sales result has come out.

Input(s):	Sales result details.
Output(s):	Confirmation of adding.
Processing:	• The manager gets the sales result from salesman. • The manager adds sales result on website • Them the system will evaluate sales result of everyone and return the result to manager.



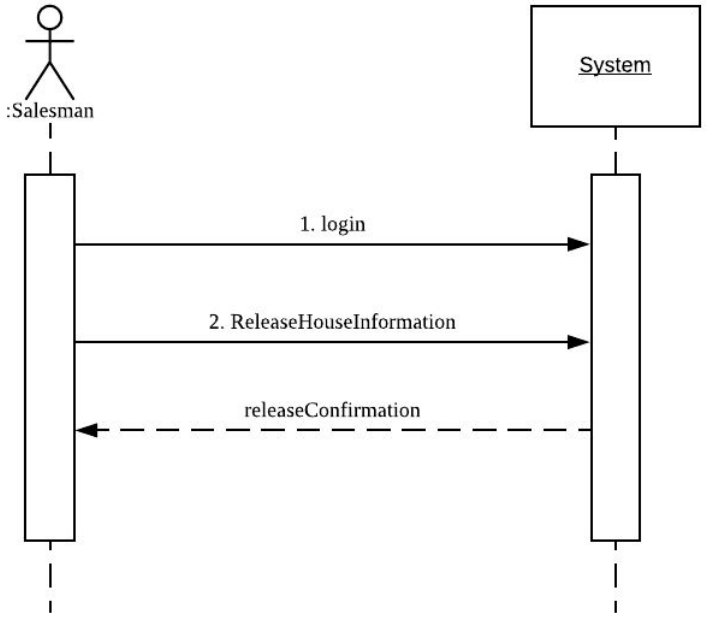
FEA2: House information released by landlord

Abbreviation:	FEA2: House information released by landlord
Pre-Condition(s):	The landlord is logged in.
Post-Condition(s):	A house information is released.
Input(s):	House information details.
Output(s):	Confirmation of releasing.
Processing:	• The landlord upload house information online. • System return the confirmation of releasing.



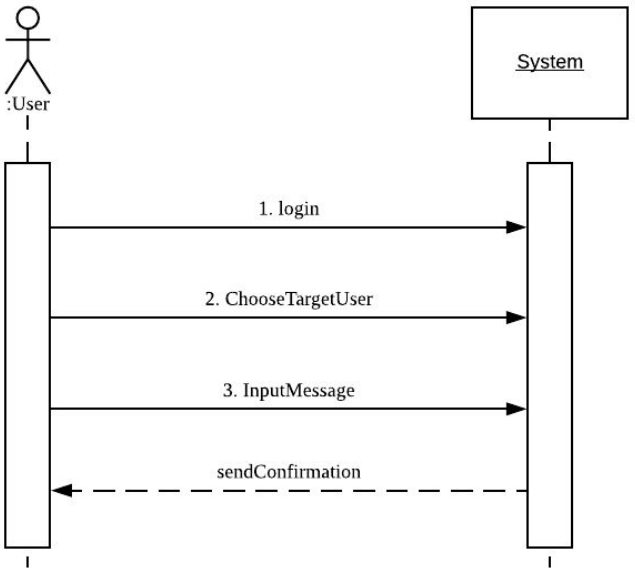
FEA3: House information released by salesman

Abbreviation:	FEA3: House information released by salesman
Pre-Condition(s):	The salesman is logged in.
Post-Condition (s):	A house information is released.
Input(s):	House information details.
Output(s):	Confirmation of releasing.
Processing:	• The salesman upload house information online. • System return the confirmation of releasing.



