CSC 375 Introduction to Systems Analysis
Group 13: Project Final Report

Instructor: Simon Minshall

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1. Introduction

a. Client name and Organization Type

For our project we worked with the Uvic food bank and free store (FBFS). FBFS is a non-profit run by UVIC student volunteers in the basement of the UVIC student union building (SUB). This non-profit provides free food and household items to low-income UVIC students.

b. Client System Problems

FBFS records its usage by students; they need this information to argue for funding and properly support UVIC students. The current system the FBFS uses to record usage is a paper signing sheet within the Food Bank. Student Volunteers supervise the Food Bank and have students fill in the sheet. Students must fill in the signing sheet every time they take something. Since students must fill out the form by hand, the signing sheet is generally illegible. Additionally, students do not fill out the signing sheet completely which leaves incomplete data. Once a signing sheet is filled, it is stored within the FBFS until it is transcribed digitally to a Excel file manually, but this makes it very easy to lose. Overall, this is a very time-consuming and tedious task. Once on an Excel file, the coordinator can analyze the data through charts and statistic methods to create reports about the FBFS.

2. Team Background

a. Team Bio

Lu Lu & Wallace Lu Lu and Wallace are interviewers who will gather information from the client. Lu Lu is a 4th year Computer Science student, she is mainly focus on Network. She has done many projects on Network. In this project, she is mainly do the documentation stuff and edit the report. Wallace is a 4th year economic student, and he also learn a computer science minor. He has learned some skill of the economic analysis and he want to use those skills on the system design. In this project, his main work is interviewing the FBFS admin and brainstorm the several idea based on his knowledge.	n
Ryan Kletke As a 4th year Health Information student, Ryan is experienced in business and project management. He has completed 2 work coops of 3 as part of his undergraduate degree. His first coop was with the South Island Division of Family practice and assisted in the procurement of a Customer Relationship Management system. His second coop was as a Pharmacy Business Analyst for the Royal Jubilee Hospital. A few of the most noteworthy accomplishments of Ryan's time as an analyst was when he attached drug prices to the Hospital's automated dispensing cabinets and produced an estimate for the cost of procuring new hospital beds within a 4 day deadline. Academically, Ryan typically takes the leadership roles in group assignments and projects he is involved in. His studies focus on business, programming, and clinical knowledge to prepare him for a career in healthcare administration.	Team lead & Website Manager/Developer
Naiqin Gao (Gene) Gene is the third year Computer Science student. He has the background about programming codes(Java & SQL) used in the proposed system. He helps with the improvements of the system. Gene is the diagram expert who will create use case scenarios to help design and test the team's solution.	Diagram Expert
Andrew Andrew is a 4th year undergraduate Computer Science student with experience in top-down program design and various popular	Diagram Expert

programming languages. One of Andrew's most noteworthy accomplishments as a diagram expert for this project was his draft of the Dataflow Diagram. As a group member, Andrew helps to keep organized by taking notes and listening carefully to all other members of the group. His studies focus on programming and computer theory.	
Henry Henry Oluka is the domain expert and client representative for our project. He is a Health Information Science and Computer Science combined major student. He assisted in the drafting of an RFP, and Design analysis of the proposed software solution as well as the organisation and project planning. He contributed immensely to the meticulous documentation of the components of our proposed system. He likes to devise solutions or be part of a solution to a pending problem.	Client/Domain expert

b. Plan After Graduation

Lu Lu	Lu Lu is planned to continue her adventure in Computer Science when she graduated from the Uvic. In her future career, she is determined to work in the field of Networks.
Henry	Henry plans to further his studies in Health Data Science and Project Management when he graduates from Uvic. In his future he sees himself managing projects and conducting evaluation and analysis on Big Data sets.
Gene	Gene plans to focus on the programming in the future career. He is determined to work in the field with SQL.
Xun Wu (Wallace)	Wallace plans to graduate after this term. After that, he wants to work in Canada for two or more years for accumulating work experience.
Andrew	Andrew expects to graduate in the Spring of 2019, after which he will apply to quality assurance and coding jobs across Canada to learn more about how computer science is applied in the workforce.

3. Abstract

The Uvic Food Bank and Free Store (FBFS) has issues with accessing, storing and analyzing their data management system. For the current system, when the currently used data entry sheets are filled up, they are shelved and stored away by the volunteer/admin. The information collected is later on used to create reports on the status of the FBFS and then made available to the public. In addition, the current system has no way of enforcing the usage regulations of the FBFS. Our team comes up with several alternative solutions.:

1. Advanced Paper-entry System
2. Facial Recognition system
3. Off-the-Shelf Product
4. Touchscreen Device
5. Add-an-Administer Device
6. Setting Recommend Combo Selection and History Combo Selection

Due to the preliminary analysis for the alternatives solutions, systems limit and risks and functional requirements, our team design the new system to provide the client with the functionality and features they require as outlined in the client's RFP. The recommended solution is the database system. The proposed system is database built from Java Oracle, a database creation package currently available to HINF students. Clients directly enter their information to a digital form which is stored in the database. This data can be analyzed by Oracle to provide FBFS with usage metrics, inventory management, and client demographics.

The reason why we choose database system is:

1. It is a easy-use system for all skilled users. It does not need much training for volunteer in FBFS.
2. Database system is more easily read and saves more time for users.
3. It is easy for the admin to manage users on the system.
4. The system uses SQL codes to analyze the client data. SQL codes can help users to extract and analyze the data easier.

4. Current System Description

1. Environmental Model

The FBFS is a non-profit organisation located in a single room in the basement of the Student Union Building (SUB) of the University of Victoria. It is run by a team of dedicated UVIC staff and volunteers and offers marginalized UVIC students access to food essentials and free household items. The FBFS is divided into 2 halves where one half provides Food items and the other half provides household items such as clothing, books, electronics, audiovisuals, toiletries, and other such items. Student volunteers take shifts from 9:30am-5:00pm on weekdays to supervise the room and provide items to students. A coordinator runs the FBFS and collaborates with local charities to maintain the FBFS's stock.

The FBFS describes itself as "a community space that supports students by supplementing basic food and other supplies, and works to eliminate the stigma surrounding accessing food banks" and "advocate for and represent our members' voices by providing them with services, events, and safer inclusive community spaces" (Reference: https://uvss.ca/food-bank/). The FBFS promotes charitable acts, workshops, and awareness of society's inequities (Reference: https://www.facebook.com/uvssfoodbankandfreestore/). Overall, The UVIC Food Bank and Free Store (FBFS) is a student-led community effort to ensure that post-secondary education is accessible to as many people as possible by working to eliminate systemic barriers.

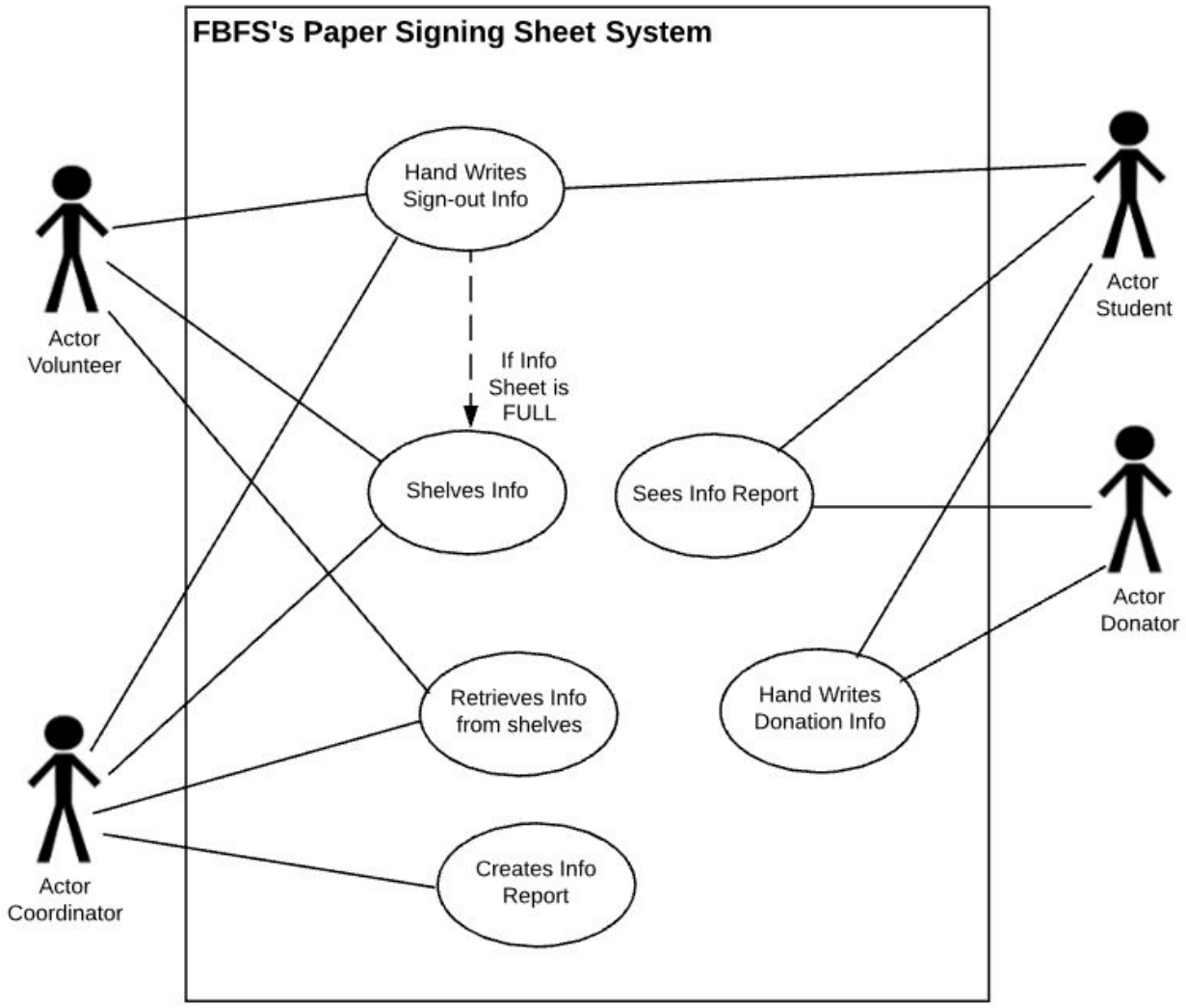
2. Behavioral Model

The FBFS uses a paper signing sheet to record items taken from the FBFS. When a student goes to take an item from the FBFS, they must fill in the sheet, located on a table within the room, before they leave. A volunteer is always supervising the FBFS and will ask students to fill in the form and make sure they take the appropriate number of items. To ensure availability to all students, students may only take a certain amount of items per week since the FBFS may serve between 400-600 people each week (Reference: https://uvss.ca/wp-content/uploads/2018/05/UVSS-Food-Bank-Annual-Report-2018.pdf). When the currently used paper signing sheets are filled up, they are shelved and stored away by the volunteer or admin. The information collected is later on used to create reports on the status of the FBFS and then made available to the public by the coordinator. Lastly, anyone can donate to the FBFS by dropping off their donation to a volunteer or in the donation box located in front of the FBFS.

The current system under study has four intended users:

- Students: Active UVIC students
    - UVIC students who use the FBFS.
- Coordinator:

    - The admin refers to the coordinator of the FBFS; they are responsible for and run the FBFS.
- Volunteers
    - Volunteers are UVIC students who help run the FBFS.
- Donators
    - Anyone who provides items to the FBFS



The following Use case diagram shows the activities that occur within the current system.
Use Case: Hand Writes Info
Actors: Student, Volunteer, or Coordinator
Description: Record the quantity of an item that was taken from the FBFS

Use Case: Shelves Information
Actors: Volunteer or Coordinator
Description: Stores a Filled Signing Sheet and replaces the signing sheet with a new one.

Use Case: Hand Writes Donation Information
Actors: Donator, Volunteer, or Coordinator
Description: Records quantity of an item that was given to the FBFS. A receipt may be given to the donator.

Use Case: Sees Information Report
Actors: Client,
Description: Reports about the FBFS are created and published on the Internet.

Use Case: Retrieves Information from shelves
Actors: Volunteer or Admin
Description: Filled Signing sheet is given to the FBFS Coordinator

Use Case: Creates Information Report
Actors: Admin
Description: Converts handwritten signing sheets into digital form. The digital data is examined, analyzed, and used into the creation of a report about the FBFS.

