

Volunteer Management System (VMS) Portfolio

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Documentation

1.0 Document Approval

This document has been accepted and approved by the following:

Printed Name	Signature	Title	Date
Brian Quigley	Brian Quigley	Developer	03/19/2014
Dat Nguyen	Dat Nguyen	Developer	03/19/2014
Jason Fu	Jason Fu	Developer	03/19/2014
Mariana Chagoyan	Mariana Chagoyan	Developer	03/19/2014

1.1 Revision History

Date	Version	Description
01/24/2014	1.0	Initial version is released. Added some functional requirements.
01/26/2014	1.1	Added Numbered Section Headers Added Table Numbers for sections Added Table of Contents Added Intended Audiences Added Resource requirements Added References Revised functional requirements Added non-functional requirements Added feasibility table Renamed document on title page to match all other documentation
02/02/2014	1.2	Added Use cases Section Added domain diagrams Updated glossary of terms Added Use cases scenarios and use case diagrams
02/08/2014	1.3	Added use case diagrams Added formal scenario Volunteer-Coordinator Added formal scenario Beneficiary-Coordinator Added formal scenario NPO Coordinator-Volunteer Added more formal scenarios

		<p>Edited and updated domain diagram Added Activity Diagram Added corresponding changes to TOC Created and organized proportional part for this document</p>
02/16/2014	1.4	<p>Updated explanation of problem to be solved Added economic analysis Added architecture design documentation Added response letter and survey</p>
02/23/2014	1.5	<p>Added User Profiles and Descriptions Added a new list of Use Cases Added 7 new use case formal scenarios descriptions Modified Activity Diagram Added Section 12 Project Justification Outline and created a plan for research spending areas Re-organized portfolio into different sections <ul style="list-style-type: none"> • A Documentation History • B Business Proposal • C Portfolio • D Documents Collected Added metrics data on Problem section B Added Cost Estimation on Justification Section</p>
03/02/2014	1.6	<p>Redesigned domain diagram Added risk management Added type of risk on table Modified problem and metrics for stakeholder Refined use case diagrams</p>
03/09/2014	1.7	<p>Added and Modified Business Case Documented Prepared for North Helpline Identified stakeholders Redefined the solution Added Risk Control Method Table Added Business Case Document</p>
03/15/2014	1.8	<p>Added glossary to Business Case Modified Use Case Diagram Updated and edited Risks Tables Revised and re-organized whole document Added requirements verifications Added payback analysis graph</p>

Business Case Document

Volunteer Management System (VMS)

Business Case

North Helpline Food Bank
12736 33rd Ave NE
Seattle, WA 98125

03/16/14

Version 1.5

1 Glossary of Terms

Term	Definition
Beneficiary	A recipient of an NPO service.
Coordinator	A representative of a particular NPO who is responsible for managing the system and interacting with volunteers. A coordinator can be a volunteer or an employee.
Decentralized Business Model	A business model that is not organized within one system and is held together in several different, unrelated systems.
End user	A person who uses the product. Within the scope of this project, an “end user” usually refers a to volunteer, beneficiary, or coordinator.
Position	An allocated block of time that an NPO has designated as an available volunteer time period, referenced in half hour increments.
Service	Any action completed by a volunteer to benefit a beneficiary.
Web-Based Platform	An application that can be used internal databases through a website.
Web server	Remote computer system that maintains the database and web servers with VMS system.
Workforce	The collective amassment of volunteers and employees on any given day.

2 Executive Summary

The VMS(Volunteer Management System) project is a centralized web-based platform with service applications for volunteer management and administrative activities. The VMS will be designed to allow NPOs (non-profit organizations) to pool information with other NPOs who wish to share the use of web and service applications. This business document outlines how the web-based platform (VMS) project will address current business concerns, costs, benefits, justifications and recommendations. In addition, this business case will discuss goals, performance measures, assumptions, constraints, and alternative options.

2.1 Issue

Because of an evolving client base, NHL(North Helpline) has moved to a decentralized business model over the last 5 years. As they have continued to support more volunteers and

administration at their current location, the work has become more difficult. Until now, many of their internal requirements for volunteers such as orientation, activities, and management have been done via legacy systems such as VolunteerSpot.com in conjunction with email communication.

As their workforce fluctuates in numbers and in area, this legacy system has become inadequate to effectively manage administrative activities. This inadequacy is manifested in higher costs and difficulties in managing resources which has been seen over the last 12 months.

2.2 Anticipated Outcomes

Moving to a centralized web-based platform will enable NHL to manage its volunteers' and administrators' functions in a seamless and consolidated manner. This technology migration will reduce overhead costs associated with the large workforce that is currently required to manage these tasks. De-centralized volunteers will have more autonomy to manage their volunteer efforts, training, reporting, and various other administrative tasks. The organization will also benefit from more timely and accurate financial reporting as a result of managers' ability to enter and continuously update their hourly metrics. This real time access reduces errors, improves cycle time, and is readily available to any user.

