Coastal Village Student Housing

Final Information Item Draft (29148 9)

By: Daniel Montoya

4/26/19

CEN 3073 Software Specifications

Instructor: Vanselow

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9.1 Introduction

This clause states the normative content of the required information items. The content for the software requirements specification document is only applicable if adhering to System Requirements Analysis Process of ISO/IEC 12207.

This document is going to cover the documentation process that I took in order to follow the IEEE 29148 Section 9: The information item. In the documentation I covered the stakeholder requirements specification (StRS) process, System requirement specification (SyRS) process, System requirement specifications process, Operational concept process, and Concept of operations process. The documentation was developed for a company called Coastal Village that wanted to incorporate a mobile application to their company. Throughout the whole process there were several meetings with stakeholders to determine what requirements they wanted to incorporate into the application.

9.2 General Content

9.2.1 Identification

a) Title: Coastal Village Student Housing app

b) Revision Notice

- Name: Coastal Village Student Housing app

- Version Number 1.0.0

- Date of release: 4/26/19

- Approved signature: Daniel Montoya

9.2.2 Front Matter

a) Table of contents

9.4 SyRS

9.5 SRS

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b) List of figures

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c) List of tables

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System verification page: 64-66

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9.2.3 Definitions

9.2.4 References

StRS

- https://gocoastalvillage.com/

- https://coastalridgere.com/

- https://coastalridgere.com/management/

- https://www.owler.com/company/coastalridgere

- http://money.com/money/4024768/apartment-lease-rules-renters-need-to-know/

- https://simplicable.com/new/organizational-culture

- https://simplicable.com/new/business-constraints

- https://coastalridgere.com/portfolio/

- https://coastalridgere.com/investment/

- https://coastalridgere.com/about/

- https://www.bbb.org/us/oh/columbus/profile/property-management/coastal-ridge-real-estate-partners-llc-0302-70095799

SyRs

- http://enfocussolutions.com/business-requirements-vs-functional-requirements/

- https://www.its.dot.gov/meetings/pdf/CoreSystem_SE_SyRS_RevA%20(2011-06-13).pdf

- http://www.1202performance.com/atricles/how-to-write-performance-requirements-with-example/

- https://simplicable.com/new/usability-requirements

- https://reqexperts.com/wp-content/uploads/2016/04/Wheatcraft-Interfaces-061511.pdf

- ConOps

- https://www.modernanalyst.com/Careers/InterviewQuestions/tabid/128/ID/1168/What-are-the-four-fundamental-methods-of-requirement-verification.aspx

SRS

- https://sites.google.com/view/prof-v/lms/cen-3073/requirements-specification-and-documentation/information-items/srs

SyRS

- https://blog.storagecraft.com/5-common-encryption-algorithms/

9.2.5 Acronyms and abbreviations

- FGCU: Florida Gulf Coast University

- AM: ante meridiem

- PM: post meridiem

- Mon: Monday

- Fri: Friday

- Sat: Saturday

- Sun: Sunday

- General Data Protection Regulation (GDPR)

- Federal Trade Commission (FTC)

9.3   Stakeholder requirements specification (StRS) document

This clause defines the normative content of the stakeholder requirements specification (StRS) document. The project shall produce the following information items in accordance with the project's policies with respect to the stakeholder requirements specification document.

Organization of the information items in the document such as the order and section structure may be selected in accordance with the project's documentation policies.

9.3.1 Business purpose

The company's purpose is to make money by offering their end users with apartments. The company will try to provide the guest with the ability to lease an apartment at an affordable price but also to provide them with a friendly atmosphere.

9.3.2 Business Scope

The company's scope is to hire employees with experience in running a business and being able to represent the friendly atmosphere we strive to have. By making sure that our customers have a wonderful time seeing our apartments that are for lease. Another aspect is to provide the customers with proper living standards for each apartment and making sure that they follow the most UpToDate standards. Last is to ensure that the company's money will go towards making the living experience of our apartments something special to our customers.

9.3.3 Business overview:

The business will have apartments for lease at a different price range to ensure that our customers find something in their budget. Each apartment will go from the basic living functions to more premium living as the price increases. Our business will provide a community lounge, swimming pool, and indoor gym to our customers which will be provided at no extra cost. In the end, the purpose to ensure that our customers enjoy their stay at our apartments. The company will be leasing apartments to end users that are not ready to own their own home.

9.3.4 Definitions

- Coastal Village: student housing located in Estero Florida.

- FGCU: Florida Gulf Coast University

- Coastal Ridge Real Estate: Investment firm

9.3.5 Stakeholder:

- Business analyst

- Legal staff

- Help desk

- End users

- Operational analyst

- Leasing Residents

- Staff

- Renter insurance agents

9.3.6 References

- https://gocoastalvillage.com/

- https://coastalridgere.com/

- https://coastalridgere.com/management/

- https://www.owler.com/company/coastalridgere

- http://money.com/money/4024768/apartment-lease-rules-renters-need-to-know/

- https://simplicable.com/new/organizational-culture

- https://simplicable.com/new/business-constraints

- https://coastalridgere.com/portfolio/

- https://coastalridgere.com/investment/

- https://coastalridgere.com/about/

- https://www.bbb.org/us/oh/columbus/profile/property-management/coastal-ridge-real-estate-partners-llc-0302-70095799

9.3.7 Business Management Requirements

9.3.8 Business Environment

Coastal Village is an official Off-Campus student housing of FGCU and is in Estero Florida. Their office is open Monday thru Friday from 10am to 7pm, Saturday from 10am to 5pm and Sunday 1pm to 5pm. Coastal Village leases four-bedroom apartments to students on a one-year contract. The rooms are fully furnished, offer high speed internet, and roommates can be either chosen at random or requested. The apartments are close to restaurants and shopping centers including the Gulf Coast Town Center. The apartments are designed for students that want to experience the off-campus experience.

9.3.9 Goal and Objective

Is to offer students an off-campus experience at a reasonable cost. By making sure that students are close enough to their university. One objective of the company is to make sure that every year they lease all the apartments that they have to students in the area.

9.3.10 Business Model

- Model

o Coastal Ridge is a real estate investment firm that specializes in acquiring, investing and operating real estate properties.

- Target Market

o Students that are looking to lease a single room with other roommates while they attend college.

o Mostly targeting students that are in their middle years in college.

o Students that are looking for mid-price range apartments

- Marketing strategy

o Coastal Ridge investment firm looks for companies that are well developed and performing well in their communities.

o The staff are trained to asses each company like if they were going to buy the property.

9.3.11 Information Environment

A property management staff makes arrangement to make sure that the housing is up-to-date with safety equipment like fire alarms, sprinklers, and water quality. The manager of Coastal Village makes sure to have annually inspection of the conditions of the apartments like if there are any damages to the walls or cleanliness of the apartment.

The residents can submit maintenance requests if they need something replaced or fixed. The maintenance staff normally response within one business day of the request submitted.

9.3.12 Business Operational Requirements

9.3.13 Business Processes

For leasing an apartment to an end-user, the end-user must fill out an application online. The application is reviewed by the leasing manager. The student is then required to take a background check to determine whether they can lease an apartment at Coastal Village. The leasing manager reviews the results and if the student is accepted, he/she will be emailed that their application was completed. The application takes about a week to fully be reviewed. Once the student is notified, they must complete a contract application for leasing the room for 12 months. Once that is complete, the student will be required to sign all the document and submit it back to the office either in person or by signing it electronically. After that, the student will pay for the first month of rent and other related fees. After that, the student will receive keys to his room with a list of his/her roommates. Last, the student is required to pay his monthly bills.

9.3.14 Business Operational Policies and Rules

o   Policies

o   Pet policy: The person leasing the apartment must pay $200 fee for having pets in their apartment/room

o   Lease-breaking: The resident must sublease their room to another person or pay the full amount of rent that is due for the remaining time.

o   Maintenance: If the resident submits a maintenance request the staff is required to take care of the repairs needed within a week.

o   Additional Rules: The company has the right to make changes or add rules to the contract but is required to let the residents know beforehand.

o   Care or property: The residents must take care of the property or can be fined.

o   Trash: Trash must be disposed of at least weekly by the residents and have set times that the trash can be taken out to be picked up the staff.

- Building, Housing, or Health Codes

  - The company will comply with the requirements of applicable building, housing, and health codes. The company will maintain the roof, windows, screens, doors, floors, etc. in good repair and capable of resisting normal forces and loads.

  - However, the company is not responsible for the repair of conditions that are caused by the negligent or wrongful act of the resident or members of the resident.

- Rules

  - No drugs are allowed anywhere in the apartments

  - Residents must have a parking sticker posted in their vehicles at all time if not the cars will be towed and fined at the expense of the company.