5. Cost/Benefit Analysis

To establish a baseline for the costs and benefits of our proposed system, included here is a cost analysis of the paper system that is to be replaced. The calculation for total cost assumes that the administrator works an average of 35 hours per week.

Cost Analysis: Paper Signing sheet *All Dollars in CAD				
Category	**Item**	**Quantity**	**Unit Price**	**Total Price**
Supplies & Services	Paper	30 / wk	$0.12	$3.60 / wk
	Printing	30 / wk	$0.05	$1.50 / wk
	Volunteers	10	$0.00	$0.00
	Administrators	1	$18.00 / hr	$18.00 / hr
System Infrastructure	System Development & Maintenance	1	$0.00	$0.00
	Storage Shelves	2	$40.00	$80.00
	Software	1	$0.00	$0.00
				Initial Cost: $85.10
				Annual Cost: $33,025.20

Tangible Costs

The most expensive cost for the FBFS to operate with a paper-based system is the cost to employ an administrator. The cost of employing an administrator remains the same in the proposed system. The remaining $265.20 in the annual cost comes from paper and printing expenses, and the system also requires an $80 initial cost for shelving to store the paper documents. The initial cost shown in the table above includes paper and printing expenses for the first week of operation.

Intangible Costs

The intangible costs for the paper system are related to the inconvenience of having hand-written paper records. Intangible costs in the paper system include lost time finding specific records and deciphering the writing. This must be done while the FBFS Guests are waiting, which makes this especially costly during busy hours. Administrators must also spend time converting the paper records into digital form for analysis.

One of the benefits of using the proposed database system is that it saves time for both volunteers and administrators. The time savings are broken down and estimated in the table shown below.

Benefit Analysis: Proposed Database System for FBFS *All Dollars in CAD	
Category	**Savings**
No overhead cost	$750.00
Higher quality database / streamlined collection	$0.00
Secured data / easy access to old records	$0.00
Satisfied staff and guests	$0.00
Faster report creation	2 hrs / mo
	Immediate Savings: $750.00
	Monthly Savings: $36.00

Tangible Benefits

One of the primary benefits of implementing our proposed system is that there is no overhead cost to purchase equipement and design the database software because Henry Oluka has donated a laptop to the FBFS and also volunteered his time to design the database software. If not for Henry's generous donation of his time and resources, we estimate that the cost of building a similar database would be upwards of $750.00. Implementing our proposed system also saves time for administrators when creating monthly reports.

Intangible Benefits

Many of the benefits for the FBFS are ease-of-use benefits that don't save time for administrators and that don't save money for the FBFS. Firstly, the proposed system can quickly be updated to add new features and the data collection is streamlined making the process of signing-out food easier on the Guests and the Volunteers. Secondly, the data is secured and readily accessible. Records cannot become illegible or damamged over time like in the paper system. Thirdly, we cannot put a price on the convenience of having all the records in the same place; the primary intangible benefit from a busniess perspective is the satisfaction of Guests, Volunteers, and Administrators.

The cost of implementing our proposed system is very low compared to the benefits. Learning how to use the new system requires approximately one hour of training for administrators and volunteers.

Cost Analysis: Proposed Database System for FBFS *All Dollars in CAD	
Category	**Cost**
Training manual	$5.00
Time spent training staff	$18.00
Overreliance on single device	$0.00
	Total Cost: $23.00

Tangible Costs

The tangible costs for implementing the proposed system are the cost of printing a training manual and the cost of training staff and administrators in how to use the system. The paper and printing costs for creating a hard copy of the training manual is only $5.00, and there is also a digital copy available on the FBFS laptop.

Intangible Costs

The cost of using a single machine to interface with the database is that it creates an overdependence on the device. For example, if two guests are making food requests at the same time, they will not be able to access the database simultaneously. If the overreliance on a single device becomes too costly, the solution is to purchase additional tablets and laptops. This would be a big expense for the FBFS, but we do not forsee it being necessary. One smaller expense that could speed up the FBFS service is the purchase of a mouse si that the volunteers can manage the computer more easily than with a trackpad. The database system can promote the work efficiency for both volunteer and client. Furthermore, the administrator is enabled to easily manage and retrieve data from the database system, which will cause less problems than before. For instance, if a guest exceeds their withdrawal limit this week, the administrator doesn't need to observe multiple withdrawal reports. The data is all in one place.

6. Alternative systems

We initially proposed many solutions for the FBFS: advanced paper-entry system, off-the-shelf products, touchscreen device, the facial recognition system, the scanner ID system, and the Oracle database system. The Oracle database system was chosen because it is the best solution our team can feasibly implement. It is easier to use than the paper system. In addition, it is cheaper than other systems.

Name of Solution: Advanced Paper-entry System

Description:

- For the advanced paper-entry System we will create a personal information sheet for anyone who comes to the FBFS.
- Any new user who comes to the FBFS will create his/her personal entry sheet. The volunteer will sort the personal data entry by alphabetical order of the last name's letter.
- This new system will be easy to record and access personal data. And it will be easy to see if someone is exceeding his/her limit.
- The new system does not need much training for the volunteer. But volunteers will need to be careful with managing the data, since the essential part of the system is to arrange the data paper.
- This system is budget-friendly.

Name of Solution: Facial recognition system

Description:

- This system is a facial recognition system which is related to the UVIC student netLink ID.
- Any new user who comes to the FBFS will be recognize by the system and automatically record to the database. The user will input the item to the database through a touchscreen.
- This new system will be easy to access personal data and there is no need for the volunteer to record keep for the system can do it automatically.
- The new system will not need much training to the volunteer. The volunteer will only need to answer questions form the users in FBFS.
- The new system will not need to link the UVIC netLink database with the current system.

Name of Solution: Off-the-Shelf Product

Description:

- We will look through the market to find a product that can address the FBFS's needs.
- We will need to conduct research and test products until we find the best one available. We will then customize the product for use in the FBFS
- The product is built and designed to include a database which will manage the FBFS's data.

- Subscription-based: $30-100/month
- Employees will have to either attend a training session or receive documentations from the project team.

Name of Solution: Touchscreen Device

Description:

- Instead of using the laptop as the the operating device, we are going to use some touchscreen devices such as iPAD or Surface as the operating device.
- When people come to FBFS, they can just tap the screen to operate the system. A touchable device can help people who are not good at using a mouse and keyboard.
- The touchscreen device will help people save time and make the human-computer interaction more positive.
- Device cost: $300-$1000
- Purchasing the device on Amazon may be cheaper, but its delivery time might take too long. This means that after we have the finances for the system sorted out, we will have to purchase it and wait for delivery, which will take about three days.

Name of Solution: ID Scanner

Description:

- Currently, volunteers, administrators, and guests all use the same laptop and this could cause mistakes. Using an ID scanner for guests will save time and minimize mistakes.
- When guests come into the FBFS, they scan their UVic One card, and are logged in to the database system.
- The ID scanner uses the student's one-card as a way to verify one's account. We thought this would be useful to enforce regulations by forcing clients to prove they are UVIC students.
- Device cost: $300-$1000

  To implement the ID Scanner system, we require access to the UVic One Card identification system, and this might not be possible because that information is not available to the UVSS FBFS.

7. New System Description

a. Description of Proposed System

Our proposed system is database built from Java Oracle, a database creation package currently available to members of the project team. Clients directly enter their information to a digital form which is stored in the database. This data can be analyzed by Oracle to provide FBFS with usage metrics, inventory management, and client demographics.

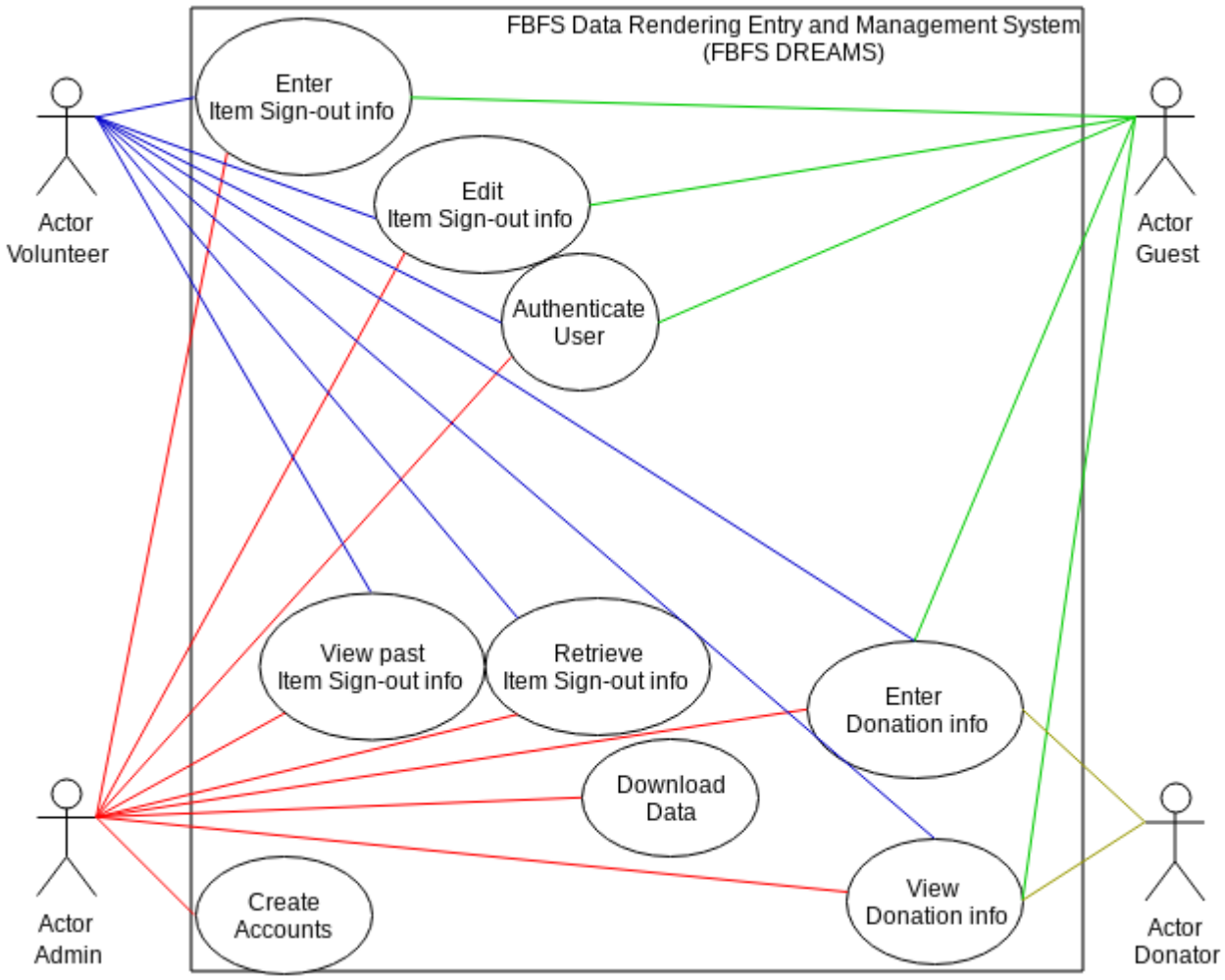
b. Environmental Models

The proposed system environment is the same as the current (paper-based) system environment. The only change is the elimination of papers or forms on the desk and replacing the forms with a Laptop computer. The operating environment of the data management application is: Oracle SQL database on Windows 7.

c. Behavioral Models

The FBFS uses the laptop with the database system to record items taken from the FBFS. Students should take their items and their UVic IDs to the volunteers in FBFS and the volunteers will input the data into the system when students want to take some items from the FBFS. The FBFS will be supervised by a volunteer, but students should use the guest account to log-in the system and add an entry including the valid UVic ID and the item information. Clients can directly enter their information to a digital form which is stored in the database. This data can be analyzed by system to provide the FBFS with weekly usage, stock management, and who their clients are. Anyone can donate to the FBFS by dropping off their donation to a volunteer or in the donation box located in front of the FBFS. Donators can input the information by themselves into the system, but the volunteers or the admin should check the information before the data stored into the system. Admin can download the data from the system and create a report on the status of the FBFS for any future work, or use the system's dashboard to get an understanding of the bank. For now, the system contains three kinds of accounts. Admin will use the admin account; all volunteers will use the same volunteer account; and the clients may use different accounts. In addition, different accounts get different permission from the system. Admin can do all actions of the system; volunteers can edit the data in the system; and the guests can only add the new entry.