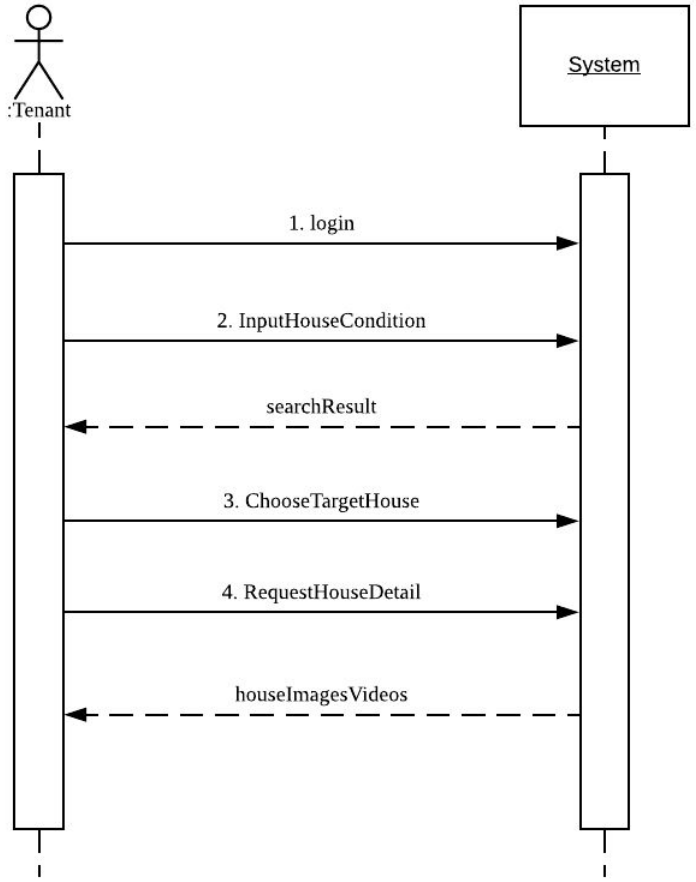
FEA4: Internal message post and receive

Abbreviation:	FEA4: Internal message post and receive
Pre-Condition(s):	The user is logged in.
Post-Condition(s):	A message sent successfully
Input(s):	Message content
Output(s):	Confirmation of sending.
Processing:	● The user input the message content and target user. ● The user sends the message. ● System return the confirmation of sending.



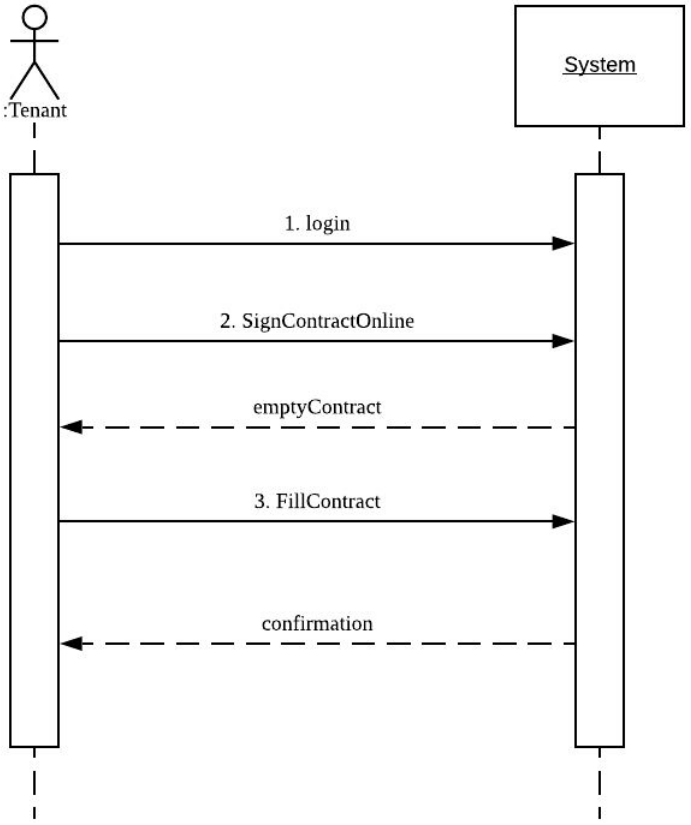
FEA5: Check house online depends on images and videos