  - Guest must have a parking pass on their vehicles at all time and cannot park in resident parking.

  - Pool must adhere to the rules that are posted in the pool area and management policies.

  - Residents must also follow rules that are posted at the community gym.

  - Residents give owner permission to sign and accept any parcels or letters sent to the resident through UPS, FedEx, or other mailing services.

  - Only 1 vehicle per licensed resident is allowed.

9.3.15 Business Operational Constraints

- Financial

  - No refunds once the contract is signed

- Must have proof of income or co-signed by someone who has shown proof of income

- No partial payments allowed for residents rent

o Legal

- Can't lease a room to a minor

- Can't provide alcohol or drugs

9.3.16 Business Operational Modes

o Moving day

- Schedule a certain number of new residents for specific days

- Providing shade or water to residents

- Outdoor seating

- Additional staff

o Beginning of new school year

- Additional staff for tours

- Discount offers for rooms

- Clean environment

o Events

- Have enough food to feed the residents that are going to come

- Send out information about the event

- Have location closed off for the time of the event

9.3.17 Business Operational Quality

o   Extensive training for new hires

o   Interacting with residents and applicants

o   Extensive background checks for employees

o   Extensive background checks for applicants and residents

o   Maintaining the atmosphere of the company clean

o   Maintaining the apartments in top shape and clean for new residents

9.3.18 Business Structure

The main investing company Coastal Ridge Real Estate Firm is the main company that can make structural decisions that are submitted by the office. They are also in charge of how the leasing operations are run. Coastal Village can make small decisions that do not impact the business in any way or form. Coastal Village can run special offers for leasing, but they must inform Coastal Ridge of the type of discount they are going to offer and for how long

9.3.19 User Requirements

- The system shall offer account creation for applicants to access information regarding housing.

- The system shall be able to show information about nearby events.

- The system shall allow residents to submit maintenance requests.

- The system shall show user payment history.

- The system shall allow users to change their payment methods

- The system shall allow administrators to be able to view resident payments

- The system shall offer account creation for administrators to submit information regarding housing.

- The system shall prompt users for login information upon startup.

- The system allows leases to be uploaded as a pdf file.

9.3.20 Concept of proposed system

9.3.21 Operational Concept

- Operational policies and constraints:

  - Policies:

    - Lease-breaking: The resident must sublease their room to another person or pay the full amount of rent that is due for the remaining time.

    - Maintenance: If the resident submits a maintenance request the staff is required to take care of the repairs needed within a week.

    - Additional Rules: The company has the right to make changes or add rules to the contract but is required to let the residents know beforehand.

    - Care or property: The residents must take care of the property or can be fined.

- o Trash: Trash must be disposed of at least weekly by the residents and have set times that the trash can be taken out to be picked up the staff.

- o Using the gym and equipment, the resident is required to clean up the equipment that he/she is using while at the gym. The resident must use the equipment for its purpose. Residents must wear shoes and be fully clothed while working out inside the gym.

- o Staff is to be friendly and polite to the residents when speaking to them.

- o Staff is to arrive on time to their scheduled work day.

- o Constraints

  - o Financial

    - o No refunds once the contract is signed

    - o Must have proof of income or co-signed by someone who has shown proof of income

    - o No partial payments allowed for residents rent

  - o Legal

    - o Can't lease a room to a minor

    - o Can't provide alcohol or drugs

- o Knowledge

- The staff must know in full detail the prices and type of rooms that are being leased. They must know the location of every housing apartment and can be able to talk about the stuff Coastal Village offers.

- The staff must consider the comments that are made towards the apartments weather is good or not.

o Quality

- The staff is required to have quality material inside the office to make sure the it's a good representation of the company and its stakeholders.

- Making sure that the quality of apartments vary in quality depending on the price of the room but also not having poor quality in the cheapest rooms that the company provides to the residents.

- Description of the proposed system

The system will have two types of logins available for admins and residents. This will help by distinguish what the user can and cannot access. This way when the admin logs in they will only have access to stuff that administrators need and not what a resident's login would look like.

The system will also have a sign-up option for new users to create an account. This is helpful since most of the end users that this application targets are student that are going into college. Some of the residents might be coming from out of state and can not make it to the office often to fill out paperwork and could have all the information in the system before they come and sign the lease.

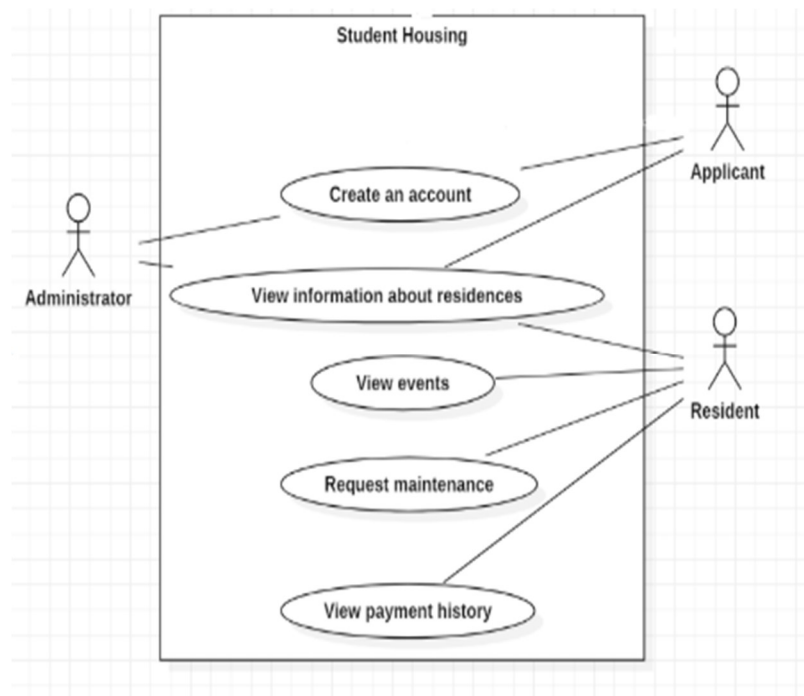- Modes of the system operation
o Moving day

- Schedule a certain number of new residents for specific days

- Providing shade or water to residents

- Outdoor seating

- Additional staff

- Beginning of new school year

  - Additional staff for tours

  - Discount offers for rooms

  - Clean environment

- Events

  - Have enough food to feed the residents that are going to come

  - Send out information about the event

  - Have location closed off for the time of the event

  - User classes and other involved personnel

The admin users will have a separate login window that only can be access by their credentials. Admins with certain credentials will be able to add and remove new staff member into the admin page. If the admin creates and event, they are required to set location, time, type of event, and any other information they might want to add.

Regular users will be able to login to the resident page, where they can make payments, events, or request maintenance. In each of these pages the resident will be required to submit certain criteria to make either a payment or maintenance request. If there is an event that is happening at Coastal Village the resident will be notified by an email that was sent to them by one of the staff members.

Use Case Diagram

The *Create an account* use case

- Applicants will be able to create accounts if they are applying for a room.

- Administrators accounts may be created by other administrators.

The *View information about residences* use case

- Applicants will be able to view information about different residences, in reference to payments, events, etc.

- The information will be supplied by the administrator of that residence from their account.

The *View events* use case

- Residents will be able to view events for different residences supplied by the administrators of those residences.

- Administrators will be able to view the events that were created by other admins.

The *Request maintenance* use case

- Residents will be able to request maintenance for their housing unit through the program.

- Administrators will be able to view these requests and send maintenance out.

The *View payment history* use case

- Residents will be able to view their past payments through the program.

- Administrators will be able to check if a resident has paid their rent.

- Support environment

o   The staff that are in the front desk will be able to assist the resident with question that he/she might have will creating an account or just questions that they might have. If in any case the staff members are not able to help the resident with their question, the staff should contact the

developers of the application to get more information. If the application needs to be updated the developers must inform the client with enough time for them to notify their residents.

9.3.22 Operational Scenario

The users can create an account if they are applying for a lease in Coastal Village. Once the account is created the user can login with his/her credentials. If the credentials are wrong, then the user will not be able to sign on. The user will also be able to submit maintenance request by filling out the certain criteria that is required. Last the user will be able to make payments for his/her rent through a secure site and will have to insert their credit card information. The administrator will have full control of the users that it accepts in having accounts for the Coastal Village application. Another scenario that can occur during the time of the resident's lease is to move out early. In this case the resident will have either two options, sublease his room or payout the remaining amount of the lease in one full payment. If the resident decides to do any of these scenarios, he/she will have to go to the main office because the application will not allow to sublease his room through the application.

