Software Requirements Specification

1. Introduction

1.1 Purpose:

The purpose of the software system is to provide the end-users with an equipment loan system that increases the efficiency and effectiveness of the business. The software system will tackle the current business issue that data logs are incomplete and equipment is lost or stolen with no clear trail of what might go wrong. The product will allow these issues to be solved and will allow the business to meet their vision statement. Furthermore, the product will create an increase of efficiency by making end-users work faster and fill out logs completely, thus directly effecting the effectiveness of the business to be more consistent with the loaning of equipment for its residents.

1.2 Scope:

The system, Equipment Loan Management, will utilize student card IDs to store information on who, when, and where the equipment was loaned out. A second swipe of the same card will store a return time and complete the log. The product will span the multiple residential buildings throughout the FGCU campus and primarily the South Village, North Lake Village, and West Lake Village residential halls. The product will be similar to the already existing software system's that end-users already use every day, allowing the system to be beneficial in terms of familiarity and usefulness. The main goal for this product is to allow seamless transition from the loan equipment screen and the regular package main screen with the current software. It is also imperative that the system be able to be manually updated like the package system it is connected to.

1.3 Product Overview:

1.3.1 Product Perspective:

The system will run parallel to the current software systems in use by FGCU Housing. It will be a feature of the current package sorting system installed at the business, allowing for direct access to the student database. The package sorting already adheres to business rules, like the ability to manually override information, and thus will naturally be able to hold the equipment loan system. The software system can be reached through the main screen interface of the package sorting system.

SYSTEM AND USER INTERFACES:

The system interface will contain fields that will be filled out by swiping the student ID card. It will also be follow the same protocol of the package sorting system, and thus cannot change the student information in the database system only access information and update the corresponding table. The user interface will be reminiscent of the package sorting system to allow for familiarity, and can allow for access to and from the package sorting system. The user interface will also show that a equipment has been successfully loaned out on the screen that will also be used to register the return of the equipment.

HARDWARE AND SOFTWARE INTERFACES AND COMMUNICATION INTERFACES:

The system will not need any extra hardware accessories. The system shall function on the current computer systems installed at the residential halls and will utilize the card scanner system provided already for the package sorting system. As for the software, it will use the already existing database of student information in use by the business, and will need to be able to update a new table with the information that the business will like to keep track of. The software system will be an extension of the current system, allowing it to be much easier to update the system as a whole. The system can access the database remotely like the package sorting system, and can communicate records of the loaned equipment through the help of the IT department of OHRL.

MEMORY AND OPERATIONS:

The new software system will require more memory space on the computers as it will increase the size of the database and will increase the size of the original software product. The actions performed by the system will mirror the existing actions performed by the package sorting system. The system will create and update records created by the end-users when equipment is loaned to a student, as well as be able to print out the contents of the corresponding database table to show that the log information is being properly recorded and maintained.

In terms of constraints, the system cannot override the functions of the package sorting system, nor update or interact with that portion of the database. The database must also be secure as to adhere to FERPA laws, meaning, that the addition of the new table and software system cannot change the current and effective security of the system. The system shall be available at all times during regular work hours, and unavailable in times of maintenance or extreme disasters. The system will also be restricted by the pre-existing technology currently in use by the business.

1.3.2 Product Functions:

DATABASE FUNCTIONALITY:

The system shall contain functions to access and modify the database it is connected to. The system will also be able to print out information from

its corresponding table in the database. When equipment is to be loaned out by a student, the system shall record that instance, then, the system will show the newly started log with any unfulfilled records that need to be filled out. The unfulfilled logs are filled out by clicking on them and then swiping the student ID cards when the student has returned the equipment. This completes a record and is now deemed closed and the record is updated to ensure that the process is complete. When printing out the contents of the database table, all records will be printed out in ascending chronological order as to fit the business customs that stakeholders adhere to.

SYSTEM COMPATIBILITY:

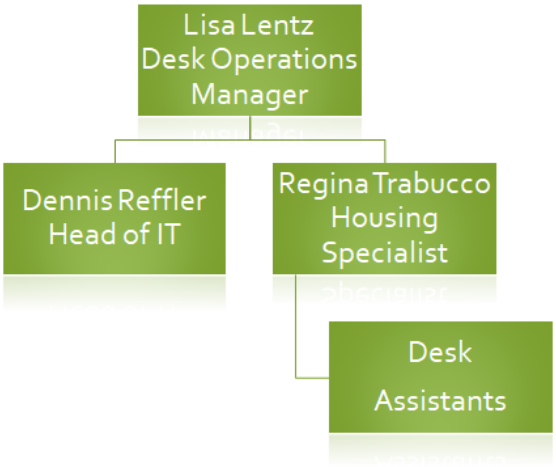
The system will allow the end-user to jump back and forth between the package sorting system and the equipment management system through the user interface. This can be achieved by allowing the equipment management system be connected to the package sorting system. The system will be able to email residents about information on how long the rented item can be used, a feature already implemented in the package sorting system.