The following Use case diagram shows the activities that occur within the proposed system.



Use cases: Create Account, Enter Item Sign Out Info, Authenticate User, Enter Donation Info, Download Data, View Past Item Sign-out info, Retrieve Item Sign-out Info, Edit Item Sign-out Info, View Donation Info

Name: Create Account
Actors: Admin
Prerequisite: Authenticate User
Steps:

1. Click on “add new user” button
2. Fill in user account info
3. Click “create user” button.

Success condition: Account created confirmation notification. New account is not identical to any other account.
Alternatives: N/A

Name: Enter Item Sign Out Info
Actors: Admin, Guest, Volunteer
Prerequisite: Authenticate User
Steps:

1. Click on “add new entry” button
2. Fill in the item sign out form fields
3. Click “Add” button.

Success condition: Entry successfully created notification. The form is filled without errors.
Alternatives:

1. Click “Cancel” button and return to previous page.

Name: Authenticate User
Actors: Admin, Guest, Volunteer
Prerequisite: N/A
Steps:

1. Fill in the login fields
2. Click the “login” button or press “enter” key.

Success condition: User enters valid credentials. User granted access.
Alternatives: N/A

Name: Enter Donation Info
Actors: Admin, Donator, Guest, Volunteer
Prerequisite: Authenticate User
Steps:

1. Click on “add new entry” button
2. Fill in the donation form fields
3. Click “Add” button.

Success condition: Action processed notification. The information is verified by a volunteer and the form is submitted.

Alternatives:

1. Click “Cancel” button and return to previous page.

Name: Download Data

Actors: Admin

Prerequisite: Authenticate User

Steps:

1. Click on the “Actions” button of the report you wish to download.
2. Select download from the drop down list.
3. Select one of the formats: .csv , .xlsx , .txt

Success condition: The data is successfully downloaded.

Alternatives: View Past Item Sign-Out Info report

Name: View Past Item Sign-out Info

Actor: Admin, Volunteer

Prerequisite: Authenticate User

Steps:

1. Enter the item information into the search bar and press “Enter” on the keyboard.
2. Select and enter the aimed entry on the page

Success condition: The entry is successfully showed on the page.

Alternatives: Download Data

Name: Retrieve Item Sign-out Info

Actor: Admin, Volunteer

Prerequisite: Authenticate User

Steps:

1. Enter the item information into the search bar and press “Enter” on the keyboard.
2. Select and enter the aimed entry on the page

Success condition: The entry is successfully showed on the page.

Alternatives: Download Data/View Past Item Sign-out Info

Name: Edit Item Sign-out Info

Actor: Admin, Guest, Volunteer

Prerequisite: Authenticate User

Steps:

1. Find the entry which needs to be edited
2. Modify the entry
3. Click "Save" to save the change

Success condition: Entry successfully created notification. The form is filled without errors.

Alternatives:

1. Click "Cancel" button and return to previous page.

Name: View Donation Info

Actor: Admin, Volunteer, Guest, Donator

Prerequisite: Authenticate User

Steps:

1. Type keywords of the donation into the search bar
2. Select and enter the aimed donation on the page

Success condition: The donation is successfully showed on the page.

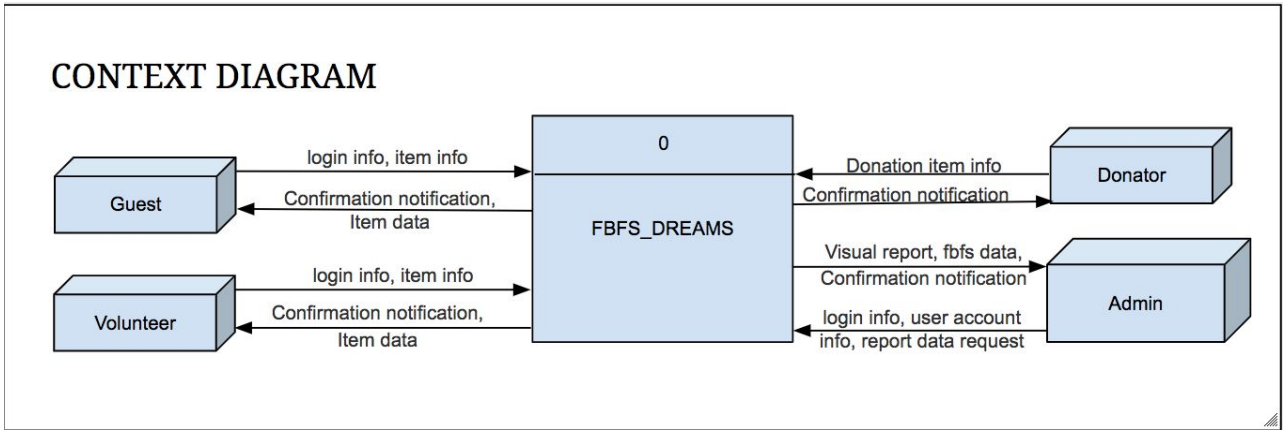
Alternatives: N/A

d. User Implementation Model

The proposed system is an Oracle database system and has three intended users. The hardware (laptop) with the database system installed in it will be provided to the FBFS. Additionally, we will create a training manual including how to do a simple maintenance for the system. The training manual will be used to train volunteers and help clients use the web-based database application. Henry, our domain expert, is the volunteer of the FBFS and will be coaching and training students and FBFS staff on how to use the system for the 2018 fall semester.

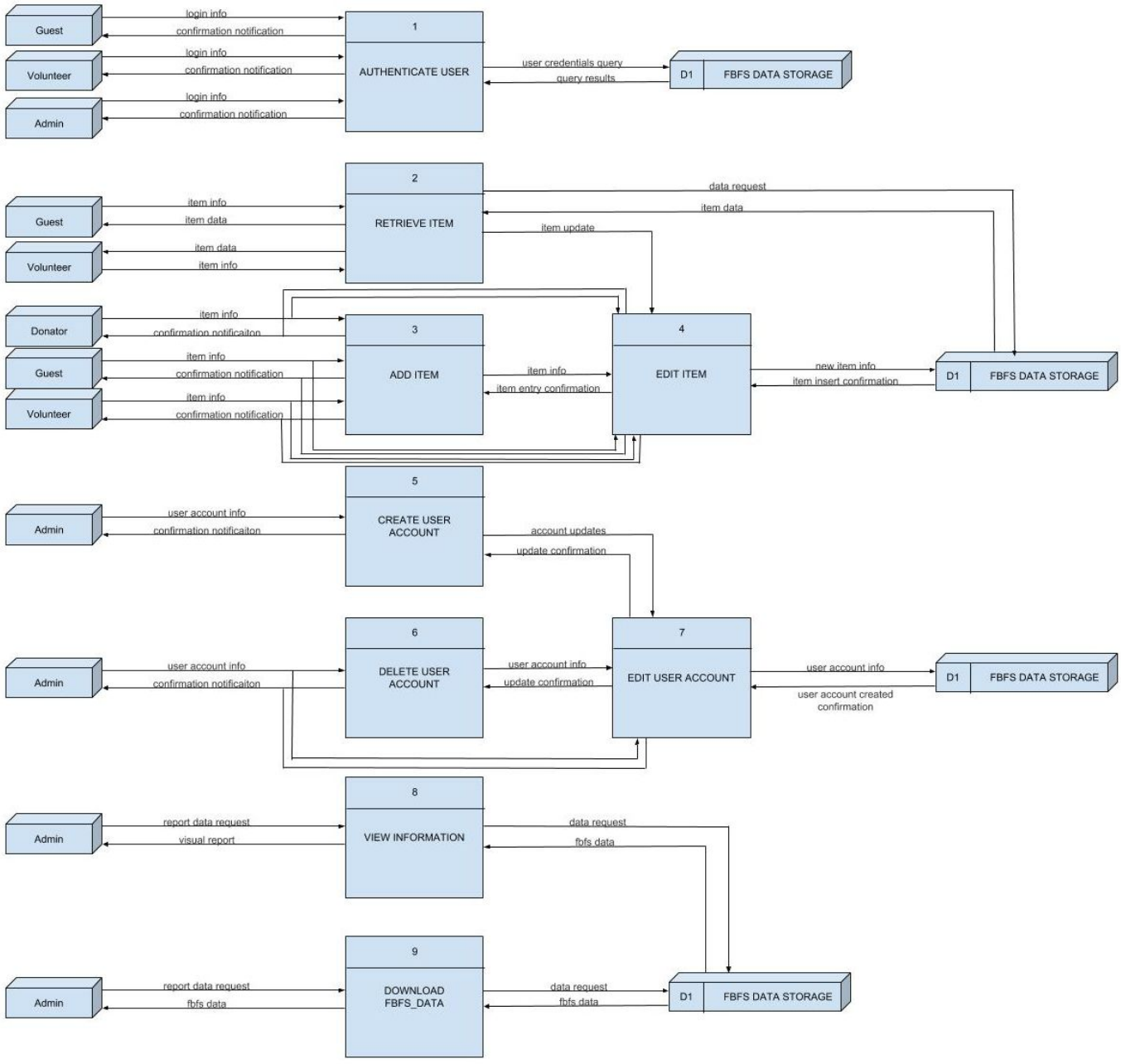
e. Context Diagram

The context diagram below is a high level view of the system. Our team defines the boundary between the system, and its environment, showing the entities that interact with it. Our team can see the overall system needs and requirements from the context diagram.



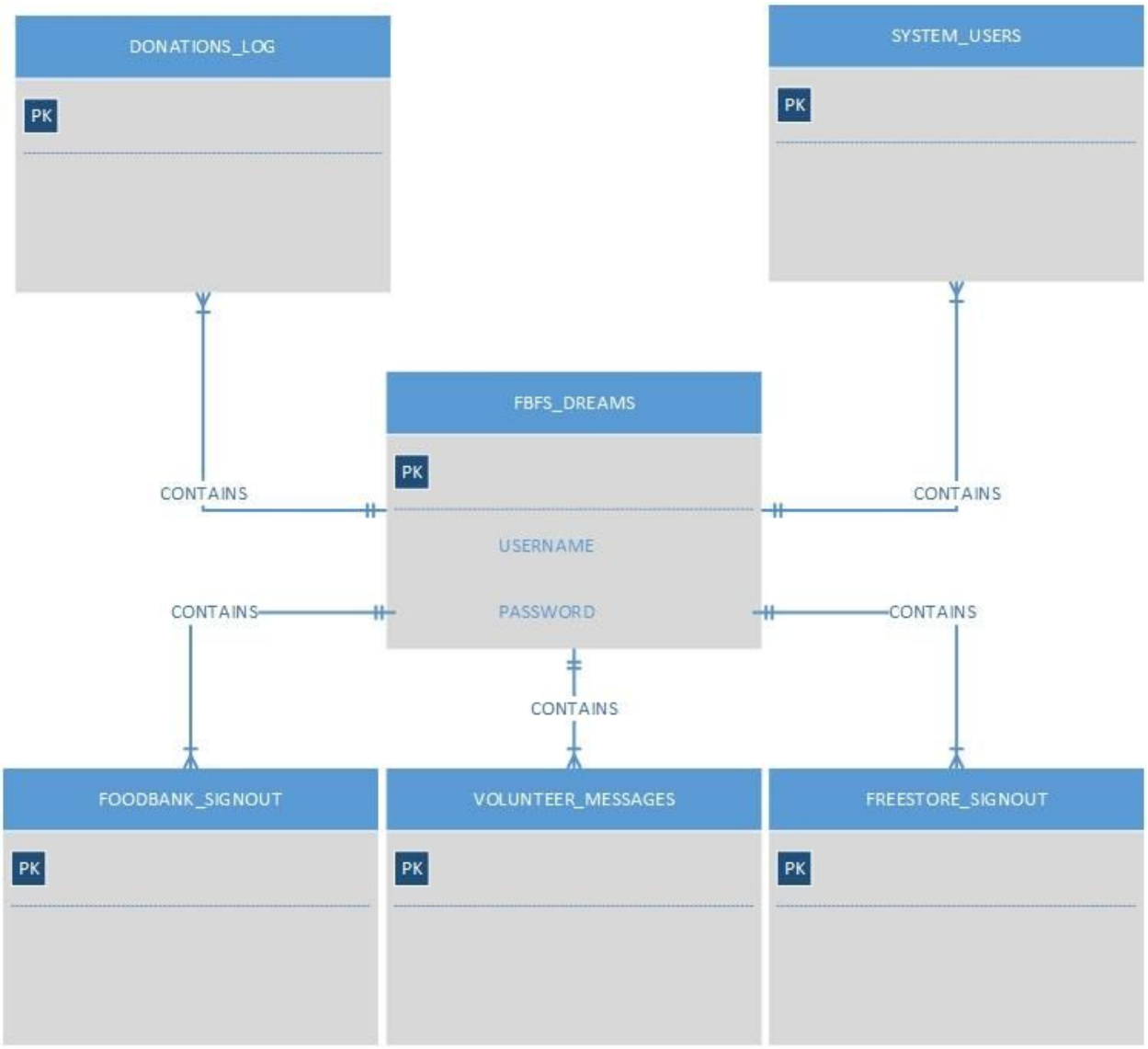
f. Data Flow Diagram (Level 0)

DATAFLOW DIAGRAM (Level 0)



The level 0 data flow diagram(DFD) shows the database system as a whole and the way it interact with external entities. In this DFD, we have described all the processes carried out within our software system and also included the data being exchanged between processes and across entities.

g. Domain Model



The domain model is an entity relationship diagram. It shows the table entities contained in the proposed database solution system. The attributes of each entity have been excluded for privacy and security reasons.