Abbreviation:	FEA5: Check house online depends on images and videos
Pre-Condition(s):	The tenant is logged in.
Post-Condition(s):	House checking successfully
Input(s):	House conditions
Output(s):	House details
Processing:	● The tenant input the condition he wants for the house and search. ● The system shows the result. ● The tenant chooses target house. ● System return the house's images and videos



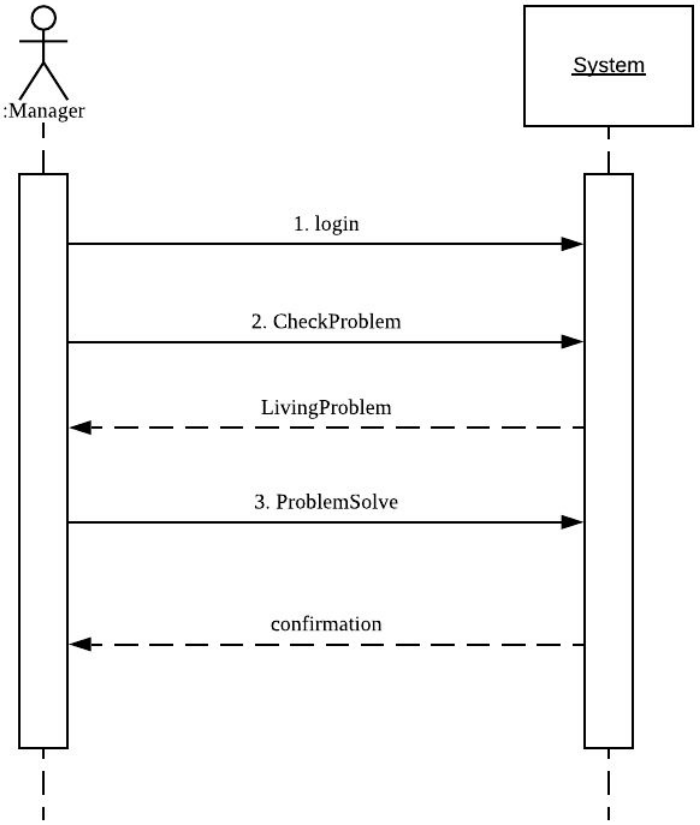
FEA6: Signing contract online

Abbreviation:	FEA6: Signing contract online
Pre-Condition(s):	The tenant is logged in. House checking successfully
Post-Condition(s):	Contract signing successfully
Input(s):	Contract
Output(s):	Complete contract
Processing:	• The tenant chooses to sign contract online. • The system returns an empty contract. • The tenant fills the contract and upload. • System return the confirmation message.



FEA7: Continuing service check and communication

Abbreviation:	FEA7: Continuing service check and communication
Pre-Condition(s):	The manage is logged in.
Post-Condition(s):	Problem solving confirmation.
Input(s):	Service check
Output(s):	Solving confirmation
Processing:	• The manager chooses to check continuing service. • The system returns all problems. • The manager check problem and solve. • System return the confirmation message.



4.3 System Domain Models

4.3.1 Internal Domain Model

4.3.1 Business Use-Case

The system will complement the existing sales and accounting system, which will be used for all kind of financial transaction (online payment, face-to-face payment). It will allow manager and sales people to track and contact tenants or potential customer. It will allow tenants directly contact the after-sales staffs to post a maintenance request. It will have a central website to allow sales people to post the house information and contact information, and tenants can search suitable house online, as shown in Figure 4.3.1, the High-Level Business Use-Case Overview.