The admin will be able to view the payments that the leaser has made, the information will have a time stamp of the time he/her made the payment. The admin can also add new admins into the system by going into the create an admin page on the application. Once a maintenance request has been requested by the resident, the admin will get a notification and the admin will send the information to the maintenance staff. Once the maintenance staff has the information, he or she will schedule the request into his/her schedule. After the request is finished the maintenance staff will require a signature of the resident noticing that the job has been done. On the other hand, if

the job cannot be done within that same day the maintenance staff will have to come back with the parts that are required and finish it as soon as he/her can.

If the admin is removing a staff member from the company, they will be able to view the staff that is currently working and remove them manually. Once this happens all the information of the client can be removed or just checked as not working at the company anymore.

9.3.23 Constraints

- Time
  - Business Hours: Mon – Fri: 10AM – 7PM, Sat: 10AM - 5PM, Sun: 1PM – 5PM

- Liquid Assets
  - Investment money that is put into Coastal Village must be used for business purpose only including salaries, bill payments, and for maintenance.

- Quality
  - The staff is required to have quality material inside the office to make sure the it's a good representation of the company and its stakeholders.
  - Making sure that the quality of apartments varies in quality depending on the price of the room but also not having poor quality in the cheapest rooms that the company provides to the residents.

- Regulatory Compliance
  - Company must follow all safety and health regulations while maintaining residents in the apartment complex.

- o Building new structures must also follow all standards while building process is being conducted.

- o Apartments must have annually inspections to ensure that the rooms/living spaces met standards. Surprise inspections of resident's rooms must also be conducted to ensure that the rooms are not destroyed or have illegal activity taking place.

- Organizational Culture

  - o Leadership: staff must respect other staff members even if they are new members.

  - o Knowledge: every staff member must be up-to-date with all information that is required to know and present when talking to new/old residents

- Motivation

  - o The office manager must ensure that the environment that the staff is presented in is a friendly environment.

9.3.24 Appendix

9.3.25 Acronyms and Abbreviations

FGCU: Florida Gulf Coast University

AM: ante meridiem

PM: post meridiem

Mon: Monday

Fri: Friday

Sat: Saturday

Sun: Sunday

9.3.26 System Operational Concept (OpsCon)

Overview: A System Operational Concept (OpsCon) document describes what the system will do (not how it will do it) and why (rationale). An OpsCon is a user-oriented document that describes system characteristics of the to-be-delivered system from the user's viewpoint.

9.3.26. A.2.1 Scope

The scope of Coastal Village Student Housing application includes the functions and features that are going to be present in the design. For example, it should be able to have multiple users within the system, ability to make payments, and should be user friendly.

A.2.1.1 Identification

Document number: OP00001-1.0-1

Document Version: 1.0

Publication Date: 4/1/19

A.2.1.2 Document overview

A.2.1.3 System Overview

The system with be a mobile application that would be download once the user was a resident of Coastal Village. It would have multiple users in-order to make it easier for the company to store information about the company. Some of the features that would be in the application are ability to make payments, dashboard, or request maintenance. Those are just a few examples of what the system would offer to the users.
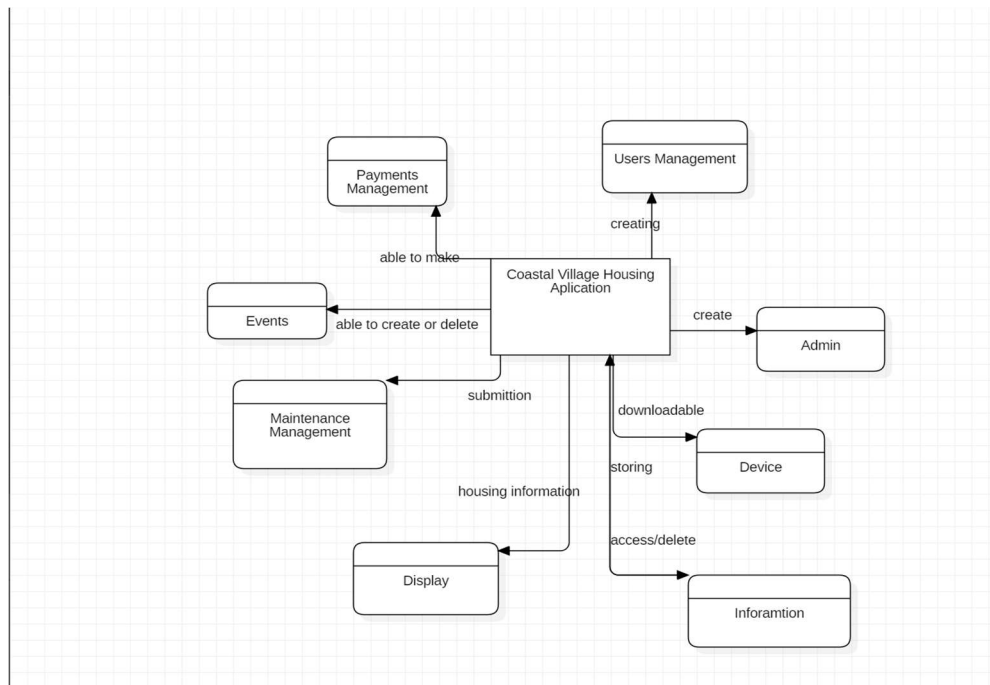
A.2.2 Referenced documents

- StRS

- Use Cases

- Context Diagram

- Company Policies

A.2.3 Current System or Situation

A.2.3.1 Background, Objectives, and Scope

Having meet with several stakeholders during our first meeting, we came up with the design of the system, requirements that the system had to meet, and current budget for the development. Some of the goals that were mentioned in the meeting were for the application to be easy to use, positive feedback from the residents, and to meet at least 95% of the final requirements. The system should just be a simple application that th residents use on a daily base in order to make their stay at Coastal Village enjoyable. The application should not go in-depth with its features that are required or try to add other feature that would just delay the release date.

A.2.3.2 Operational Policies and Constraints

- Stay within the budget limit set by the investment firm

- Require monthly maintenance on the application being developed

- Life cycle cost

- Decisions must be consulted with investment firm before acting.

- Development for the system should take at most 1 month to complete

A.2.3.4 Modes of operation for the current system or situation

During the pre-mission phase prior to accessing account

- Create account

- Input personnel information

- Pick user type

During the mission phase once, account is created

- Login with credentials

- Make online payments with bank information or credit card

- Request maintenance

- View dashboard

A.2.3.5 User classes and other involved personnel

A.2.3.5.1 Organizational structure

In the main login screen the user will be able to choose weather they are an admin or a resident. Once the user clicks on the button, the user will be brought to the designated screen. If the user is an admin, they will be able to view all residents at Coastal Village, view which resident has made their monthly payment, view requested maintenance, and view staff information. On the other hand, residents will be able to view the dashboard, make payments, request maintenance, and send emails to the office.
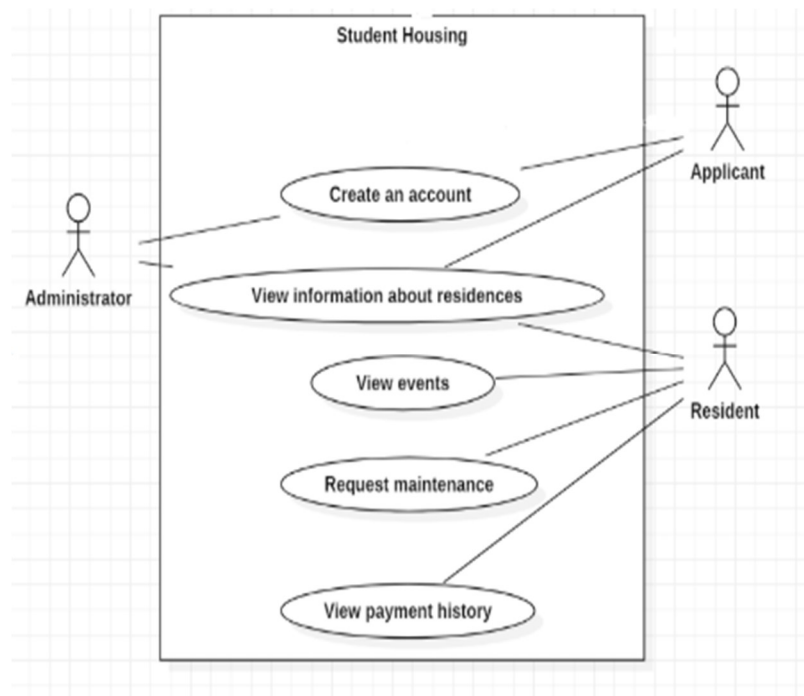
A.2.3.5.1 – A.2.3.6

- User classes and other involved personnel

The admin users will have a separate login window that only can be access by their credentials. Admins with certain credentials will be able to add and remove new staff member into the admin page. If the admin creates and event, they are required to set location, time, type of event, and any other information they might want to add.