1.3.3 User Characteristics:

The intended group of users for the software system in question are the Desk Assistants while having High-Level Management be secondary users. The general characteristics of the group is that they are all above a high school education, and are made of students that attend the college. There is fluctuation with the level of experience between the desk assistants, however, all were trained to meet the standards of the business. As an equal opportunity employer, there are some Desk Assistants with physical disabilities that must keep up with the other desk assistants. The new system is made with these constraints in mind to increase the productivity, ease of use, and efficiency of the work environment.

The stakeholders for this project will include Lisa Lentz and other high-level management similar to her position. The influence the stakeholder has over the product is significant, as she was the one to ask for the product in the first place. The stakeholder wants the product to be able to solve the logging issue that desk assistants face, and thus allowing for better productivity and traceability of what happens at the front desks. Lisa utilize the printed reports for things like budgets and keeping track of equipment and any liability that may ensue. Therefore, the product will have to meet high standards of reliability as to ensure these business processes go smoothly. Regina and Dennis (see org char below) are secondary users that will utilize the system at times, when either training, or checking the system to print out specialized reports to give to Lisa. As a stakeholder, Lisa will overlook the product life-cycle and will constantly remind the developers to keep the product reliable and actions traceable.

Basic Org. Chart for SoVi Operations:



1.3.4 Limitations:

1. **Regulatory requirements/policies:**
   a. The system must not undergo maintenance from 7:00 am to 10:00 pm during weekdays.
   b. The system must be tested every month to ensure accuracy and follow IT guidelines.
2. **Hardware limitations (ex. signal timing requirements):**
   a. The system must run on the current hardware systems in place.
   b. The system must respond to requests within 5 seconds of a button being clicked.
3. **Interfaces to other applications:**
   a. The system must be able to connect the end-user to the Package Sorting System.
   b. The interfaces must be connected to each other to allow for ease of access of one system or the other.
4. **Parallel operation:**
   a. The system shall be able to run parallel with other systems, including database functions.

    b. The system will operate parallel to other uses of the same system or parallel with the Package Sorting System.
5. **Higher-order language requirements:**
    a. The software program must be written in Java.
    b. The program is suspected to utilize database functions and processes when accessing the database.
6. **Quality requirements:**
    a. The system shall be reliable like the Package Sorting System.
7. **Critical nature of the application:**
    a. The system is to make the information log process easier to fulfill.
    b. The product must be intuitive and easy to follow to allow for familiarity with the product.
8. **Safety and security considerations:**
    a. The product must be safe and follow federal laws that the business must adhere to.
    b. The system shall be secure as to protect the student data in the database.
9. **Physical/mental considerations:**
    a. The system must allow the end-user to easily follow up on how long an item can be loaned out for.
    b. The system must not cause the end-user to have to do more physical movement than the current logging system.
10. **Limitations that are sourced from other systems:**
    a. The system cannot use F9 and F11 keys to stimulate any kinda of response, and not interfere with the current system that utilizes those two keys.
    b. The system shall be executable from FileMaker WebDirect programs.

1.4 Definitions:

There are many words used throughout OHRL. The consistent theme I would say is “meeting the needs of the students;” “care,” “concern,” “accountability,” “constructive feedback,” ”positive feedback,” “understanding,” “communication,” “consistency” and “confidence.” As a housing specialist, I would say “expectations,” “showing support,” “guidance,” “respectful,” “building relationships,” “being there for my staff,” ”feeling safe and comfortable in work environment,” and “learning from each other.”
These are the common phrases in our department at FGCU Housing, but for software related lingo, there is none that is used by my sponsor. The business is heavily focused on customer service to the residents.