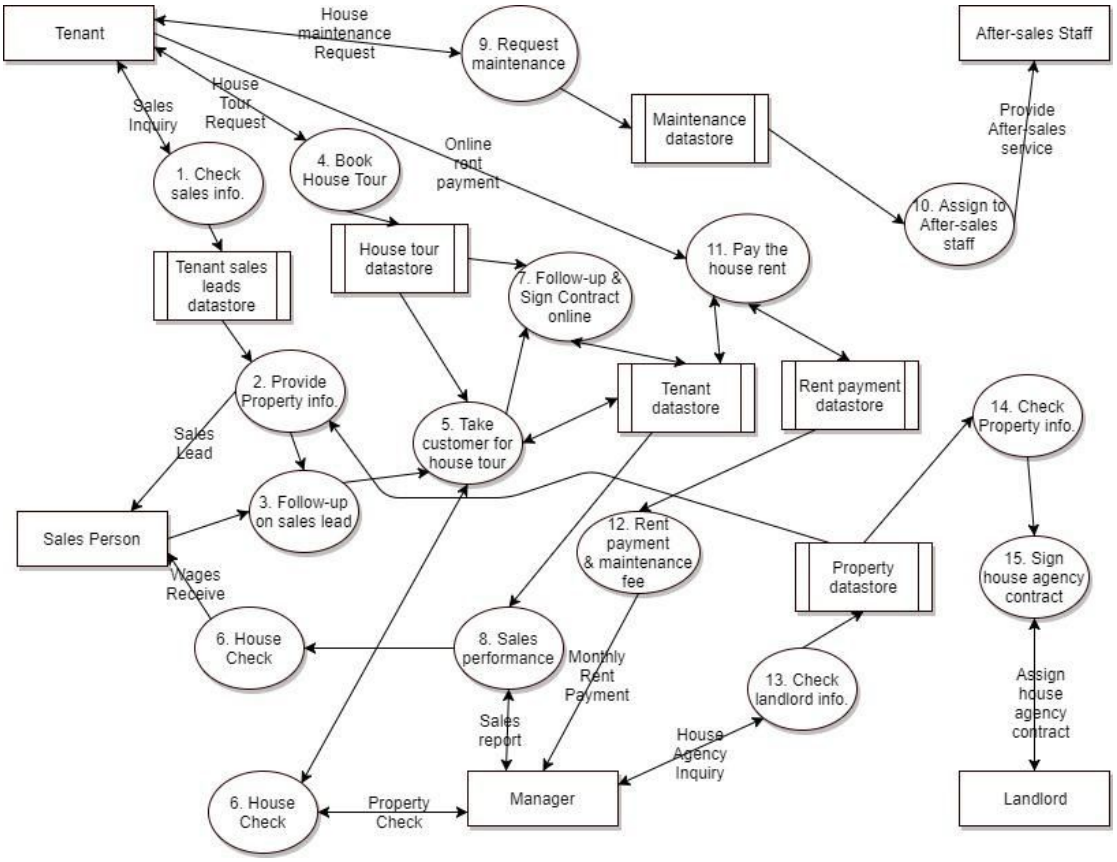
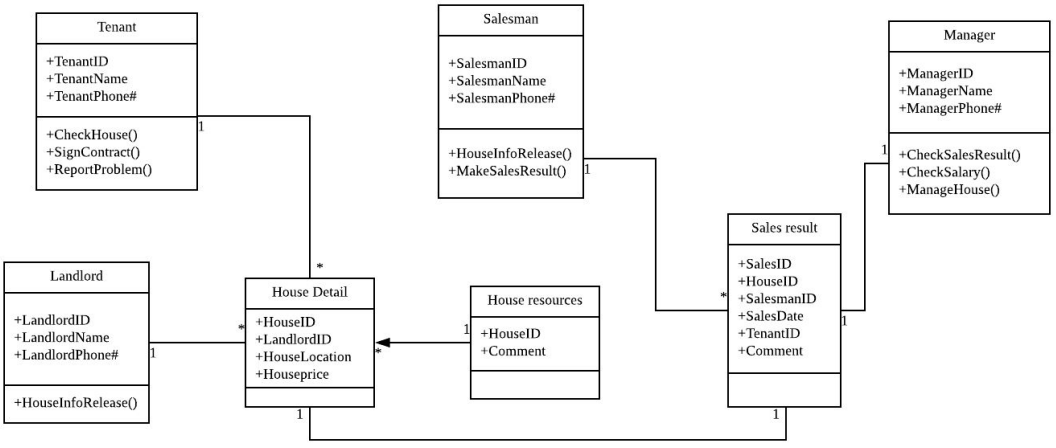


Figure 4.3.1. Business Use-Case Flow Model

4.3.2 Data Models

The expected object class model is shown here:



Tenant used to store the information of every tenant. The same as landlord, salesman, and manager. Every time when tenant sign contract with salesman, a sale result will be generated. Manger could check every salesman's sales result and check their salary. Landlord could release house information and house detail will get all the information.