Regular users will be able to login to the resident page, where they can make payments, events, or request maintenance. In each of these pages the resident will be required to submit certain criteria to make either a payment or maintenance request. If there is an event that is happening at Coastal Village the resident will be notified by an email that was sent to them by one of the staff members.

Use Case Diagram

A.2.4 Justification for and nature of changes

      A.2.4.1 Justification for changes

            Will improve the system that is being worked on

            Change was requested by stakeholders

A.2.4.2 Description of desired changes

A.2.4.3 Priorities among changes

A.2.4.4 Changes considered but not included

A.2.4.5 Assumptions and constraints

A.2.5 Concepts for the proposed system

A.2.5.1 Background, objective, and scope

The company Coastal Village has a similar application that is currently being used for their residents. But the current application lacks some of the features that the new application will include. For example, it displays the dashboard with community events that are created by the admins. Also, it will include multiple ways to make payments like with a credit card or bank information. The system should be user friendly. The application should have a refresh rate of 60 Hz.

A.2.5.2 Operational policies and constraints

Constraints

- Time

  o Business Hours: Mon – Fri: 10AM – 7PM, Sat: 10AM - 5PM, Sun: 1PM – 5PM

- Liquid Assets

  o Investment money that is put into Coastal Village must be used for business purpose only including salaries, bill payments, and for maintenance.

- Quality

  o The staff is required to have quality material inside the office to make sure the it's a good representation of the company and its stakeholders.

- Making sure that the quality of apartments vary in quality depending on the price of the room but also not having poor quality in the cheapest rooms that the company provides to the residents.

Policies

- Lease-breaking: The resident must sublease their room to another person or pay the full amount of rent that is due for the remaining time.

- Maintenance: If the resident submits a maintenance request the staff is required to take care of the repairs needed within a week.

- Additional Rules: The company has the right to make changes or add rules to the contract but is required to let the residents know beforehand.

- Care or property: The residents must take care of the property or can be fined.

- Trash: Trash must be disposed of at least weekly by the residents and have set times that the trash can be taken out to be picked up the staff.

- Using the gym and equipment, the resident is required to clean up the equipment that he/she is using while at the gym. The resident must use the equipment for its purpose. Residents must wear shoes and be fully clothed while working out inside the gym.

- Staff is to be friendly and polite to the residents when speaking to them.

- Staff is to arrive on time to their scheduled work day.

A.2.5.3 Description of the proposed system

The system will have two types of logins available for admins and residents. This will help by distinguish what the user can and cannot access. This way when the admin logs in they

will only have access to stuff that administrators need and not what a resident's login would look like.

The system will also have a sign-up option for new users to create an account. This is helpful since most of the end users that this application targets are student that are going into college. Some of the residents might be coming from out of state and cannot make it to the office often to fill out paperwork and could have all the information in the system before they come and sign the lease.

A.2.5.4 Modes of operation

The *Create an account* use case

- Applicants will be able to create accounts if they are applying for a room.

- Administrators accounts may be created by other administrators

The *View information about residences* use case

- Applicants will be able to view information about different residences, in reference to payments, events, etc.

- The information will be supplied by the administrator of that residence from their account.

The *View events* use case

- Residents will be able to view events for different residences supplied by the administrators of those residences.

- Administrators will be able to view the events that were created by other admins.

The *Request maintenance* use case

- Residents will be able to request maintenance for their housing unit through the program.

- Administrators will be able to view these requests and send maintenance out.

The *View payment history* use case

- Residents will be able to view their past payments through the program.

- Administrators will be able to check if a resident has paid their rent.

A.2.5.5 User classes and other involved personnel

A.2.5.5.1 Organizational structure

In the system the user will have two option either to sign in as an admin or resident. Both users will have similar screen but the different is what admins can see or do. Residents will only be able to make payments, view dashboard, or request maintenance.

A.2.5.5.2 Profiles of user classes
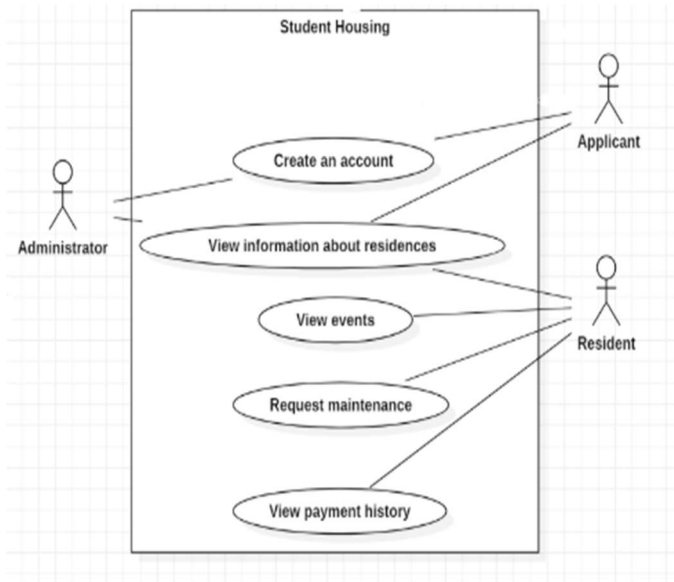
A.2.5.5.3 Interactions among user classes

Admins and applicants will be able to create accounts and view information about residents. On the other hand, the resident will be able to view their payments, request maintenance or view events.

A.2.5.5.4 Other involved personnel

A.2.5.6 Support environment

The staff that are in the front desk will be able to assist the resident with question that he/she might have will creating an account or just questions that they might have. If in any case the staff members are not able to help the resident with their question, the staff should contact the developers of the application to get more information. If the application needs to be updated the developers must inform the client with enough time for them to notify their residents.

A.2.6 Operational scenarios

The users can create an account if they are applying for a lease in Coastal Village. Once the account is created the user can login with his/her credentials. If the credentials are wrong, then the user will not be able to sign on. The user will also be able to submit maintenance request by filling out the certain criteria that is required. Last the user will be able to make payments for his/her rent through a secure site and will have to insert their credit card information. The administrator will have full control of the users that it accepts in having accounts for the Coastal Village application. Another scenario that can occur during the time of the resident's lease is to move out early. In this case the resident will have either two options, sublease his room or payout the remaining amount of the lease in one full payment. If the resident decides to do any of these scenarios, he/she will have to go to the main office because the application will not allow to sublease his room through the application.

If the admin is removing a staff member from the company, they will be able to view the staff that is currently working and remove them manually. Once this happens all the information of the client can be removed or just checked as not working at the company anymore.

A.2.7 Summary of impacts

A.2.7.1 Operational impacts

One impact that changes from the current application is the ability to have multiple was of paying giving the residents more options on how they pay their rent. Some of the residents will like this change.

A.2.7.2 Organizational impacts

The organization will not change at all, it will just make it easier for residents. The current staff will not be affected during the implementation of this application.

A.2.7.3 Impacts during development

A.2.8 Analysis of the proposed system

A.2.8.1 Benefits

- The application will be more user friendly

- Documentation for the application will be provided

- Allows the company to have a main source of information on residents/staff at Coastal Village

A.2.8.2 Disadvantages and limitations

A.2.8.3 Alternatives considered

A.2.9 Appendices

A.2.10 Glossary

9.4 System Requirements Specifications (SyRS)

9.4.1 Introduction

The System Requirements Specification (SyRS) identifies the technical specifications for the selected system-of-interest and usability for the envisaged human-system interaction. It defines the high-level system requirements from the domain perspective, along with background information about the overall objectives for the system, its target environment and a statement of the constraints, assumptions and non-functional requirements.

This document is the System Requirements Specifications (SyRS) for an application for Coastal Village. The documentation was created on 03/29/2019.

9.4.1.0 System purpose

The purpose for designing an application for Coastal Village is to make it easier for the residents to have access to information regarding their new lease. The application will allow residents to access their accounts through their phones or other devices on the go. This will increase visibility to clients at all times, residents will have service and support throughout the day, and it will bring more feedback to the company.

9.4.1.1 System scope

The application will allow for multiple users including administrators, residents, staff, and new users. By having multiple users, it would make it easier to use and record information. For example, administrators will be able to add and remove users making it less of a task for the staff. The application will provide residents with the ability to store bank information and add credit cards in order to make monthly payments. This will give the residents a more reliable way of making their payments and staff would not be required to manually keep track of residents who have payed for the month. Another aspect of the application is that it will allow residents to submit maintenance request online rather than having to go to the office whenever they have something wrong in their apartments.