8. Data Dictionary

a. DATA STRUCTURE

This data structure format describes the data (bolded) exchanged as shown in the DFD diagram in Section 6. On the left of the "equals sign" is the data that is being described and on the right are the elements of the data structure.

Login info = username + password

Confirmation notification = JavaScript function [Alert | Dialog box]

Item info = (Uvic ID) + Date + item type [Foodbank item | Freestore item] + item data

Item data = primary key + {item data attributes}

User account info = [username |email] + password + role [admin | volunteer |guest]

Report data request = JavaScript function [SQL function]

Visual report = Oracle Apex interactive report

Fbfs data = item info

User credentials query = SQL database query

Query results = Boolean (True or False)

Data request = SQL database query

Item update = SQL database update function

Item entry confirmation = confirmation notification

Item insert confirmation = SQL query compiled confirmation

b. ELEMENT DESCRIPTION FORMS

The element description form describes only the core components/elements that make up a data structure. It states explicitly the restriction and formats (date, alphanumeric, numeric, etc.) imposed on each element. The data structures related to the elements below are listed above in section 8.1.

NAME:	Username				
ALIAS:	Email				
DESCRIPTION:	Uniquely identifies a user in the system				
LENGTH:	30				
INPUT FORMAT:	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Base
VALIDATION CRITERIA	Email address is a valid address.				
COMMENTS	Usernames must be unique. Donators do not require a username.				

NAME:	Password				
ALIAS:	Password				
DESCRIPTION:	System user password				
LENGTH:	15				
INPUT FORMAT:	XXXXXXXXXXXXXXX				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Base
VALIDATION CRITERIA	**UPPER LIMIT:** 15 **LOWER LIMIT:** 1				
COMMENTS	Passwords must be alphanumeric.				

NAME:	Day of				
ALIAS:	Date				
DESCRIPTION:	Dates a specific entry in the database				
LENGTH:	9				
INPUT FORMAT:	DD-MMM-YYYY				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	No	No	Yes	Continuous	Derived
VALIDATION CRITERIA	**UPPER LIMIT:** N/A **LOWER LIMIT:** N/A				
COMMENTS	Dates are generated				

NAME:	Role				
ALIAS:	User role				
DESCRIPTION:	Denotes the role of the user				
LENGTH:	1				
INPUT FORMAT:	X				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	No	No	Discrete	Derived
VALIDATION CRITERIA	**UPPER LIMIT:** N/A **LOWER LIMIT:** N/A				
COMMENTS	A = Admin , V = Volunteer, G= Guest				

NAME:	Item type				
ALIAS:	Item class				
DESCRIPTION:	Identifies which part of the organisation the item belongs to				
LENGTH:	2				
INPUT FORMAT:	XX				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	No	No	Discrete	Base
VALIDATION CRITERIA	**UPPER LIMIT:** FS **LOWER LIMIT:** FB				
COMMENTS	FB = Food Bank item , FS = Free Store item				

NAME:	JavaScript Function [Alert | Dialog Box]				
ALIAS:	Confirmation Notification				
DESCRIPTION:	Provides confirmation for users making a request of the system				
LENGTH:	N/A (See comments)				
INPUT FORMAT:	N/A (See comments)				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Base
VALIDATION CRITERIA	**UPPER LIMIT:** N/A **LOWER LIMIT:** N/A				
COMMENTS	The javascript function uses a dynamic entry form as input.				

NAME:	JavaScript Function [SQL Function]				
ALIAS:	Data Report Request				
DESCRIPTION:	Requests a data report from the database				
LENGTH:	N/A (See comments)				
INPUT FORMAT:	N/A (See comments)				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Base
VALIDATION CRITERIA	**UPPER LIMIT:** N/A **LOWER LIMIT:** N/A				
COMMENTS	The javascript function uses a dynamic entry form as input.				

NAME:	Primary Key				
ALIAS:	Item data key				
DESCRIPTION:	Identifies an item in the database				
LENGTH:	16				
INPUT FORMAT:	9999999999999999				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	No	Yes	No	Continuous	Derived
VALIDATION CRITERIA	**UPPER LIMIT:** 9999999999999999 **LOWER LIMIT:** 0				
COMMENTS	N/A				

NAME:	Oracle Apex Interactive Report				
ALIAS:	Visual Report				
DESCRIPTION:	Displays FBFS usage data				
LENGTH:	N/A (See comments)				
INPUT FORMAT:	N/A (See comments)				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Derived
VALIDATION CRITERIA	**UPPER LIMIT:** N/A **LOWER LIMIT:** N/A				
COMMENTS	The alphanumeric Visual Report is interpreted by Oracle and output as a visual bar graph for the administrators to view.				

NAME:	SQL Database Query				
ALIAS:	Data Request				
DESCRIPTION:	Requests one or more entries from the database				
LENGTH:	255				
INPUT FORMAT:	X . . . X				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Base
VALIDATION CRITERIA	The request must have valid SQL syntax				
COMMENTS	The database is susceptible to SQL injection attacks				

NAME:	SQL Database Update Function				
ALIAS:	Item Update				
DESCRIPTION:	Updates the items in the database				
LENGTH:	N/A (See comments)				
INPUT FORMAT:	N/A (See comments)				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Derived
VALIDATION CRITERIA	**UPPER LIMIT:** N/A **LOWER LIMIT:** N/A				
COMMENTS	The update function is automated by Oracle				

NAME:	SQL Query Compiled Confirmation				
ALIAS:	Item Insert Confirmation				
DESCRIPTION:	Confirms the successful insertion of a new item				
LENGTH:	N/A (See comments)				
INPUT FORMAT:	N/A (See comments)				
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	Yes	Yes	No	Continuous	Derived
VALIDATION CRITERIA	**UPPER LIMIT:** N/A **LOWER LIMIT:** N/A				
COMMENTS	The item insert confirmation is a dialog box generated by Oracle.				

NAME:	Boolean				
ALIAS:	Query Results				
DESCRIPTION:	Result returned when a query is compiled and ran. Could be T or F				
LENGTH:	1				
INPUT FORMAT:					
ELEMENT CHARACTERISTICS	**ALPHABETIC**	**ALPHA-NUMERIC**	**DATE**	**CONTINUOUS OR DISCRETE**	**DERIVED OR BASE**
	No	No	No	Discrete	
VALIDATION CRITERIA	**UPPER LIMIT:** True **LOWER LIMIT:** False				
COMMENTS					

b. DATA STORE DESCRIPTION

The Data Store Description format is used to describe each table entity shown in the Domain Model of the proposed solution system. The data store is where the data elements described in section 8.2 are stored.

NAME:	Food bank sign out
ALIAS:	Food bank data entry sheet
DESCRIPTION:	Database table for all food bank sign out information
FILE TYPE:	MANUAL: COMPUTER: Y
FILE FORMAT:	Database
NUMBER OF RECORDS: (MAXIMUM)	99999999999999999999999999999999999999
PERCENT GROWTH PER YEAR:	>6
COMMENTS	

NAME:	Free store sign out
ALIAS:	Free store sign out sheet
DESCRIPTION:	Database table for all free store sign out information
FILE TYPE:	MANUAL: COMPUTER: Y
FILE FORMAT:	Database
NUMBER OF RECORDS: (MAXIMUM)	9999999999999999999999999999999999999999
PERCENT GROWTH PER YEAR:	>6
COMMENTS	

NAME:	Donations Log
ALIAS:	
DESCRIPTION:	Database table for all donations logged
FILE TYPE:	MANUAL: COMPUTER: Y
FILE FORMAT:	Database
NUMBER OF RECORDS: (MAXIMUM)	99999999999999999999999999999999999999999999
PERCENT GROWTH PER YEAR:	>0.2
COMMENTS	

NAME:	System User
ALIAS:	Fbfs User
DESCRIPTION:	Database table for all FBFS Dream users
FILE TYPE:	MANUAL: COMPUTER: Y
FILE FORMAT:	Database
NUMBER OF RECORDS: (MAXIMUM)	9999999999
PERCENT GROWTH PER YEAR:	>= 0
COMMENTS	

NAME:	Volunteer Messages
ALIAS:	N/A
DESCRIPTION:	Database table for all volunteer/admin messages to other volunteers.
FILE TYPE:	MANUAL: COMPUTER: Y
FILE FORMAT:	Database
NUMBER OF RECORDS: (MAXIMUM)	99999999999999999999999999999999999999999999
PERCENT GROWTH PER YEAR:	>= 0
COMMENTS	

d. DATA FLOW DESCRIPTION

The data flow description format show below is used to describe the data flows of each specific process shown in the DFD diagram.

Description	**Value**
ID	1
Name	Authenticate User
Description	Contains data about user login info and authentication process
Source	Guest, Volunteer, Admin, Fbfs Data Storage
Destination	Guest, Volunteer, Admin, Fbfs Data Storage
Type	File: Screen: Report: Form: Y Internal: Y
Data Travelling with the flow	Login info, confirmation notification, user credentials query, query results
Volume/Time	1/hr
Comments	

Description	**Value**
ID	2
Name	Retrieve Item
Description	Contains data about food bank or free store item being requested and retrieval process
Source	Guest , Volunteer , Fbfs Data Storage
Destination	Guest, Volunteer, Edit Item Process, Fbfs Data Storage
Type	File: Screen: Report: Form: Y Internal: Y
Data Travelling with the flow	Item info, item data, item update, data request
Volume/Time	20/hr
Comments	

Description	Value
ID	3
Name	Add item
Description	Contains data and processes required for adding a food bank or free store item
Source	Donor, Guest, Volunteer, Edit Item process
Destination	Donator, Guest, Volunteer, Edit item process
Type	File: Screen: Report: Form: Y Internal: Y
Data Travelling with the flow	Item info, confirmation notification
Volume/Time	30/hr
Comments	

Description	Value
ID	4
Name	Edit Item
Description	Contains data required to modify the Fbfs Data Storage
Source	Donator, Guest, Volunteer, Add item process, Retrieve item process, Fbfs Data Storage
Destination	Fbfs Data Storage, Add item process
Type	File: Screen: Report: Form:Y Internal: Y
Data Travelling with the flow	Item info, item entry confirmation, item insert confirmation
Volume/Time	10/hr
Comments	

Description	Value
ID	5
Name	Create User Account
Description	Contains data and processes required to create a user account
Source	Admin, Edit User Account Process
Destination	Admin, Edit User Account Process
Type	File: Screen: Report: Form: Y Internal: Y
Data Travelling with the flow	User account info, account updates, updates confirmation, confirmation notification
Volume/Time	1/6hrs
Comments	Volume could also be 1/year

Description	Value
ID	6
Name	Delete User Account
Description	Contains data and processes required to delete a Fbfs user account
Source	Admin, Edit User Account process
Destination	Admin, Edit User Account process
Type	File: Screen: Report: Form: Y Internal: Y
Data Travelling with the flow	User account info, confirmation notification, update confirmation
Volume/Time	1/6 hrs
Comments	Volume could also be 1/year

Description	Value
ID	7
Name	Edit User Account
Description	Contains data required to modify a Fbfs user account
Source	Admin, Create User account, Delete user account, Fbfs Data Storage
Destination	Delete User account process, Fbfs Data Storage, Create User account process
Type	File: Screen: Report: Form: Y Internal: Y
Data Travelling with the flow	User account info, update confirmation, user account created confirmation
Volume/Time	1/6 hrs
Comments	Volume could also be 1/year

Description	Value
ID	8
Name	View information
Description	Contains data and report necessary to view information contained in FBFS dream system
Source	Admin, Fbfs Data Storage
Destination	Admin, Fbfs Data Storage
Type	File: Screen: Report: Y Form: Internal: Y
Data Travelling with the	Report data request, visual report, fbfs data, data request

flow	
Volume/Time	1/min
Comments	

Description	**Value**
ID	9
Name	Download FBFS_Data
Description	Contains the data required to download FBFS_Data
Source	Admin, Fbfs Data Storage
Destination	Admin, Fbfs Data Storage
Type	File: Y Screen: Report: Form: Internal: Y
Data Travelling with the flow	Report data request, fbfs data, data request
Volume/Time	1/min
Comments	

9. Recommendations

The recommendations we have for our clients are as follows:

1. Training new users: In order to get the best benefit out of the solution system we proposed it is recommended that our clients incorporate our training manuals into their Volunteer orientation and training.