4.4 Non-Functional Requirements

4.4.1 Usability

The primary purpose for the system is to replace a system that is painstakingly difficult and

inconvenient to use. Therefore, usability of the system an extremely important non-functional requirement. Here is a list of usability requirements for system:

NFR-U1:	The system on a whole must have a learning curve of less than one business day for a novice user.
NFR-U2:	Adding a house information must take less than 10 minutes for a trained user to enter all required information.
NFR-U3:	Must have a legible, easy to understand Instruction Manual written in Spanish and English.
NFR-U4:	System must have readily available technical support to assist with any possible problem.
NFR-U5:	All user interfaces must exude simplicity and clarity. Each displayed screen must be easily legible and understandable, without any useless clutter.
NFR-U6:	All user interfaces must be error proof, and the user must be notified when he/she has made an error.
NFR-U7:	Removing a house information must take less than 10 minutes for a trained user.
NFR-U8:	Each user interface screen must have a "Help" button which displays what each selectable option's functionality.
NFR-U9:	The house search functionality must take less than 30 seconds to display search results on the screen.
NFR-U10:	User login must take less than 30 seconds.

4.4.2 Reliability

Another primary purpose of the system is to create a more reliable and more accurate house record system. Below is a list of reliability requirements to meet the needs for change:

NFR-R1:	The system must be available for use during all hours of operation.
NFR-R2:	All house data must be readily available and uncorrupt.
NFR-R3:	All house data must be backed up automatically on to a second storage unit.
NFR-R4:	Data must be able to be copied on to a tangible medium (CD or DVD) for further data backup reliability.
NFR-R5:	Data must be able to be reloaded from the backup storage unit on to the primary storage unit in case of data loss.
NFR-R6:	In the case of a complete system failure, all functionality and data must be fully recoverable in 1 business day.
NFR-R7:	The system must display accurate data on the screen to the user 99% of the time.
NFR-R8:	The minimum mean time between data loss or data failures must be no less than 1 per 6 months.
NFR-R9:	All employees must be trained in failure plans.
NFR-R10:	The mean time to recover from a non-data loss error must be no more than 5 minutes.

4.4.3 Performance Requirements

Below is a list of hardware and software performance requirements for the system:

	Windows requirements	Mac requirements	Linux requirements
Operating system	Windows 7 or later	Mac OS X 10.9.x or later	64-bit Ubuntu 12.04+, Debian 8+, OpenSuSE 12.2++, or Fedora Linux 17
Processor	Intel Pentium 4 or later	Intel	Intel Pentium 3 / Athlon 64 or later
Memory	2 GB minimum, 4 GB recommended		
Screen resolution	1280x1024 or larger		
Application window size	1024x680 or larger		
Internet connection	Required		

4.4.4 Supportability
N/A

5. SUPPLEMENTARY REQUIREMENTS

Purpose of this section: information required to implement the system – developer and maintenance oriented.

5.1 Project management strategy

5.1.1 Project Management Strategy

This section provides a brief risk assessment identified for the project.

Risk	Impact	Likelihood	Mitigation

1. Feature achievement	High	Medium	Project manager is responsible to keep project under control and follow ever milestone in order to make sure the project end up with all feature reached.
2. Overly optimistic project schedules	High	Medium	Double check with the optimistic time schedule to make sure it is reasonable and useable. And provide some elasticity time on each tasks.
3. Lack of resource provider	High	Medium	Project manager try to find as many resource provider as possible.
4. Budget constraint	High	Medium	Design most critical features and cut off unnecessary functions. Reduce the time and raw material wasted.
5. Lack of user tester	High	Medium	Project manager needs to provide as many user tester as possible.
6. Wasted time during project set up and product phurchasing	High	Medium	Project manager is responsible to make a reasonable project schedule and shrink the project set up time and product purchasing.
7. Friction between project team and customer	Medium	Medium	Plenty of communication between developers and customers to talk through and work out frictions. And project manager supervise the entire project suit for customer's requirements.
8. Developer continuity	Medium	Low	Assign a team leader is responsible to different part of project to make sure no one left the team without finish their job.