9.4.1.2 System overview

9.4.1.3 System context
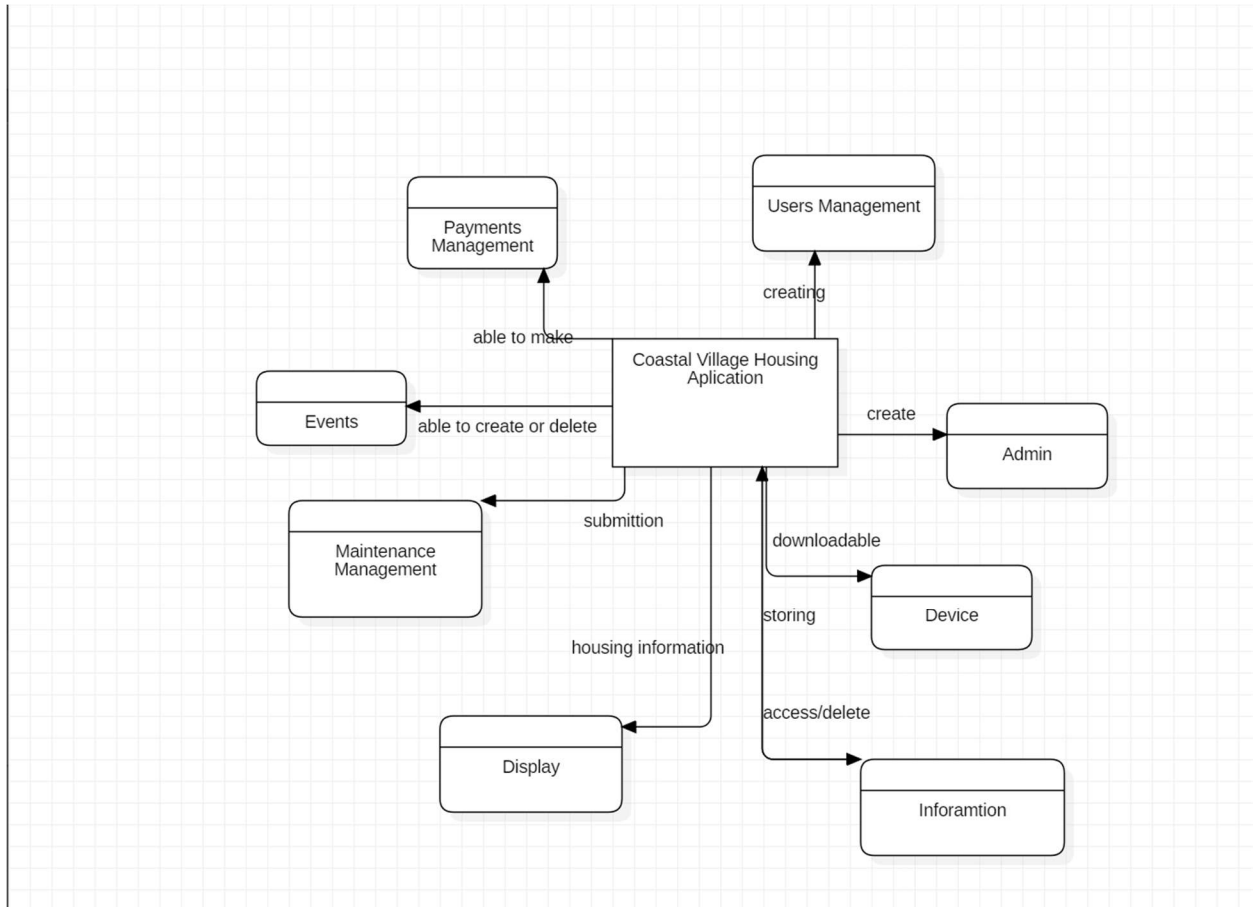
The major element of the application is the software that will need to be downloaded through the app store on a mobile device. To login into the system the user will need to have their password and username that they created. In the system the user will be able to view certain screens depending on what type of user they are logged in as. The information will be store via a server.

9.4.1.4 System functions

The system will be only work on mobile applications. The user must provide valid credentials in-order to login to an account. If the user forgets their credentials there is a way to resent their information rather than being locked out of the system. The system will be down for

maintenance once a month in-order to keep the system up-to-date. While this is taking place, no one will be able to have access to the system.

9.4.1.5 User characteristics
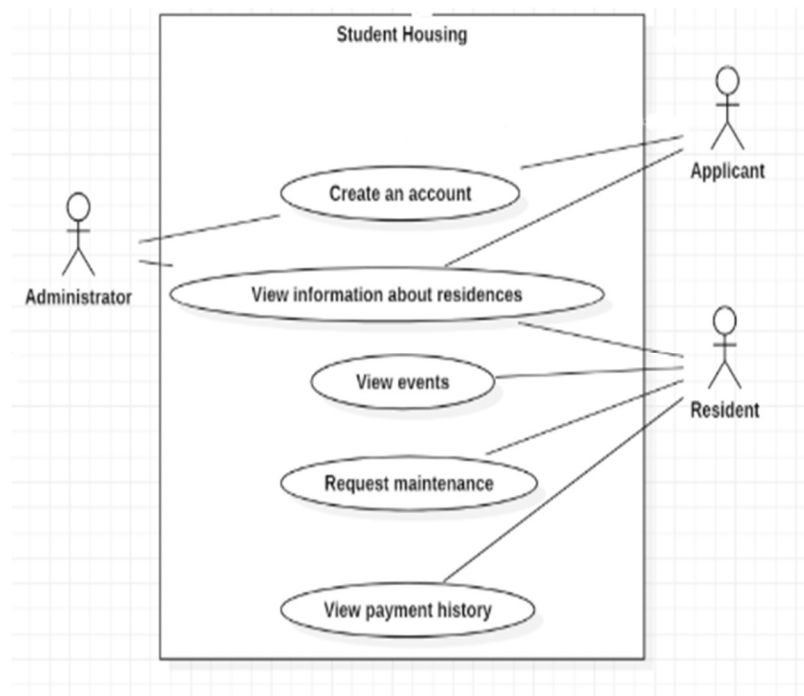
9.4.1.6 Definitions

9.4.1.7 References

- http://enfocussolutions.com/business-requirements-vs-functional-requirements/

- https://www.its.dot.gov/meetings/pdf/CoreSystem_SE_SyRS_RevA%20(2011-06-13).pdf

- http://www.1202performance.com/atricles/how-to-write-performance-requirements-with-example/

- https://simplicable.com/new/usability-requirements

- https://reqexperts.com/wp-content/uploads/2016/04/Wheatcraft-Interfaces-061511.pdf

- ConOps

- https://www.modernanalyst.com/Careers/InterviewQuestions/tabid/128/ID/1168/What-are-the-four-fundamental-methods-of-requirement-verification.aspx

9.4.1.8 System requirements

9.4.1.9 Functional requirements

3.1.0 The Student Housing shall send the residents payment details to the company's bank.

3.1.1 The Student Housing shall offer accounts creation for applicants to access information regarding housing.

3.1.2 The Student Housing shall allow users to change their payment methods.

3.1.3 The Student Housing shall show users their payment history

3.1.4 The Student Housing shall prompt users for login information upon startup.

3.1.5 The Student Housing shall be able to handle resident's transaction in the payment process.

3.1.6 The Student Housing shall store account details within a database.

3.1.7 The Student Housing shall store files regarding the resident's lease.

3.1.8 The Student Housing shall allow administrators to add new admins into the system.

3.1.9 The Student Housing shall ask for users' credentials upon startup.

9.4.1.10 Usability requirements

3.2.0 The user shall be able to understand the low of the application without any help.

3.2.1 The user shall be able to complete a payment 99% of the times without assistance.

3.2.2 The admin shall be able to keep new admins in the system 100% of the times without losing any information on members.

3.2.3 The system shall be used without any technical experience.

9.4.1.11 Performance requirements

3.3.0 The system shall send messages within 30 seconds to recipient.

3.3.1 The system shall startup within 1-2 seconds of opening the application.

3.3.2 The system shall be able to adopt itself to handle more data as time progress.

3.3.3 The system shall be able to handle 1000 users in the system.

9.4.1.12 System interfaces

3.4.0 The Student Housing shall allow creation of multiple users.

3.4.1 The Student Housing shall store bank information on the database server.

3.4.2 The Student Housing shall store user credentials on the database server.

3.4.3 The Student Housing shall be able to be downloaded from the device's app store.

9.4.1.13 System operations

9.4.1.14 System modes and states

Installation:

- Verification that the user is using a mobile device that supports IOS and Android.