2. Proper use of system features: Use the system features appropriately eg. Use the dashboard appropriately. Use Guest accounts for external client usage.

3. System hardware maintenance eg: keep the laptop clear of dust. Keep the laptop keyboard clean by using a washable keyboard cover.

4. Buy a mouse as it quickens the process of data entry into the proposed system.

5. Most importantly, to get the best out of the new system we recommend that the entry of data into the new system is made a volunteer duty. This will quicken the data entry process and also reduce chances of exposing other laptop functions or sensitive information to unauthorized personnels.

10. Conclusions

For this project, our team goes through the processes of system analysis of the current system and the proposed system. In addition, we gain experience interview, diagram design, project management, programming and documentation stuff. In the process of completing this project, each of us has learned a lot of knowledge related to system analysis, and also trained a lot of skills. First, when analyzing the pros and cons of the old system, we learned to evaluate the system through the needs of the customer. We learn to use a lot of knowledge related to system analysis, such as using diagrams to analyze systems. Secondly, when designing the new system, we brainstormed and everyone gave their ideas. At the same time, we use some expertise such as functional requirements, non-functional requirements and risk analysis to determine the optimal system proposal. Finally, we continue to use the knowledge related to system analysis to evaluate the new system, add some features of the new system, and some suggestions for the new system.

While completing this project, each of us gain experience from the project. As a group leader, Ryan is in charge of the whole project process. He gain experience on scheduling each group member's work and make sure each group meeting is effective in time and substiancial in content. As an elicitor, Lu and Wallace created interview questions and interviewed the coordinator of UVSS FBFS. They gain the experience of creating questions and communication skills. As a diagram expert, Gene and Andrew created diagrams for our proposed solution so that we can better understand the client needs and improve our proposed solution. Furthermore, they gain experience on the tools to create diagrams, which will help them to use the tools in their future study and careers. As a domain and client expert, Henry implement our final proposed solution and this solution is being approved by the coordinator in UVSS FBFS. Henry gains much experience in SQL programming and Oracle database. Henry is also our direct link to our client, so he practise his skills on interpersonal communication.

Besides, in completing this project, each of us practise problem solving, presentation and general analysis skills. In addition, our team used gantt chart and communication medium as well. For the change management, we learnt how to drive, manage and, reinforce change within a client organisation. For the project management, we learnt how to coordinate project milestones, organise and motivate team members to achieve a project goal and meet deadlines. To sum up, each of us has learned a lot from this project, and these experiences will make us better in our future work.

11. Acknowledgements

We would like to express our special thanks of gratitude and appreciation to our instructor Simon Minshall as well as our TA Jesse Gardner and Tariq Chatur who gave us the guide and support to do this wonderful project on the topic of system analysis, which also helped us in doing a lot of diagrams and we came to be familiar with system analysis.

Secondly we would also like to thank Alexandra Ages, the coordinator of UVSS FBFS. She kindly agreed to an interview about the system in FBFS and gave us a lot of feedback and ideas to improve the system. We really grateful her efforts to help us complete the project.

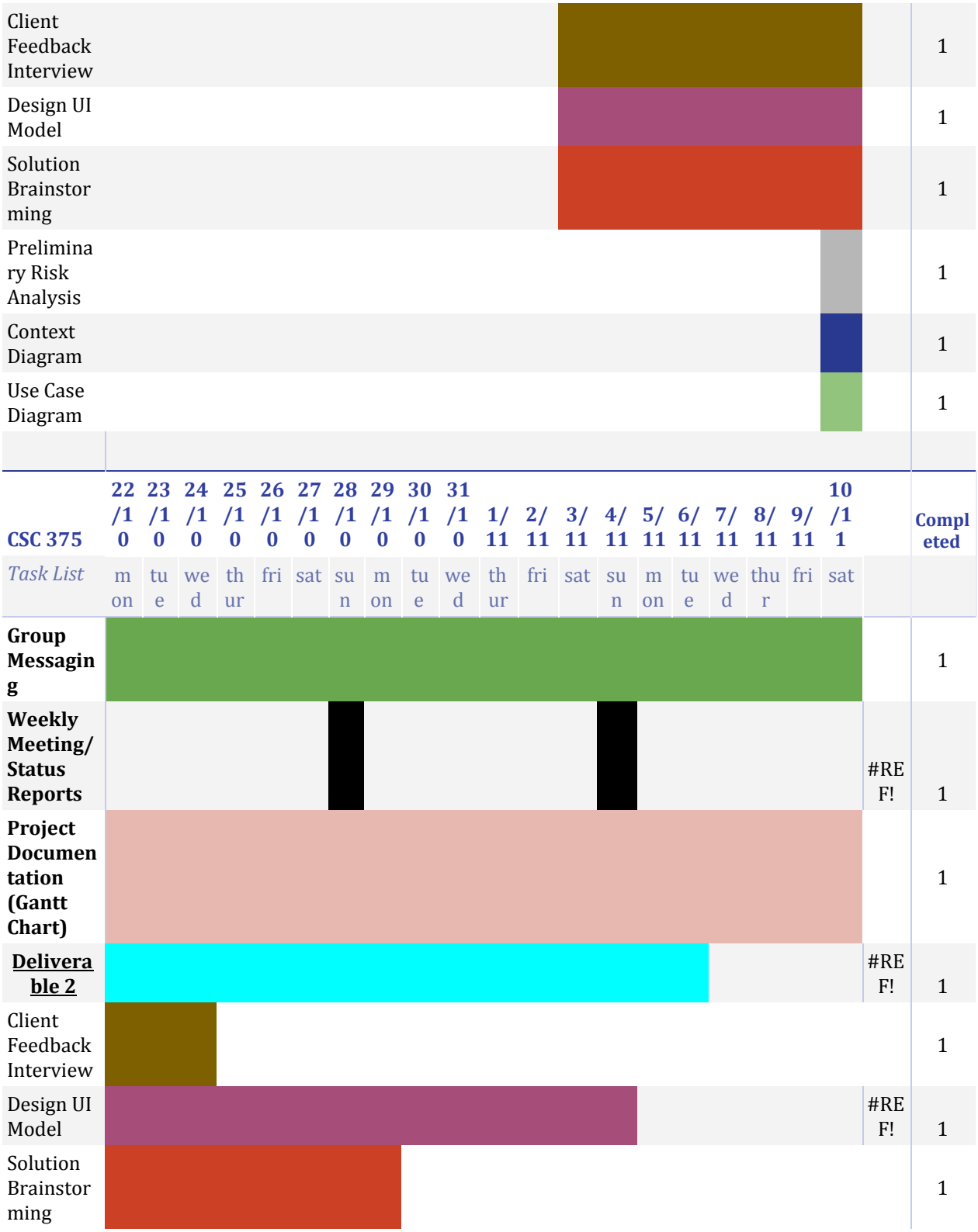
12. Appendices

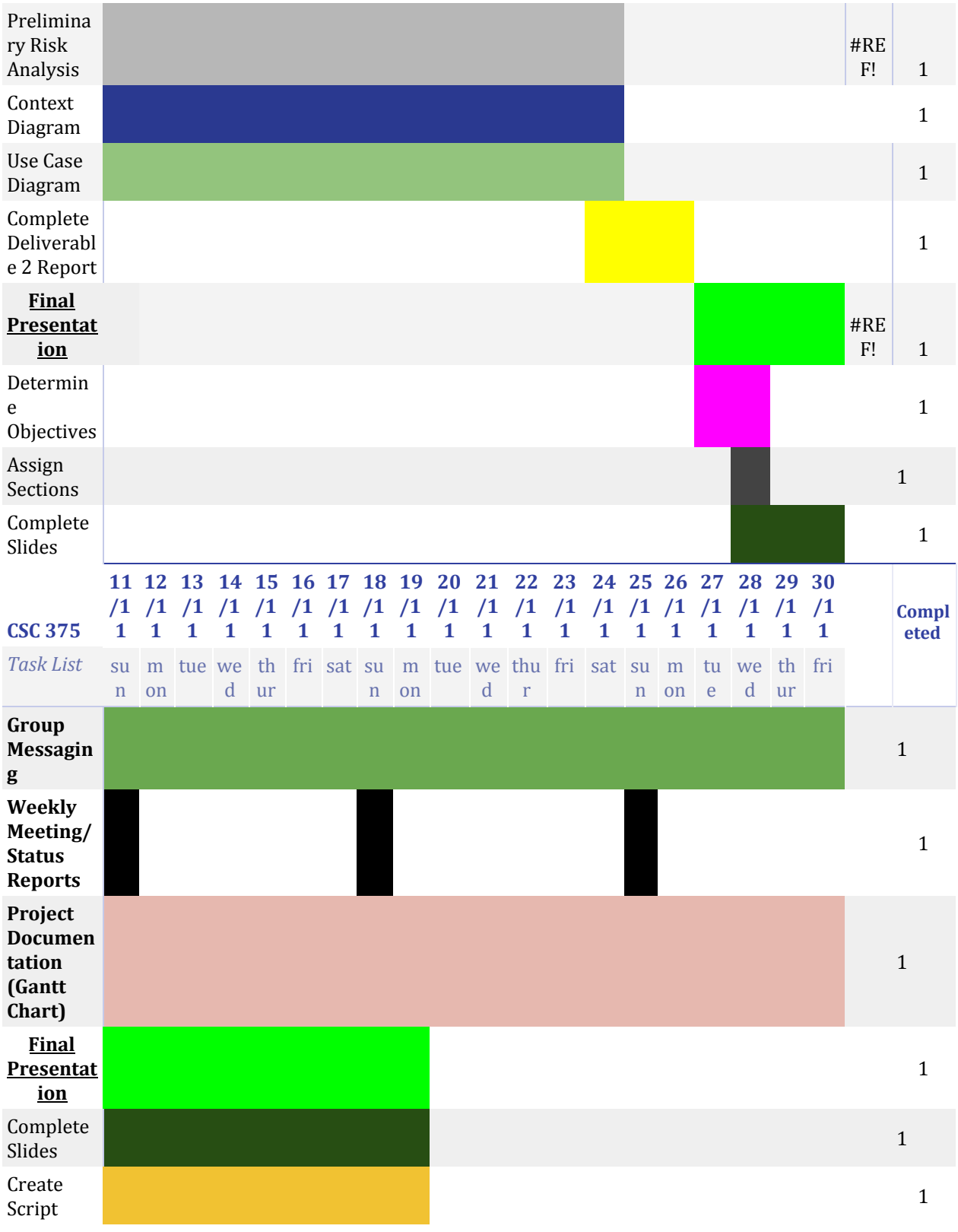
(These are appendices that you have added to give more information on parts of the report that you feel need further explanation. These may include more detailed information about your client, their operation, your recommended solution, recommended equipment, hardware, software, etc. At a minimum, the report must include, a Sample Forms appendix (or other data holding/gathering devices), a Cover Letter appendix, and, for the instructor, weekly status reports Appendix)