9. Adding developers to a late project	Medium	Low	Allowing developers to put 100% effort and time to work on the project and team leader is responsible to check developers' performance on each task.

5.1.2 Budget Limitations

In this project the biggest constraint is to keep project budget as low as possible. Golden Springs Realty LLC wants they can spend less money on the project to solve the entire system and website. This limitation will influence the whole project. Due to the low budget that Golden Springs Realty LLC provide, the hardware purchase will be keep in the minimum range. And the database will keep to as simple as it can. The server will only maintain around one to two. At the first deliverable, there will be only one database and one server for entire system, the future version may augment to every type of user has their own database and server.

5.1.3 Hardware Limitations

The space of the office is very small, there will be only one small server room with limited power suppliers and network outlets. Because of that, we plan to build one server and one database for the new system and link all computers to the server. Make sure system can backup every day to the tape or hard drive.

For the network, there is no LAN in their company, and there is no wireless networking supported, so at the beginning of the project we will build a wireless networking to the company, and set up the LAN to every employee.

In order to successfully store all the customer and housing data, we plan to build a central database to store all important information and put all other kind of data into the cloud. After few versions later, we will add several database for each type of user and for different part of business.

All data has to stored in the central server at the beginning, same as the database, the future version will add more sub-server into the system and support the central server.

5.1.4 Training & User-Support Requirements

In order to make the system working properly, and make sure all functions can gathering the greatest returns on operate the system. Every employee needs to be properly trained to work with the new House Agency System to adapt the new system and new operate flow. Also train can help employee keep the company's information secure. Here are some typical guidelines that must be followed:

- All user cannot give their username and password away with any situation or under any circumstance.
- Manager must finish all the leasing, agency or purchasing contract integrity online, in order to let customer sign the contract online.

- Sales staff need to enter all the house and contact information into the House Agency System as soon as possible. It must be located in the new system.
- Manager should be the only one who can see everyone's wages and able to transfer money to employees.
- After signed sales or rental contract, the house information should be move from system, database and website as soon as possible to avoid the same house sale or rent twice.
- Manager should be the only one who can determine or add employee into the system.
- Sales staff should update customer information into the system and database once customer contact them.

5.2 Systems Security and Audit

Security access will be upon different roles in the company. Manager has the highest authority to control everything in the system. And the manager can assign different authority to each type of user. All information and data will be located offline in the local server and backup every day into hard drive or tape.
Some software's bug will be fixed in first 4 month, based on feedbacks from every user. The system will be upgrade once new bug fixed.
All software updates will be automaticly. Each version of the system or software will be store in a hard drive permanently. Every backup file will be keep for 12 month to be covered.
The audit trail should be reviewed at least monthly by a senior employee responsible for technical system maintenance and support.

5.3 Assumptions and Dependencies

The following is a list of assumptions for the Dealership System:

AS1:	The first version of the House Agency System will be fully expandable for future versions and future features.
AS2:	The employees in Golden Springs Realty LLC will follow the instructions and guidelines to manage and using the House Agency System properly.
AS3:	Customer will using the system to find house and use the website chat function to communicate with sales staff.
AS4:	Every employees in Golden Springs Realty LLC will update the information and data on timely.
AS5:	Manager assign the access-right properly, without any important information leak.

The following is a list of dependencies for the Dealership System:

DP1:	Install an Ethernet network in order to support high-speed data transfer.
DP2:	All employees in Golden Springs Realty LLC will take the train seriously.
DP3:	Install a LAN in the system in order to provide a safer network environment for employees and company.