2. References

The information environment of Housing is based on a central database system that contains the information of residents and is how Housing does all that it does. With the DB, FGCU Housing can add or delete students and with other programs connected to the DB, can add, delete, and confirm packages for students. FGCU Housing focuses on funding from the government and private entities that invest into FGCU and its students. Housing is more of a contained system than an operating business, yet, it functions as a medium between residents and the college. The vast opportunities given by the people who work for Housing allow residents to feel like they are a part of a community, and this feeling, is the end goal for Housing. Housing needs the support of the school leaders to continue to operate. The business environment at FGCU absolutely upholds federal and state laws. There is consistent implementation of policies, rules and regulations that we as members (student body, faculty and staff) of FGCU must uphold. There are several different departments and units within these departments which provide yet the expectation of these laws always remain the same. The consistent mission of the university is one that supports diversity and inclusion, civility and responsibility for and toward our members. As it applies to software that is used for example “Banner,” we as employees of the university MUST adhere to FERPA laws, there is no negotiating this. FERPA as you know is a protective law and we as employees must take these laws very seriously as they are in place to protect you, the student and employees. When using this software, we have access to a student’s complete profile which consists of personal and sensitive information such as financial aid, academic and conduct statuses. A violation of these laws are taking very seriously and there are hefty legal consequences.

3. Specific Requirements

1. The system shall create a record of a loan when a student checks out an item.
2. The system shall keep track of multiple records and create a log.
3. The system shall close a record once a student returns an item.
4. The system shall record who loaned the item.
5. The system shall record which employee gave the item.
6. The system shall record when the item was loaned.
7. The system shall record when the item was returned.
8. The system shall record who received the item.
9. The system shall be able to send an email reminder to students who have yet returned their loaned items.
10. The system shall allow administrators to print out contents of the log.

Extra Requirements, not necessarily complete:

- System must be written in a language that will have future support, so NOT Fortran, etc.
- System must adhere to FERPA laws, thus have a high level of security and follow federal security guidelines
- The stakeholder needs the system to only be accessible at the workplace.
- The stakeholder requires a printing function to print the record logs of the database to audit at the end of the year.
- The stakeholder mandates a system that will secure client data and use only what is necessary to complete a loan transaction.
- The stakeholders want the system to be finished before the next school year, Fall 2021.
- System must be online during hours of operation.
- System maintenance shall occur during non-operating hours so that system efficiency is not effected during operational hours.
- The system shall have a manual state when it cannot connect to the database properly.
- The system shall utilize a database so that it can keep track of all the information.
- The system shall be part of an existing product so that the programs can interface between the two.
- The system shall cost no more than the specified amount of two million dollars.

A use case diagram is in general a visual representation of what functions the system will do along with the associated actors that are needed to follow through a use case. Its key components include the main system, in this case the Equipment Loan System, as well as actors that will be in play and any connections between them and their use cases, including any use cases that extend other use cases. These aspects are beneficial to a software developer because it allows a simple, easy-to-follow guideline of what the system is expected to accomplish. A use case diagram is extremely helpful once many requirement's have been elicited as it can be used to put into perspective what functions are connected to which actors. Use Cases are then able to be fully detailed separately from the diagram and go more in depth of what is needed, expected, and desired.

I utilized the observation I did on the Desk Assistant's as well as some personal work experience to come up with the proper use cases and diagram. I realized at work the machinations of the current system, and how it involved the resident and DA for a majority of the work. The Use Cases between the DA and Resident actors was the easiest to fulfill as they are the core of what the software system will be. The Manager Use Cases are harder as they require more back-end information as well as more access than a DA.

4. Verification

C3-35	The system shall allow administrators to print out contents of the log.	Test
C3-34	The system shall be able to send an email reminder to students who have yet returned their loaned items.	Inspection
C3-33	The system shall record who received the item.	Demonstration
C3-32	The system shall record when the item was returned.	Demonstration
C3-31	The system shall record when the item was loaned.	Demonstration
C3-30	The system shall record which employee gave the item.	Demonstration
C3-29	The system shall record who loaned the item.	Test
C3-28	The system shall close a record once a student returns an item.	Demonstration
C3-27	The system shall keep track of multiple records and create a log.	Demonstration
C3-26	The system shall create a record of a loan when a student checks out an item.	Test

5. Appendices

5.1 Assumptions & Dependencies:

The system will not be able to interact with the package system, and will not connect packages for a student with what equipment they are loaning out. This connection will be determined if it is necessary by stakeholders.

5.2 Acronyms & Abbreviations:

FGCU: Florida Gulf Coast University
NLV: North Lake Village
WLV: West Lake Village
OHRL: Office of Housing and Residence Life
FERPA: Family Educational Rights and Privacy Act