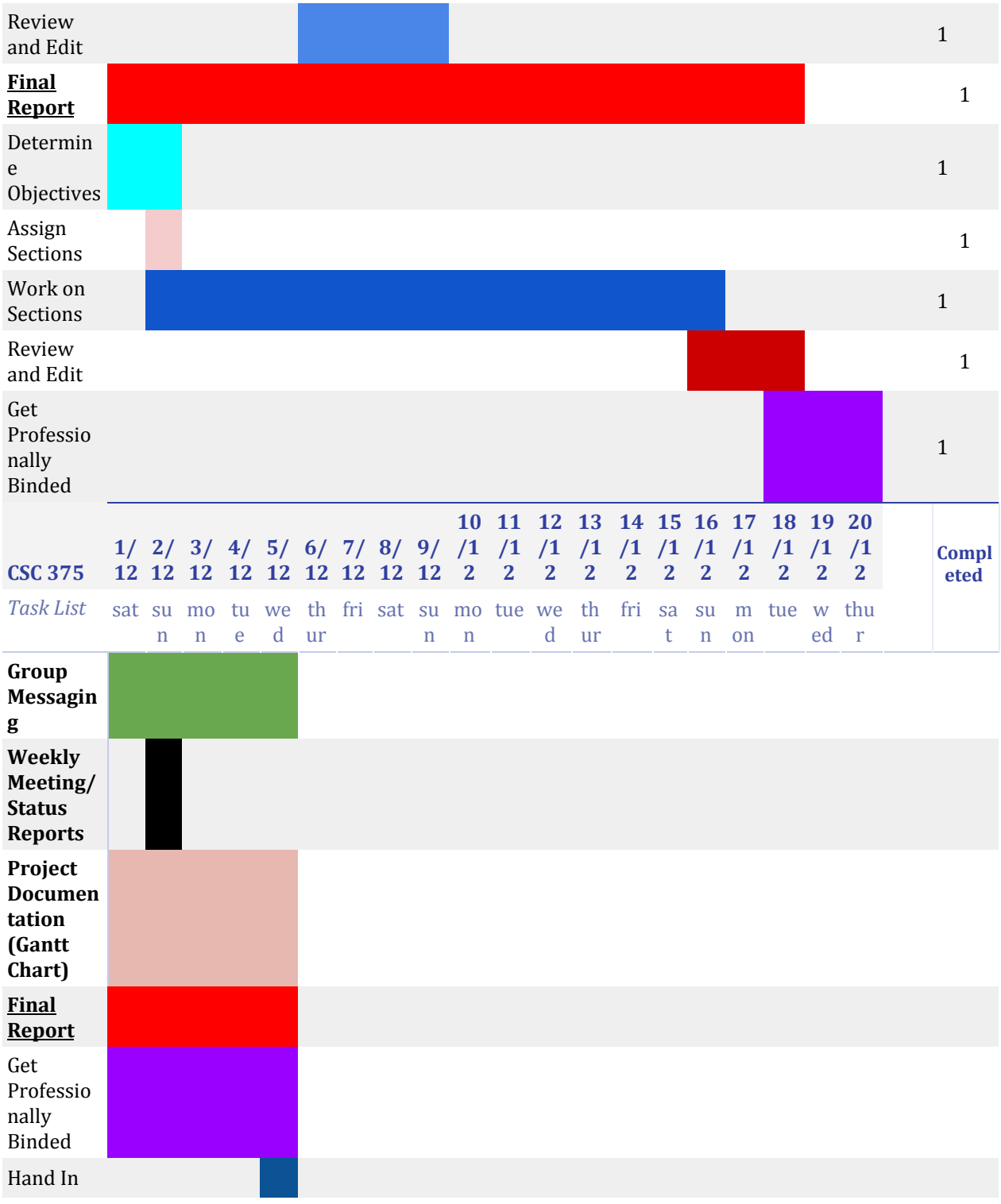
a. Gantt Chart

CSC 375 *Task List*	12/9 wed	13/9 thur	14/9 fri	15/9 sat	16/9 sun	17/9 mon	18/9 tue	19/9 wed	20/9 thur	21/9 fri	22/9 sat	23/9 sun	24/9 mon	25/9 tue	26/9 wed	27/9 thur	28/9 fri	29/9 sat	30/9 sun	1/10 mon	Completed
Group Messaging																					1
Weekly Meeting/ Status Reports																					1
Project Documentation (Gantt Chart)																					1
Find a Project																					1
Team Introductions																					1
Plan and Delegate roles																					1
Determine Communication Methods																					1
Create Project Website																					1
Project Charter																					1
Elicit Requirements																					1
RFP and Project Pitch																					1
Plan RFP and Pitch																					1

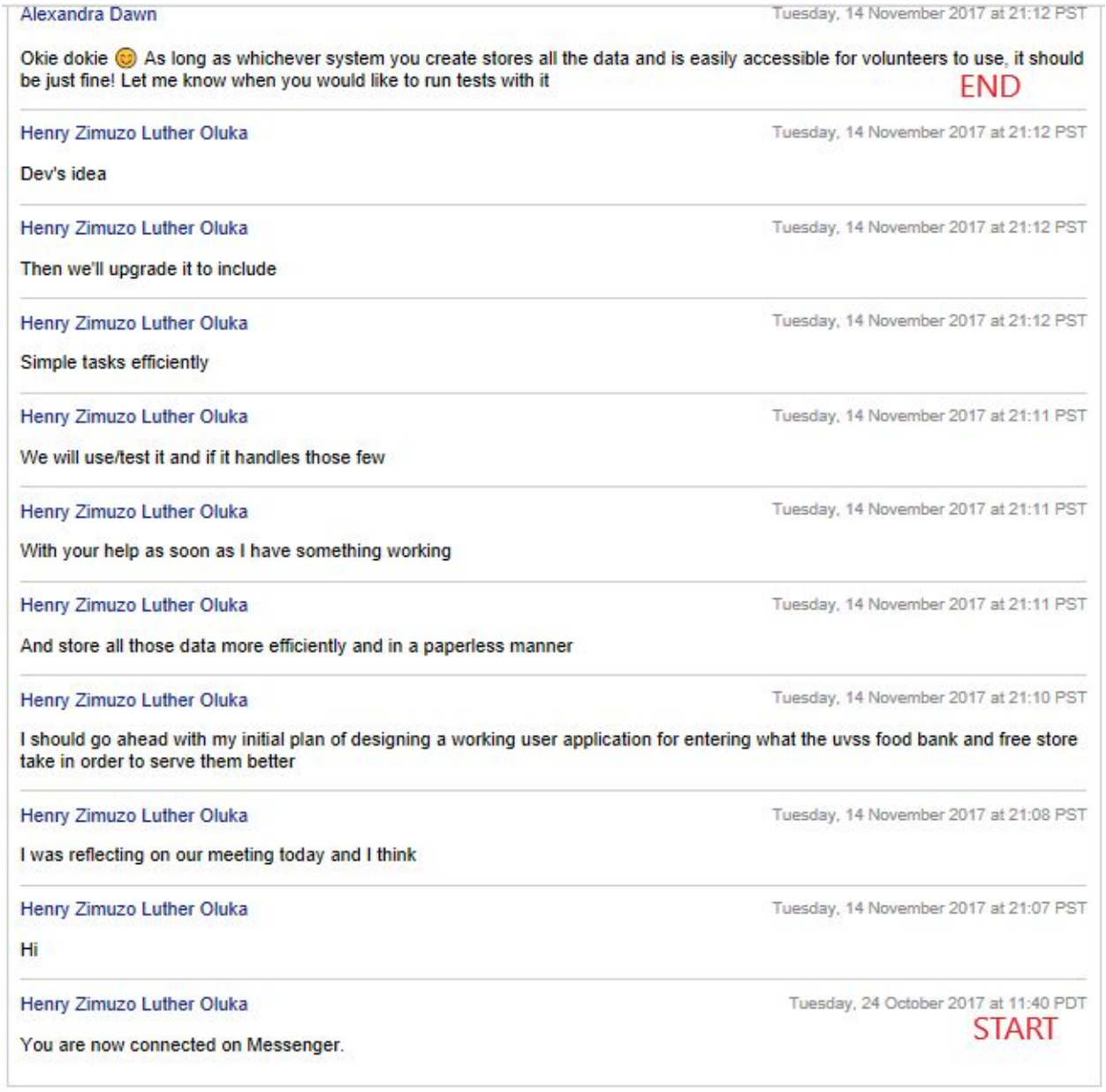
Finalize RFP and Pitch																									1
Publish RFP and Pitch																									1
Deliverable 1																									1
Project Critiques																									1
Current System Use Case diagram																									1
CSC 375	**2/10**	**3/10**	**4/10**	**5/10**	**6/10**	**7/10**	**8/10**	**9/10**	**10/10**	**11/10**	**12/10**	**13/10**	**14/10**	**15/10**	**16/10**	**17/10**	**18/10**	**19/10**	**20/10**	**21/10**	**Completed**				
Task List	tue	wed	thur	fri	sat	sun	mon	tue	wed	thur	fri	sat	sun	mon	tue	wed	thur	fri	sat	sun	21/10				
Group Messaging																									1
Weekly Meeting																					#REF!				1
Project Documentation (Gantt Chart)																									1
Project Critiques																					#REF!				1
Deliverable 1																									1
Current System Use Case Diagram																					#REF!				1
Finish Report for Deliverable 1																									1
Deliverable 2																					#REF!				1


Client Feedback Interview
1
Design UI Model
1
Solution Brainstorming
1
Preliminary Risk Analysis
1
Context Diagram
1
Use Case Diagram
1
CSC 375
22/10 23/10 24/10 25/10 26/10 27/10 28/10 29/10 30/10 31/10 1/11 2/11 3/11 4/11 5/11 6/11 7/11 8/11 9/11 10/11
Completed
Task List
mon tue wed thur fri sat sun mon tue wed thur fri sat sun mon tue wed thur fri sat
Group Messaging
1
Weekly Meeting/ Status Reports
#REF!
1
Project Documentation (Gantt Chart)
1
Deliverable 2
#REF!
1
Client Feedback Interview
1
Design UI Model
#REF!
1
Solution Brainstorming
1


Preliminary Risk Analysis
#REF!
1
Context Diagram
1
Use Case Diagram
1
Complete Deliverable 2 Report
1
Final Presentation
#REF!
1
Determine Objectives
1
Assign Sections
1
Complete Slides
1
CSC 375
11/11 sun
12/11 mon
13/11 tue
14/11 wed
15/11 thur
16/11 fri
17/11 sat
18/11 sun
19/11 mon
20/11 tue
21/11 wed
22/11 thur
23/11 fri
24/11 sat
25/11 sun
26/11 mon
27/11 tue
28/11 wed
29/11 thur
30/11 fri
Completed
Task List
Group Messaging
1
Weekly Meeting/ Status Reports
1
Project Documentation (Gantt Chart)
1
Final Presentation
1
Complete Slides
1
Create Script
1


Review and Edit
1
Final Report
1
Determine Objectives
1
Assign Sections
1
Work on Sections
1
Review and Edit
1
Get Professionally Binded
1
CSC 375
1/12 2/12 3/12 4/12 5/12 6/12 7/12 8/12 9/12 10/12 11/12 12/12 13/12 14/12 15/12 16/12 17/12 18/12 19/12 20/12
Completed
Task List
sat sun mon tue wed thur fri sat sun mon tue wed thur fri sat sun mon tue wed thur
Group Messaging
Weekly Meeting/ Status Reports
Project Documentation (Gantt Chart)
Final Report
Get Professionally Binded
Hand In

1. Cover Letter appendix



Alexandra Dawn — Tuesday, 14 November 2017 at 21:12 PST

Okie dokie 😉 As long as whichever system you create stores all the data and is easily accessible for volunteers to use, it should be just fine! Let me know when you would like to run tests with it

END

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:12 PST

Dev's idea

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:12 PST

Then we'll upgrade it to include

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:12 PST

Simple tasks efficiently

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:11 PST

We will use/test it and if it handles those few

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:11 PST

With your help as soon as I have something working

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:11 PST

And store all those data more efficiently and in a paperless manner

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:10 PST

I should go ahead with my initial plan of designing a working user application for entering what the uvss food bank and free store take in order to serve them better