5.4 Requirements Traceability

UC1: Customer search house info.
UC2: Customer request house tour.
UC3: Customer make retaIl decision.
UC4: Customer Request Maintenance
UC5: Customer search contact info.
UC6: Customer schedule house tour appt.
UC7: Customer sign contract with sales-rep. online.
UC8: Customer send maintenance request to after-sale staff.
US9: Manager record sales performance.
US10: Manager calculate sales performance.
US11: Manager search property info.
US12: Manager request house check.
US13: Manager make agency decision.
US14: Manager pay the wages.
US15: Manager contact landlord.
US16:Manager schedule house check appt.
US17: Manager sign agency contract with landlord online.

5.4.1 High-Level Features Mapped onto Use-Cases

Feature	**UC 1**	**UC 2**	**UC 3**	**UC 4**	**UC 5**	**UC 6**	**UC 7**	**UC 8**	**UC 9**	**UC 10**	**UC 11**	**UC 12**	**UC 13**	**UC 14**	**UC 15**	**UC 16**	**UC 17**
F1. Browse avaliable business status										X							X
F2. Transfer or modify employee's wages									X	X				X			
F3. Fire or add new employee									X	X							

F4. Search property resource											X		X		X		
F5. Post or Modify house info.	X		X		X		X										
F6. Schedule or modify house tour		X				X											
F7. Request a house tour		X				X											
F8. Contact sales-rep.	X				X												
F9. Sign Contract							X										X
F10. Request or modify maintenance				X				X									
F11. Update or Close request				X				X									
F12. Check Finished Request				X				X									

5.4.2 Use-Cases Mapped Onto Non-Functional and Supplementary Requirements

5.4.2.1 NF1

NF1.1: The system on a whole must have a learning curve of less than one business day for a novice user.
NF1.2: Adding a house information must take less than 10 minutes for a trained user to enter all required information.
NF1.3: Must have a legible, easy to understand Instruction Manual written in Spanish and English.
NF1.4 System must have readily available technical support to assist with any possible problem.
NF1.5: All user interfaces must exude simplicity and clarity. Each displayed screen must be easily legible and understandable, without any useless clutter.
NF1.6: All user interfaces must be error proof, and the user must be notified when he/she has made an error.
NF1.7: Removing a house information must take less than 10 minutes for a trained user.
NF1.8: Each user interface screen must have a "Help" button which displays what each selectable option functionality.
NF1.9: The house search functionality must take less than 30 seconds to display search results on the screen.
NF2.0: User login must take less than 30 seconds.

Use - Case	**NF1.1**	**NF1.2**	**NF1.3**	**NF1.4**	**NF1.5**	**NF1.6**	**NF1.7**	**NF1.8**	**NF1.9**	**NF2.0**
UC1	X	X	X	X	X	X		X	X	X

UC2	X		X	X	X	X		X		X
UC3	X		X		X	X	X	X		X
UC4	X		X	X	X	X		X		X
UC5	X	X	X	X	X	X		X	X	X
UC6	X		X	X	X	X		X		X
UC7	X		X		X	X	X	X		X
UC8	X		X	X	X	X		X		X
UC9	X	X	X	X	X	X	X	X		X
UC10	X	X	X	X	X	X	X	X		X
UC11	X		X	X	X	X		X	X	X
UC12	X	X	X	X	X	X		X		X
UC13	X		X	X	X	X		X		X
UC14	X		X	X	X	X		X		X
UC15	X		X	X	X	X		X	X	X
UC16	X	X	X	X	X	X		X		X
UC17	X	X	X	X	X	X		X		X

5.4.2.2 NF2

NF2.1: The system must be available for use during all hours of operation.
NF2.2: All house data must be readily available and uncorrupt.
NF2.3: All house data must be backed up automatically on to a second storage unit.
NF2.4 Data must be able to be copied on to a tangible medium (CD or DVD) for further data backup reliability.
NF2.5: Data must be able to be reloaded from the backup storage unit on to the primary storage unit in case of data loss.
NF2.6: in the case of a complete system failure, all functionality and data must be fully recoverable in 1 business day.
NF2.7: The system must display accurate data on the screen to the user 99% of the time.
NF2.8: The minimum mean time between data loss or data failures must be no less than

1 per 6 months.
NF2.9: All employees must be trained in failure plans.
NF3.0: The mean time to recover from a non-data loss error must be no more than 5 minutes.