- Verification that the device has enough storage to be downloaded

9.4.1.15 Physical characteristics

3.7.0 The application shall include the logo of Coastal Village and the color panel will be similar to the current colors in the logo.

9.4.1.16 Environmental conditions

Does not apply to the product being developed.

9.4.1.17 System security

3.9.0 The information that is being stored in the database server shall have encryptions to protect the user's personal information.

3.9.1 The system shall have strong hosting controls over the system.

3.9.2 The office manager admin shall be the only person to have access to resident's personal information like name, background check information, or income.

3.9.3 There shall be a backup storage set up in case the system is down for a prolonged time frame.

3.9.4 The IT team shall run security checks on the systems daily to ensure that there are no breaches within the system.

9.4.1.18 Information management

In the early stages we will focus on capturing the requirements and developing solutions that meet those requirements. Once that is completed, we will then move on to creating a plan on how the requirements will be met within the time frame that was set. The data must be simple to understand by everyone that is taking part in the product. This is made easier by adopting standard techniques to analyze the data. The data that is being document must be archived and making sure that we have a backup of the information. Information that is no longer required will be destroyed for security purpose.

9.4.1.19 Policies and regulations

- Federal Trade Commission (FTC)

- Act on the Protection of Personal Information

- General Data Protection Regulation (GDPR)

9.4.1.20 System life cycle sustainment

9.4.1.21 Packaging, handling, shipping and transportation

1.   Verification

The table 4.1 lists the system requirements and its verification method.

Inspection:

- Software application: The office manager will visually inspect the application to make sure that all requirements are met. The office manager will test out every feature that the application has to offer before determining whether the application is ready or not.

- Software team: They will inspect the application for bugs or errors that could have been missed by doing a week long testing phase after the application is classified as done.

2.   Demonstration:

- Software application: The software developers will enter all required fields in the application to determine that the application is working.

- Software team: Will test out every feature that they implement while they are working on the application. They will do a final demonstration to the office manager at the end.

3.   Test:

- Software application: The development team will test that the refresh rate of 60 Hz is met. They will also test the security level of the application by sending it to white hat hackers to see if the application is a secure as they thought. The developers will also determine how long it takes to log into the system. The office manager will enter all requirements needed for all the fields to determine if the application saves the information of the user.

- Software team: They will implement a testing phase during the life cycle of the application. All conditions are required to be met before presenting the application if the application does not pass a certain test the team will keep retesting until it passes.

Table 4.1 System requirements Verification

Requirement ID	Verification Method
3.1.0	D
3.1.1	D
3.1.2	D
3.1.3	D
3.1.4	D
3.1.5	D
3.1.6	D
3.1.7	D
3.1.8	D
3.1.9	D
3.2.0	D
3.2.1	D
3.2.2	D

3.2.3	D
3.3.0	D
3.3.1	D
3.3.2	D
3.3.3	D
3.4.0	D
3.4.1	D
3.4.2	D
3.4.3	D
3.7.0	D
3.9.0	D
3.9.1	D
3.9.2	D
3.9.3	D
3.9.4	D

9.4.1.22 Appendices

9.4.1.23 Acronyms or abbreviations

- General Data Protection Regulation (GDPR)

- Federal Trade Commission (FTC)

9.5 System requirements specifications (SRS)

9.5.1 Purpose

The purpose of designing an application to house residents in Coastal Village is to provide a mobile application that is up-to-date with features that are found in other similar applications. The application will be replacing the current application that is being used by the company.

9.5.2 Scope

The product that is being produced is called Student Housing for Coastal Village. The application will allow account creation for both students and administrators to service housing needs. Students can fill out a preference form allowing them to be matched with their best suitable roommate(s) and housing location, on or off-campus. Students will also be able to request maintenance at their residence from a set list of options, view payment history, and access relevant information regarding events and facilities provided by the residence administration. Administrators will be able to provide information about events and view information pertaining to any of their current residences.

Some of the benefits that come along with using our new application are reliability, pricing, frequent maintenance, and high quality. The application will provide the company with a 24-

hour service for either major maintenance or simple maintenance. The development team that the company will be provided with has sever experienced software developers. On the other hand, the pricing will slightly decrease for the previous application. Also, the application will have bi-weekly updates in order to check that the system is running without any bugs or security breaches to the information of the residents.

9.5.3 Product overview

9.5.3.1 Product perspective

The mobile application requires an internet connection to fetch information regarding the user that is signing into the application. It also requires GPS functionality in order to provide the location of the user when making a payment for security purpose. The information is stored in a database server to keep the information safe and secure.

When the user downloads the mobile application, the user will be prompted to enter their username and password. If the user doesn't have those credentials, the user may click on the new user button to create an account. As shown in figure 1. When the user signs into their account the user will be shown the student dashboard where they will be able to click on all the features that the application has. For example, they will be able to request maintenance, submit payments, or view events as shown in figure 2. On the other hand, if the user that signed on in as an administrator, they will be shown a completely different screen when they sign in. On the left side of the screen, they will have options to click on like add admins, view residents' payments, create events or view residents within Coastal Village as shown in figure 3.
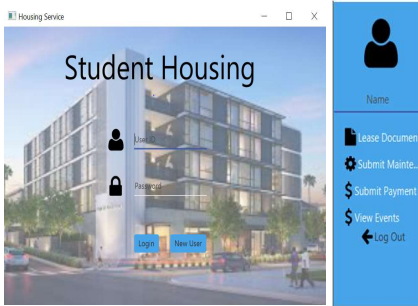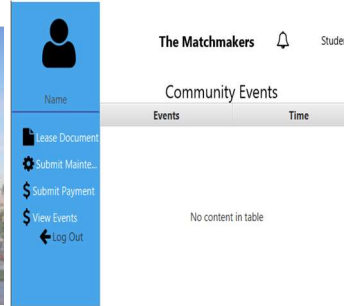
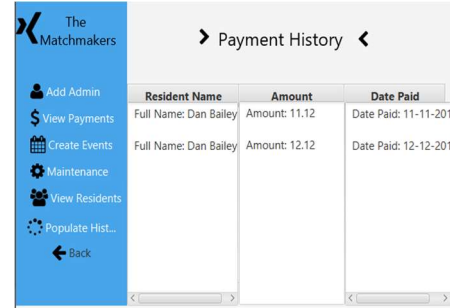Figure 1- Login Screen   Figure 2- Student Dashboard   Figure 3- Admin Dashboard

The application will be supported on IOS and Android for the current state. Once the application is fully setup the company can choose what other devices they want to be supported on. The application will require 53.3 MB of storage in order to be downloaded from the IOS platform. The application is only supported in one language which is English.

9.5.3.2 Product functions

The payment function in the application will gather information either from their banking account or credit card information depending on what the user wants to use. This information is used to deduct a certain amount from their payment option.

The new user function allows for new user to create an account with Coastal Village so that they can have the option to lease a room with Coastal Village. It plays an important function in the system because if the user doesn't have an account, they will not be able to use the application or have any involvement with the company.

For having two different screens when the user logins in it allows for multiple users to use the application whether they are residents or admins. While in admin is logged in, they can make drastic changes within the company.

9.5.3.3 User characteristics

The users that will be using the application are required to be 18 years or older to use the application because it requires users to make payments through the system. Also, the user will need to be able to understand the English language in order to go through the application without any problems. The user will need minimal technical experience.