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:08 PST

I was reflecting on our meeting today and I think

Henry Zimuzo Luther Oluka — Tuesday, 14 November 2017 at 21:07 PST

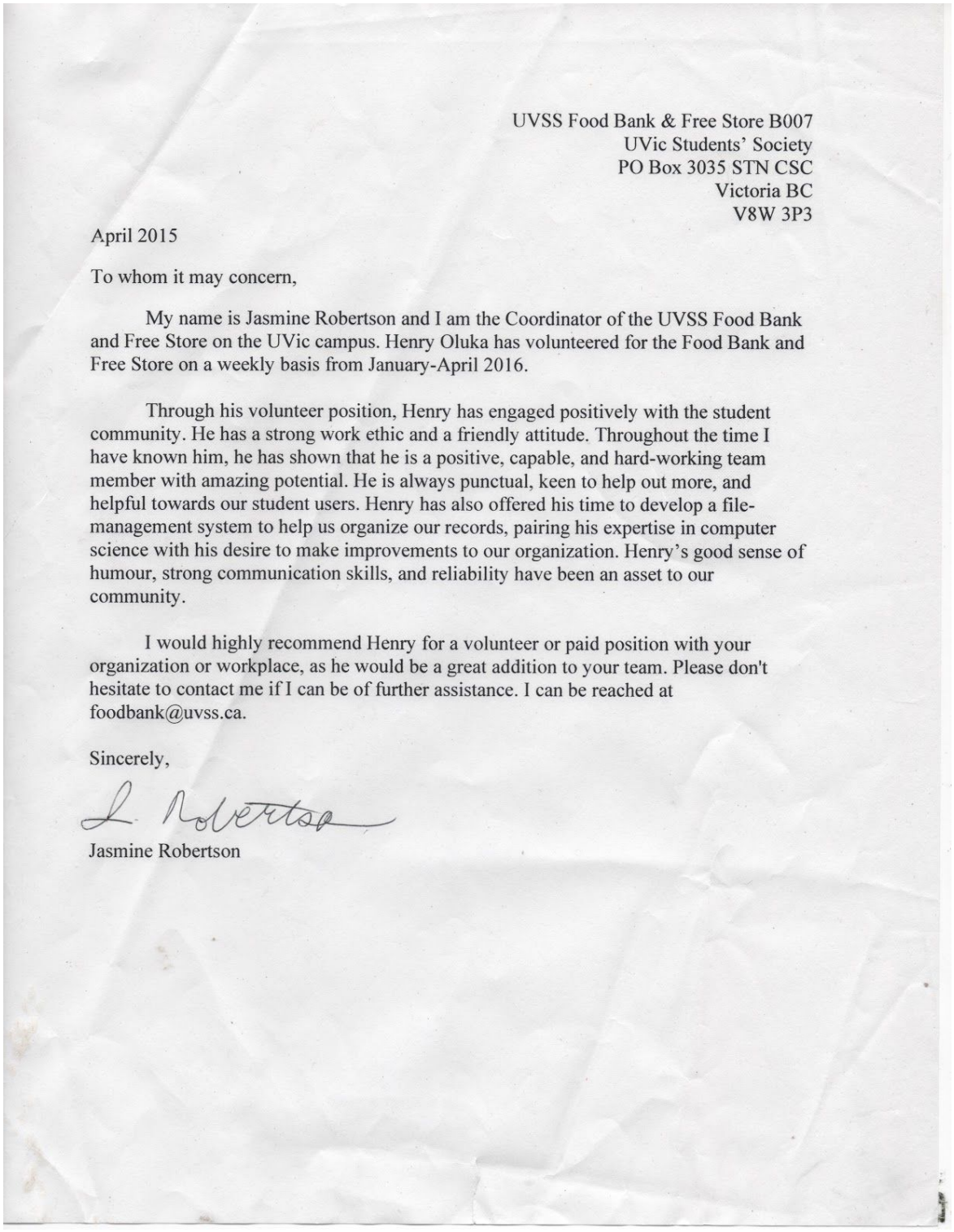
Hi

Henry Zimuzo Luther Oluka — Tuesday, 24 October 2017 at 11:40 PDT

START

You are now connected on Messenger.

Facebook message correspondence with Alexandra Ages, the UVSS Food bank and Free Store Coordinator, on developing a software solution for the FBFS Data management issue.



UVSS Food Bank & Free Store B007
UVic Students' Society
PO Box 3035 STN CSC
Victoria BC
V8W 3P3

April 2015

To whom it may concern,

My name is Jasmine Robertson and I am the Coordinator of the UVSS Food Bank and Free Store on the UVic campus. Henry Oluka has volunteered for the Food Bank and Free Store on a weekly basis from January-April 2016.

Through his volunteer position, Henry has engaged positively with the student community. He has a strong work ethic and a friendly attitude. Throughout the time I have known him, he has shown that he is a positive, capable, and hard-working team member with amazing potential. He is always punctual, keen to help out more, and helpful towards our student users. Henry has also offered his time to develop a file-management system to help us organize our records, pairing his expertise in computer science with his desire to make improvements to our organization. Henry's good sense of humour, strong communication skills, and reliability have been an asset to our community.

I would highly recommend Henry for a volunteer or paid position with your organization or workplace, as he would be a great addition to your team. Please don't hesitate to contact me if I can be of further assistance. I can be reached at foodbank@uvss.ca.

Sincerely,

L. Robertson

Jasmine Robertson

Email Correspondence from the then UVSS Food Bank and Free Store Coordinator, Jasmine Robertson, on the contractual phase of the FBFS DREAMS project.

PROCESS SPECIFICATION

BY HENRY OLUKA

TABLE OF CONTENTS

WHILE APP IS OPEN AND RUNNING:

1. AUTHENTICATION PROCESS

1.1. If User is:

1.1.a. ADMIN: User MUST log-in with admin username and password

1.1.b. VOLUNTEER: User MUST log-in with volunteer username and password

1.1.c. GUEST: User MUST log-in with guest username and password

2. DATA MANAGEMENT PROCESSES

After 1.

ADD (ITEM / USER ACCOUNT) PROCESS

2.1. USER NEEDS TO ADD ENTRY TO ANY OF THE SHEETS OR LOGS WITHIN THE SYSTEM

- User MUST Click "Add New Entry" button located at the top of the report of a-page-with-a-report..

2.2. USER NEEDS TO STORE/ADD AN ENTRY TO ANY OF THE SHEETS OR LOGS WITHIN THE SYSTEM

- After 2.1, while user is done with filling out form page, user must click:
    a. ADD, if user is filling out a form for a new row entry
    b. SAVE, if user is editing/updating an old entry
    c. APPLY CHANGES, if user is editing/updating an old entry

EDIT (USER ACCOUNT / ITEM) PROCESS

2.3. USER NEEDS TO EDIT AN ENTRY TO ANY OF THE SHEETS OR LOGS WITHIN THE SYSTEM

- User MUST Click "edit image icon" button located on the far left of the row User wants to edit in the report of a-page-with-a-report.
- While user is done with filling out form page, user must click:
    d. ADD, if user is filling out a form for a new row entry
    e. SAVE, if user is editing/updating an old entry
    f. APPLY CHANGES, if user is editing/updating an old entry

VIEW(RETRIEVE) INFORMATION PROCESS

2.4. USER NEEDS TO SEARCH FOR AN ENTRY WITHIN THE SYSTEM

- After 1. While User is ADMIN or VOLUNTEER

- User MUST go to a-page-with-a-report
- User MUST click on the search bar at the top of the report of a-page-with-a-report.
- User MUST enter keywords/values related to the row entry being sought then,
- User MUST click the GO button or press the ENTER key

-User MUST click RESET to reset (5.3.4) the report in order to re-use the search feature

DOWNLOAD FBFS_DATA PROCESS

2.5. USER NEEDS TO DOWNLOAD DATA FROM ANY OF THE REPORTS WITHIN THE SYSTEM

- After 1. If User is ADMIN or VOLUNTEER
- User MUST go to a-page-with-a-report
- User MUST click the ACTION BUTTON on top of the report on the page
- User MUST click DOWNLOAD to download (5.3.3) the report.

2.6. USER NEEDS TO FORMAT DATA ON ANY OF THE REPORTS WITHIN THE SYSTEM

- After 1. If User is ADMIN or VOLUNTEER
- User MUST go to a-page-with-a-report
- User MUST click the ACTION BUTTON on top of the report on the page
- User should use FORMAT to format (5.3.3) the report.

3. INPUT VALIDATION PROCESSES

3.1. USER INPUTS NUMBERS (0-9) FOR FOOD ITEMS TAKEN

- If user input is not NUMBERS (0-9) for food items, an in-line ERROR WILL thrown by the text field with the invalid entry

3.2. USER ENTERS CORRECT UVIC ID

- If user input is not ^[Vv]00/d+$ for UVIC ID value, an in-line ERROR WILL thrown by the text field with the invalid entry

3.3. USER MUST BE EITHER GRAD OR UNDERGRAD

- When GRAD checkbox is checked, User is GRAD
- ELSE, User is UNDERGRAD

4. ENFORCED USAGE LIMITS PROCESSES

4.1. USER MUST TAKE FAMILY_AMOUNTS OR INDIVIDUAL_AMOUNTS

4.1.1. If User is FAMILY:

4.1.1.1. User must take the corresponding FAMILY_AMOUNT for the food item being taken.

4.1.2. If User is INDIVIDUAL:

4.1.2.1. User must take the corresponding INDIVIDUAL_AMOUNT for the food item being taken.

4.2. ON ANY GIVEN DAY WITHIN THE CURRENT WEEK, A USER WITHOUT AN INCOMPLETE_ENTRY CANNOT TAKE ANY MORE ITEMS TILL THE NEXT WEEK

4.2.1. <u>If it is User's first time for the week:</u>

After 2.1 and 4.1 respectively.

- If User is FAMILY and still has an entry with a food item amount not maxed out:

  User must take the corresponding FAMILY_AMOUNT for the food item being taken

- If User is INDIVIDUAL and still has a row entry with a food item amount not maxed out:

  User must take the corresponding INDIVIDUAL_AMOUNT for the food item being taken

4.2.2. <u>Else:</u>

After 2.3 and 4.1 respectively.

- If User is FAMILY and still has an entry with a food item amount not maxed out:

  User must take the corresponding FAMILY_AMOUNT for the food item being taken

- If User is INDIVIDUAL and still has a row entry with a food item amount not maxed out:

  User must take the corresponding INDIVIDUAL_AMOUNT for the food item being taken

5. VIEWING INTERACTIVE REPORTS

After 1. While User is ADMIN or VOLUNTEER

5.1. All reports on a-page-with-a-report are INTERACTIVE.

5.2. All INTERACTIVE REPORTS on a page have an ACTION BUTTON

5.3. All ACTION BUTTON have the following features for the report:

5.3.1. Format report

5.3.2. Sort report

5.3.3. Download report

5.3.4. Reset Report

5. GLOSSARY

FAMILY_AMOUNTS = Amount a user with one or more dependent(s) is allowed to take

INDIVIDUAL_AMOUNTS = Amount a user with no dependents is allowed to take

INCOMPLETE_ENTRY = any row entry created for a given week that does not have all its food item amounts for the week maxed out.

A-page-with-a-report = any of these pages:

1. Food bank data entry sheet page
2. Free store data entry sheet page
3. Donations log page
4. Volunteer Hours log page
5. Out-of-Stock items log page
6. Employee messages page
7. Uploaded old-entry sheets page

ELICITED REQUIREMENTS

The following requirements were elicited from Henry Oluka, the client (UVSS Food Bank & Free Store) representative who also serves as a problem domain expert to our group. The problems list is as follows:

Issue 1 (Priority High): Paper data entry sheets is tedious for analysis

1) Could we have you make an application to digitize the data entry sheets for the foodbank and freestore
2) It would be nice (but not necessary) to have the donation logs digitized as well.
3) We have other processes that can be added to the application as well, like:
    a) Volunteer messages

Issue 2 (Priority medium): Over-usage by selected individuals

1) Could we implement a system where certain products (mainly milk, eggs, and produce, but also possibly canned goods) are entered as numeric amounts, instead of simply Y or N?
    a) If it is possible to switch it over this way, could we have a popup that says “ERROR: Please ask volunteer for assistance” if individuals attempt to take more then their weekly amount.
    b) I’d prefer it say to ask for assistance, instead of just “ERROR: Exceeded Limit,” so that individuals don’t try to circumvent the system, and instead speak personally to the volunteer. This way, volunteers can A) explain the limits to people, as I think some folks just don’t know, and B) If they are aware of limits, the volunteer can help them find alternate food sources.
    c) If the above two are possible, could we have it so families only receive the notification when selected DOUBLE but

those who are collecting as individuals receive the notification sooner.