Use - Case	NF2.1	NF2.2	NF2.3	NF2.4	NF2.5	NF2.6	NF2.7	NF2.8	NF2.9	NF3.0
UC1	X	X			X	X	X	X		X
UC2	X		X	X	X	X	X	X	X	X
UC3	X				X					
UC4	X		X	X	X	X	X		X	X
UC5	X	X			X	X	X	X		X
UC6	X		X	X	X	X	X		X	X
UC7	X	X	X	X	X	X	X	X	X	X
UC8	X		X	X	X	X	X		X	X
UC9	X	X	X	X	X	X	X	X		X
UC10	X	X	X	X	X	X	X	X	X	X
UC11	X	X			X	X	X	X	X	X
UC12	X				X	X	X		X	
UC13	X				X					
UC14	X	X	X	X	X	X	X	X	X	X
UC15	X	X			X	X			X	X
UC16	X		X	X	X	X	X		X	X
UC17	X	X	X	X	X	X	X	X	X	X

6. Online User Documentation and Help System Requirements

6.1 Training and Support Requirements

All Golden Springs Realty LLC staff: the manager, and all sales representatives will need training in their respective interactions with the system. Trainings will vary according to their job tasks. The manager will need training in order to produce monthly sales results as well as manage the employees who will have access to the system along with managing tenant payments. Sales representatives will need training in order to learn how to add property and contact information, as well as interacting with customers through the messaging, and contract signing features. All training should take place within a week of the full system installation.

6.1.2 Support Requirements

This system must be easily modifiable for any future requirement changes. Email support will be available 24/7, any other form of contact will be available from 7am to 5pm Monday through Friday excluding approve home inspection appointments that may take place after business hours. A user manual will be provided for each user.

7. Design Constraints

7.1 Hardware Constraints

Golden Springs Realty LLC has a limited amount of property, and only one central location. For this reason the company will only require two terminals. One will be placed in the manager's office and will only be accessible by the manager. The other will be centrally located within the office for easy access by all sales representatives.

7.2 Software Constraints

Each action performed by sales representatives should be completed fairly quickly in order to most effectively benefit the customer. The software used for the property posting and messaging systems must be designed to react at a real time pace in order to assure that there are no delays when interacting with customers. The system will be able to be accessed from any computer with an internet connection including mobile devices.

8. Purchased Components

Several computers will be purchased. One computer for the manager of Golden Springs, and one for each member of the sales team to use to access the system while in the office. The server that will support the system and the website will be hosted on an outside computer that will need to be outsourced and contracted out to another company.

9. Interfaces

9.1 User Interfaces

The User Interface will resemble that of commonly known housing websites. There will be links for each function a user may want such as online rent pay, or employee contact information. The website will contain photos of each property as well as a Google Maps API in order to pinpoint each property's location. Customers should be able to log on to their own created account and interact with each of these links personally by being able to save favorite property listings, as well as search for listings by address.

9.2 Software Interfaces

The system and all subsystems will be compatible with all current operating systems and the website will be bootstrapped in order to display correctly on both mobile and traditional devices.

9.4 Communications Interfaces

The system will need to communicate with online payment subsystem, internal messaging subsystem, maintenance subsystem, as well as the secure signing subsystem.

The system will also be integrated with the current payroll & accounting, third party website and sales management system.

Glossary

Tenant:	A customer who is currently renting property.
Sale:	The rental of a home.
User:	Any Golden Springs Realty LLC employee who will use the Golden Springs Realty System.
Novice User:	A Golden Springs Realty LLC employee who is not familiar with the functionality of computers or electronics in general.