9.5.3.4 Limitations

- Only supported on mobile devices

- Only supported on IOS and Android devices

- 53.3 size of storage required

9.5.4 Definitions

MB: megabytes- a unit of information equal to one million bytes.
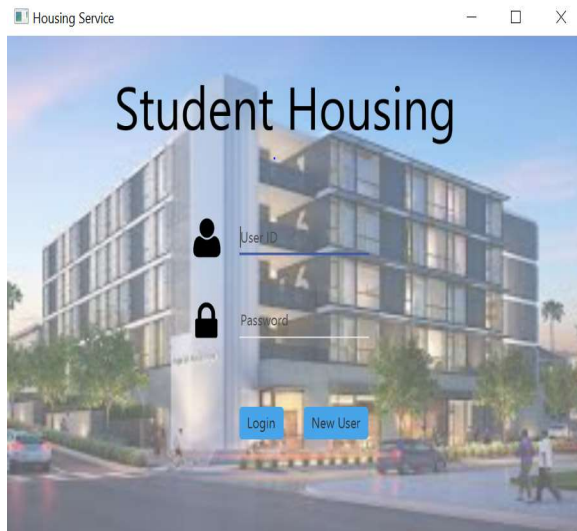
IOS: stands for Iphone Operating System

9.5.5 References

- https://sites.google.com/view/prof-v/lms/cen-3073/requirements-specification-and-documentation/information-items/srs

- SyRS

- https://blog.storagecraft.com/5-common-encryption-algorithms/

9.5.6 Specific requirements

9.5.6.1 External interfaces

- 3.1.0 Main menu

Item	Create new account
Purpose	Allows the user to be redirected to the sign up screen
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.0.1

Item	Login
Purpose	Allows the user to be redirected to the login screen

Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.0.2

- 3.1.1 Resident Dashboard
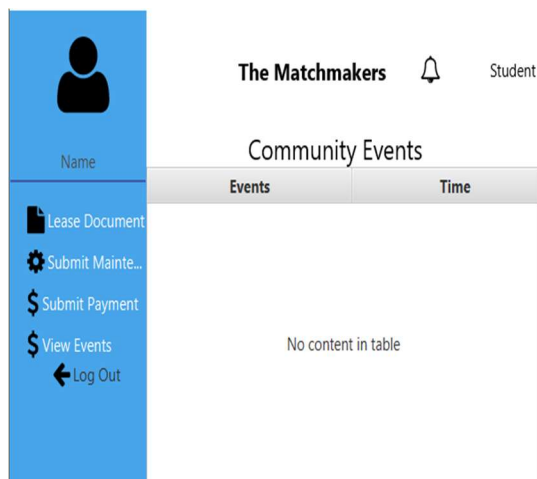
Item	Lease Document
Purpose	Allows the user to view their lease contract
Input	click
Valid range	Click on the button
Unit of measure	none

Relationship	none

3.1.1.1

Item	Submit maintenance
Purpose	Allows the user to request maintenance for their apartment
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.1.2

Item	Submit payment
Purpose	Allows the user to make a payment for their apartment
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.1.3

Item	View Events
Purpose	Allows the user to view events in Coastal Village
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.1.4

Item	log out
Purpose	Allows the user to log out of their account
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.1.5

- 3.1.2 Admin Dashboard
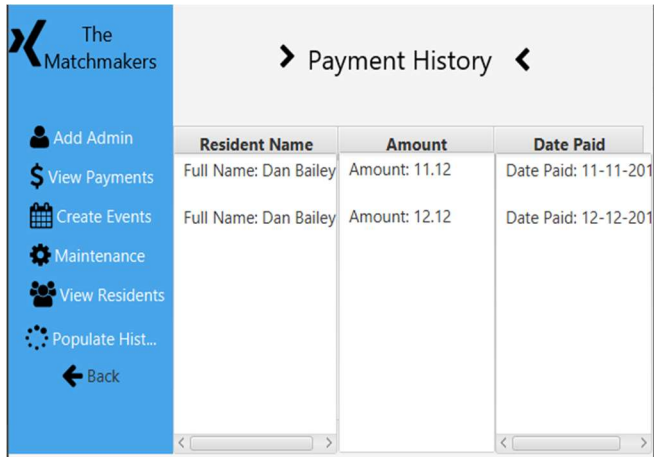
Item	Add admin
Purpose	Allows the admin to create a new admin
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.2.1

Item	View payments
Purpose	Allows the admin user to view what residents have paid their rent

Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.2.2

Item	Create event
Purpose	Allows the user to create an event for Coastal Village and will be sent to all residents
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.2.3

Item	Maintenance

Purpose	Allows the user to view all maintenance request that are submitted by residents
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.2.4

Item	View Residents
Purpose	Allows the user to view all the residents in Coastal Village
Input	click
Valid range	Click on the button
Unit of measure	none
Relationship	none

3.1.2.5

9.5.6.2 Functions

- 3.2.0 The system should allow users to login

Description	The system shall allow users to login to their created accounts.
Steps	First the User must type in User ID & password in the corresponding fields. Then the user must click the login button.
Validity check	User must login with the correct User ID & password that the user created.
Error handling	If User ID & password are incorrect, the application will display "Invalid credentials".

- 3.2.1 The system shall allow users to logout.

Description	The system shall allow users to logout to their accounts.
Steps	First the User must click on the sign out button. Then the user is logged out
Validity check	User signed in with a valid account

- 3.2.2 The system shall allow administrator to add staff accounts

Description	The system shall allow administrators to add staff accounts to the system.
Steps	First the admin must click on "add admin" account on the admin dashboard. Then they must input valid information for

	that account and click "done" once they are ready to create account.
Validity check	Checks if the user is an admin account
Error handling	If User ID & password are valid, the account will be created.

- 3.2.2 The system shall allow administrator to delete staff accounts

Description	The system shall allow administrators to delete staff accounts to the system.
Steps	First the admin must choose the account that is going to be deleted.
Validity check	Checks if the user being deleted exists.
Error handling	None

- 3.2.3 The system shall allow residents to make payments.

Description	The system shall allow residents to pay their rents from their accounts
Steps	First the resident user must click on "submit payment" and type in all required fields. Then the user will click on "submit payment".
Validity check	Checks if the user has an existing bank account or credit card account saved on file.

Error handling	Makes sure that all required fields are valid.

9.5.6.3 Usability requirements

- 3.3.0 The user shall be able to understand the low of the application without any help.

- 3.3.1 The user shall be able to complete a payment 99% of the times without assistance.

- 3.3.2 The admin shall be able to keep new admins in the system 100% of the times without losing any information on members.

- 3.3.3 The system shall be used without any technical experience.

9.5.6.4 Performance requirements

- 3.4.0 The system shall run on both IOS and Android devices with at least 53.5 MB of storage.

- 3.4.1 The system shall send messages within 30 seconds to recipient

- 3.4.2 The system shall startup within 1-2 seconds of being opened.

- 3.4.3 The system shall withstand at least 1000 users in the system.

- 3.4.4 Each account shall be stored and activated within 6 seconds after being created and no more than 8 seconds.

- 3.4.5 Each payment shall be processed within 5 seconds at the send of each session 97% of the time.

9.5.6.5 Logical database requirements

- 3.5.0 The system must store all the user's account information as well as background records. All the data shall be stored in a private database.

- 3.5.1 For each user account, the login ID, name, password, age, email address shall be stored in one file on the database.

- 3.5.2 All entries shall be sorted alphabetically by the users first name.

- 3.5.3 There shall be a file with the resident's payment history stored within the database.

- 3.5.4 The system shall only allow the user who has access to a certain account access to that account.

9.5.6.6 Design constraints

- 3.6.0 The application will be designed for mobile use

- 3.6.1 The application will only be able to be downloaded on Android or IOS devices

- 3.6.2 The application shall have a similar interface as the current application

- 3.6.3 The application shall use color associated with Coastal Village and have the company's logo on the app's icon.

9.5.6.7 Software system attributes

- 3.7.0 Reliability- The application shall work 99% of the times the user uses the application either using it to make payments or just opening the application. The application shall be updated every 2 weeks to make sure there are no errors or bugs within the system. The system shall not crash on invalid data or input data.

- 3.7.1 Availability- The software team shall have meeting every 2 weeks to make sure that they meet the checkpoints that were set during the implementation phase. The system shall be recovery to its entire if the system goes down.

- 3.7.2 Security- The software team shall implement all regulations that are set in the united states in order to meet security levels. The system shall have a 2 -step authentication

method when editing admin settings. The systems private information shall be encrypted using Advanced Encryption Standard. The log history is going to be stored in a database to keep tabs on who modifies the application or to keep track of the payments the residents make. Within the system there will be two different types of accounts that one could enter, they are administration users or resident users. The software team will keep a security team making sure that the application has not been breached.

- 3.7.3 Maintainability- The admin user shall be able to update the system with new events created by the admin. The admin shall be able to add new admins to the company's employee staff.

- 3.7.4 Portability- The application shall be able to run on Android and IOS devices. The software shall be written in a programming language for portability. The system shall require that the user has the most UpToDate requirements for the mobile device.

9.5.6.8 Supporting information

The Student housing for Coastal Village will be an application that is going to be used as a mobile application for residents and staff at Coastal Village. It will have features like adding admins/residents, making payments, viewing events, etc. making it easier for the residents to live at Coastal Village. The application will only run on Android or IOS phones for the time being.

9.5.6.9 Verification

Inspection:

- Software application: The office manager will visually inspect the application to make sure that all requirements are met. The office manager will test out every feature that the application has to offer before determining whether the application is ready or not.

- Software team: They will inspect the application for bugs or errors that could have been missed by doing a week long testing phase after the application is classified as done.

Demonstration:

- Software application: The software developers will enter all required fields in the application to determine that the application is working.

- Software team: Will test out every feature that they implement while they are working on the application. They will do a final demonstration to the office manager at the end.