Issue 3 (Priority Low): Demographic information

1) Would it be possible to add boxes for info on
    a) If somebody is an international student
        i) I would like this information so that we make a stronger case against international student fee increases. Clearly people can't afford to pay for what UVic is charging if most intl. Students have to rely on food banks!
    b) If somebody is on the campus meal plan.
        i) I've got a feeling that we have a number of students who are on meal plan, which is pre-paid, but because of the low quality of food, they are opting to rely on the food bank instead.

Contributed to by:

Henry Oluka (Volunteer)
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Requirements Document
FBFS_DREAMS
(Food Bank and Free Store Data Rendering, Entry and Management System)

CSC 375 Group 13

Oct 3, 2018

Contents

Revision History

Name	Date	Reason for Changes	Version
Henry Oluka	Oct 3, 2018	Initialize and Complete draft	0.9
Henry Oluka	Nov 3, 2018	Revise draft	1.0
Henry Oluka	Nov 5, 2018	Final review	1.1

1 Introduction

1.1 Purpose

The Uvic Food Bank and Free Store (FBFS) is experiencing problems with accessing, storing and analyzing their data management system. In addition, the current system has no way of

enforcing the usage regulations of the FBFS. The purpose of this Requirements Document is to document all requirements and establish a basis for work towards a solution to these issues.

1.2 Project Scope

The volunteer/admin must be able to store client data as FBFS clients take items out or donate items to the FBFS. The objective is to have digitize the client data entry sheets in order to improve data management and analysis within the organization. Volunteer/Admin must be able to modify, view, download and analyze any client data collected. The benefits of this software include ease of use with minimal training and more convenient data analysis and management, as well as restrictions on abuse of allotments. Overall, the FBFS goals are to replace their current system with an easy to use computerized system, for Users which will meets their expectations and requirements as specified below.

1.3 Glossary of Terms

Term	Definition
FBFS	Food Bank & Free Store
Users	Uvic Students who are Clients, Admin & Volunteers
Volunteers	Uvic students who volunteer at the FBFS
Admin	Uvic students who are paid to work at the FBFS
UVSS FBFS	University of Victoria Student Society Food Bank & Free Store
Must	Required to have
Should	Optional

Computerized/digitized System	Software and Hardware Implementation
Client	Uvic Students using the Food bank & Free Store
Interoperability	Compatibility of a solution system with and another solution system

1.4 References

[1] Bhattacharyya, S. (2018). Designing Hospital Information Systems | Information Technology. [online] Asian Healthcare Management System. Available at: https://www.asianhhm.com/information-technology/hospital-information-systems [Accessed 30 Sep. 2018].

[2] UVic Protection of Privacy Policy, June, 2017.[Online]. Available: https://www.uvic.ca/universitysecretary/assets/docs/policies/GV0235.pdf [Accessed: Oct 3rd, 2018]

1.5 Overview

The sections are as follows:

- Description
- Features
- Non-Functional requirements

The Description section covers the environment and problem domain of the system being specified, the features (section 3) summarizes the behaviors of the system (i.e. Functional requirements) the client described and, the non-functional requirements (Section 4 and 5) specified by the client.

2 Overall Description

2.1 Product Perspective

The requested solution is going to be a computerized system to replace the current system (paper-based data entry) see Fig. 1 in Appendix. The new system must provide them with the

functionality and features they require as outlined in the client's RFP and elaborate on the details in this document.

2.2 Product Features

Some of the features outlined by the client are as follows; computerized data entry, management and analysis. Volunteers/Admin must be able to modify, view, download and analyze any client data collected as well as enforce the correct usage regulations of the FBFS.

2.3 User Classes and Characteristics

The primary user class are the students of UVic. The students who will be using the system are clients, volunteers and administrators of the FBFS. Most students are capable of using a computerized data management system however, some students aren't and thus training will be required to disseminate the importance and proper usage of the system. New volunteers may require some training as well, in order to learn the interface.

2.4 Operating Environment

The software shall run on an Acer Laptop donated by Henry and Morgan Oluka. The laptop is capable of running any software that has an Operating system and hardware requirements listed below:

Operating system: Windows XP

Processor: Intel Pentium III or higher with bus speed of 1.0GHz or more

RAM: 2 GB

Graphics card: Intel HD Graphics

2.5 Design and Implementation Constraints

One major constraint of the project is that the software solution must be compatible with the Hardware mentioned in 2.4 and it must also follow the data storage policies of UVic. Given that FBFS is located on the UVic campus, the rules and regulations state that the server must be hosted by UVic on their servers and adhere to the UVic policies about data protection and privacy [2]. The next constraint is that the budget allocated to this project is $0.

2.6 Assumptions and dependencies

The only assumption to be made is that the FBFS takes over any maintenance and training required after the project is completed in Jan 1, 2019.

3 System Features

3.1 Data Management (High Priority)

3.1.1 Description

The first requirement of the FBFS is that volunteers and admin be able to modify, view, download and analyze any client data collected.

3.1.2 Functional Requirements

An interactive data management solution that enables volunteers and admin to modify, view, download and analyze any client data collected

REQ-1: Interactive data management solution

3.2 User Client Information Collection (High Priority)

3.2.1 Description

The FBFS requested that clients be able to enter in items they take out from the FBFS.

3.2.2 Functional Requirements

An interactive data entry solution that enables clients enter their information for reference purposes.

REQ-2: Interactive data entry solution

3.3 Interoperability between FB data management and FS data management (High Priority)

3.3.1 Description

Given that most Food Bank users are also Free Store users the proposed Food Bank data management system must be interoperable with the free store data management system.

3.3.2 Functional Requirements

Compatibility of the food bank data management system with the free store data management system

REQ-3: One solution to serve both the Food bank and free store users

3.4 Enforcement of Usage regulations (High Priority)

3.4.1 Description

The FBFS saw a dramatic increase in Food Bank Usage and would like to ensure that the needs of all its clients are equally addressed and so, enforcing usage regulations will ensure that no one client takes advantage of the system at the demise of another client.

3.4.2 Functional Requirements

The enforcement of usage regulations.

REQ-4: A solution that enforces the usage regulations

3.5 Ease of use (High Priority)

3.5.1 Description

Most students are capable of using a computerized data management system, however, some students aren't and thus the solution system must be easy to use in order to be feasible with its user's computer literacy level.

3.5.2 Functional Requirements

Ease of use.

REQ-5: A solution that is easy to comprehend and use for users of amateur computer literacy

4 External Interface Requirements

4.1 Software Interfaces

There exist many third-party software that are capable of high data visualization and analysis. The solution proposed should have a means of transferring compatible data to those software systems. Given the possibility of transferring data across computer systems. It would be necessary if Client data should be downloadable in .csv and .xml formats, which are one of the most preferred structure data formats.

5 Other Non-Functional Requirements

Note: Choose those that are applicable to your project

5.1 Performance Requirements

The only major performance requirements are reliability. Reliability is defined as the time for which the product is available to users. Reliability must exceed rates of 99.9% [1].

5.2 Safety Requirements

The main requirement of the system is that users' data must not be released to unaffiliated parties and unauthorized users. Personal data must be kept secure and away from any possible data leak situations.

5.3 Security Requirements

5.3.1 Levels of Authorization

Authorization will be used to authenticate users and also control access to client data records based on the user's privileges. The available authorization levels are:

1. Admin (full access)
2. Volunteer (full access)
3. Guest (limited access)

The definition of full and limited access will be determined at a later date.

5.3.2 Data Privacy

Client data being stored should comply with applicable privacy laws.

5.4 Software Quality Attributes

5.4.1 Correctness

Correctness is defined as the accuracy of client data which includes all information clients enter into the computerized system.

5.4.2 Usability

Usability is defined as the user's ability to easily locate any necessary client data. This requires any information being requested or displayed to be done in an appropriate manner.

5.4.3 Adaptability

Adaptability is defined as the ability to connect to external software components such third-party software and the web.

5 Appendix

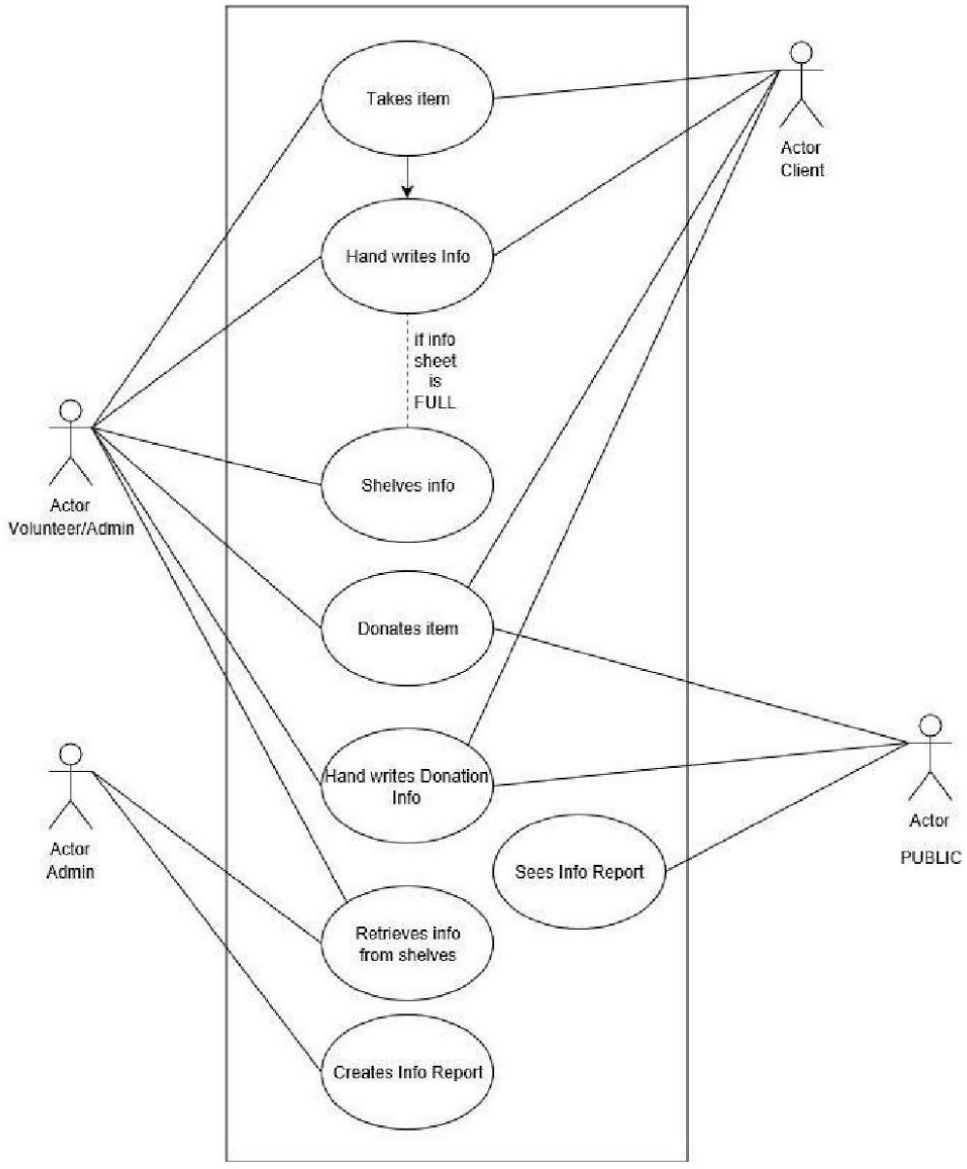

Figure 1. Use case diagram showing current signout system at the FBFS.

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13. Index

(The index should be at the end of your report and should contain a list of topic items and page references within your report)

Alternative Solution

Proposed Solution

Data Flow Description

Environmental Model

Behavior Model

Tangible Cost

Intangible Cost

Tangible Benefit

Intangible Benefit

Domain Model

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Data Structure

Gantt Chart

Letters

Project Document

Project Charter

RFP

Weekly Status Reports

Process Specifications