Test:

- Software application: The development team will test that the refresh rate of 60 Hz is met. They will also test the security level of the application by sending it to white hat hackers to see if the application is a secure as they thought. The developers will also determine how long it takes to log into the system. The office manager will enter all requirements needed for all the fields to determine if the application saves the information of the user.

- Software team: They will implement a testing phase during the life cycle of the application. All conditions are required to be met before presenting the application if the application does not pass a certain test the team will keep retesting until it passes.

Table 4.1 System requirements Verification

Requirement ID	Verification Method
3.1.0	D

3.1.0.1	D
3.1.0.2	D
3.1.1	D
3.1.1.1	D
3.1.1.2	D
3.1.1.3	D
3.1.1.5	D
3.1.2	D
3.1.2.1	D
3.1.2.2	D
3.1.2.3	D
3.1.2.4	D
3.1.2.5	D
3.2.0	D
3.2.1	D
3.2.2	D
3.2.3	D

3.3.0	D
3.3.1	D
3.3.2	D
3.3.3	D
3.4.0	D
3.4.1	D
3.4.2	D
3.4.3	D
3.4.4	D
3.4.5	D
3.5.0	D
3.5.1	D
3.5.2	D
3.5.3	D
3.5.4	D
3.6.0	D
3.6.1	D

3.6.2	D
3.6.3	D
3.7.0	D
3.7.1	D
3.7.2	D
3.7.3	D
3.7.4	D

9.5.6.10 Appendices

9.5.6.11 Assumptions and dependencies

9.5.6.12 Acronyms and abbreviations

9.6 Concept of Operations (ConOps)

9.6.1 Concept of operation document

Project name: Student Housing

Members: Daniel Montoya

Created for: Coastal Village

Date: 4/7/19

9.6.2 Purpose

The purpose of this document is to provide Coastal Village with an improved mobile application that will replace the current application that they have in place. The current application lacks access for multiple users and more features need to be added. The application will provide the company with a more effective layout design, implement more features, and provide a more compact system that can be used by anyone at Coastal Village including administrators, residents, and staff.

9.6.3 Scope

The organizations business domain would be leasing apartments/rooms to students that live within the area. The users that would be a target are students that live close to Florida Gulf Coast University due to the fact that its within 5 minutes of the university.

9.6.4 Strategic plan

To begin with, the company and the stakeholders would have a meeting discussing what type of requirements they want the application to have. This would allow the members to come up with requirements that are a must in the application. For there, research would need to be done to determine what their competition is using in order to appeal to the end users. Once the detailed requirements have been approved by all the stakeholder the development team would start laying out a plan to follow. Following this plan would allow the development of the application to stay within the limited time frame. Within developing the application, the development team would have meetings with Coastal Village every 2 weeks in order to make sure that the application is meeting the requirements that they agreed on.

9.6.5 Effectiveness

Some of the effects that would come along while using this plan is that it makes sure that the proposed project can be delivered on time with the set requirements. By having meetings, it makes sure that the requirements are following the requirements that were agreed on and therefore would not set setback in the plan. The development would be able to measure and track the progress on the application each time that they meet and see how they are coming along with the application.

9.6.6 Overall operation

9.6.6.1 Context

In the system that is being created the application will allow for multiple users to use the system which is not currently being offered by the current application used by Coastal village. For example, the system will allow for users to save bank information or credit card information to be used when paying their monthly rent or bills. Administrators will have the ability to create new users either being residents or staff. The application is going to be based on a mobile device meaning that it should be downloadable on most cellphones. For example, the current application that is being used is only available to users through a website. The design of the layout is more user friendly by having a single main page with tabs that lead to other screens.
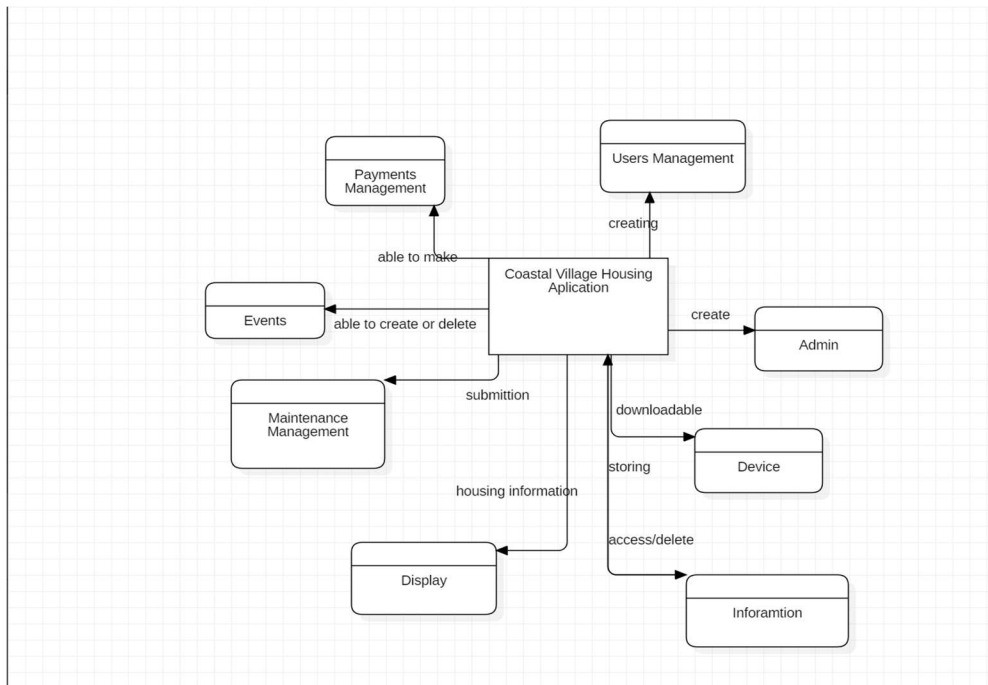
9.6.6.2 Systems

9.6.6.3 Organizational unit
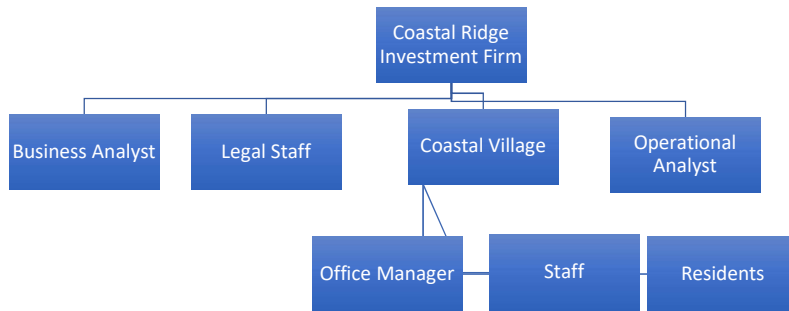
9.6.7 Governance

9.6.7.1 Governance policies

The office manager is responsible for working with the main software developer to determine if the ConOps is meeting the requirements that was agreed on by Coastal Ridge Investment Firm. If there are any new requirements that Coastal Ridge Investment Firm wants to add to the application the office manager is required to get all the information needed and pass it on to the development team. If the development team want to make changes, they must first talk with the stakeholders to determine if they are going to be approved.

9.6.7.2 Organization

Any changes that are made to the application are determined by Coastal Ridge Investment Firm; they are the top level in the organization. Business analyst, legal staff, and operational analyst

will focus on whether the requirements are appropriate for the company. Coastal Village will determine the design of the application since they are the ones that are going to be using the application first hand. Staff and residents will provide feedback on the application to determine if there are bugs or errors within the application.

9.6.7.3 Investment plan

Investment plan for creating the application for Coastal Village will be determined by functionalities of the application and the more complex the function the more it will cost. Some factors that can influence the investment would be the platform, design, and experience of the developers.

9.6.7.4 Information asset management

- Intellectual property
o Making sure that the software that was created for Coastal Village has legal protection/copyrights.

- Trade Secrets
o The process that was used to come up with the design and function of the software.

- Project
o Information about the requirements, plan, and design.

- Customers
o Personal data about our residents/users are to be kept within the company and not distributed to another source.

9.6.7.5 Security

A security measure that would be taken while using the application would be to keep the information of the users safe. In order to make this happen the development team will do monthly check ups on the system itself to determine if there has been a breach in the system.

9.6.7.6 Business continuity plan

Having the continuity of the application within Coastal Village the development team must meet every requirement that was set by the company. Maintenance on the system must be done monthly in order to make sure that the system if working at its optimal stage. By having these requirements, it gives the application the ability to be used throughout the company.

9.6.7.7 Compliance

- Payment Card Industry Data Security Standard (PCIDSS)
- Federal Information Security Management Act (FISMA)