2.3 Recommendation

Various options and alternatives were analyzed to determine the best way to leverage technology to improve business processes and to continuously improve efficiency in reducing overhead cost, and capitalizing on technology within NHL. In order to more effectively manage their administration, reduce costs, and improve volunteer turnover, NHL's current system must move to a web-based platform. Volunteers will assume a greater role in managing their issues and have secure access to timesheets online, while the organization can manage its administration from one central platform. In order to preserve data integrity, the organization should allow adequate time to train all employees and managers on their responsibilities and respective administrative functions. The web-based platform will be compatible with all other current IT systems and will improve the efficiency and accuracy of reporting throughout the organization. There are several ways the project will achieve its desired results:

- Volunteers will be able to enter and edit their timesheet data at any time from any location instead of phoning their data in to their regional manager for entry into the mainframe system.
- Timesheet and payroll data will be immediately accessible for quality control and reporting purposes, which will reduce the need for staff in non-billable positions to gather, analyze and compile data.
- Employees will have the ability to register for training which reduces the burden on

managers and training staff.

2.4 Justification

Data migration of payroll and other administrative functions from the legacy system to the web-based platform will result in greater efficiency with regards to company resources and business processes. The VMS project is also aligned with non-profit organizational strategies and objectives since it uses technology to improve the way they do business. The VMS project was selected because it provides the best opportunity to realize benefits in an expedited manner while allowing for the greatest improvement in efficiency and cost reduction. Alternative programs assumed greater risk, provided fewer benefits, were too difficult to define, or were not suitably aligned with current corporate strategy and/or objectives.

2.4.1 Initial Estimation for the VMS Project

- Up to 15% reduction in overhead costs in the first 12 months
- Up to 50% decrease in volunteer orientation demands in the first 12 months
- Up to 50% immediate decrease in time to generate weekly and monthly metric reports as requested by organizational sponsors such as Americorps
- Up to 25% immediate decrease in the amount of time it takes to resolve volunteer issues

3 Business Case Analysis Team

The following individuals comprise the business case analysis team. They are responsible for the analysis and creation of the VMS business case.

Role	Description	Name/Title/Organization
Executive Stakeholder	Provide executive support for the project	Caleb Smith Volunteer Coordinator North Helpline
Developers	Creator of Business Case Document	CSS 370 students: Brian Quigley Dat Nguyen Jason Fu Mariana Chagoyan

4 The Problem

NHL has relied on a system to manage volunteer coordination and other administrative volunteer functions. As volunteer numbers fluctuate, so do the burdens placed upon the volunteer coordinator to effectively manage the organizations at acceptable levels. During the last five years, NHL has employed one volunteer coordinator to help manage and run the day-to-day administration operations. Volunteer duties may easily be automated, thus enabling the coordinator to tend to more pressing tasks such as onsite responsibilities. In addition, volunteers have no information about the current state of need in regards to positions of high priority or logged hours. NHL has no centralized process to control the entire volunteer system and relies on commercial-off-the-shelf software to loosely manage this process. Additionally, volunteers must currently call or email their volunteer coordinator to enter work hours or to raise any concerns regarding efforts and tasks.

4.1 Organizational Impact

VMS Project implementation will impact NHL in the following areas :

- **Tools**

The existing legacy administration platform will be partially phased out as VMS becomes operational. This will require training for employees on tools and their use in support.

- **Processes**

The VMS will be more efficient with streamlined administrative and volunteer coordination processes.

- **Roles and Responsibilities**

In addition to the VMS project allowing greater autonomy to volunteers and lessening the burden on volunteer coordinators, the manpower required the appropriately staff human resources and reporting departments will be reduced. The reduction of overhead required for positions will directly reflect in NHL's bottom line and will provide an immediate return on investment.

- **Hardware/Software**

In addition to purchasing software and licensing for the VMS, NHL will be expected to purchase additional servers to accommodate the platform and its anticipated growth for the next 10 years.

4.2 Technology Migration

In order to effectively migrate existing data from their legacy platform to the new web-based platform, a phased approach has been developed which will result in minimal disruption in day-to-day operations, administration, and reporting activities. The following is a high-level overview of the phased approach:

- **Phase I**

Hardware and software will be purchased and the VMS will be created in the web-based environment and tested by the IT development group.

- **Phase II**

The servers will be populated with all current volunteer and administrative data. This must be done in conjunction with the end of a reporting cycle.

- **Phase III**

IT will create a temporary legacy platform to be used for day-to-day operations for reporting and administration activities. This will be used as a backup system and to archive all data from the organization's mainframe.

- **Phase IV**

All employees will receive training on the new web-based platform.

- **Phase V**

The web-based platform will go live and the legacy system will be archived.

5 Project Overview

NHL's business problems will be addressed by providing a detailed VMS project description, goals and objectives, performance criteria, assumptions, constraints, and major milestones. As the VMS project is approved and moves forward, each of these components will be expanded to include a greater level of detail in working toward the project plan.

5.1 Project Description

The VMS project will review and analyze several potential products to replace NHL's legacy volunteer and administration system with a web-based platform. This will be done by determining and selecting a product which adequately replaces the existing system and will still allow for growth for the next 10 years. Once selected, the VMS project will replace the existing

system in a phased implementation approach and will be completed once the new system is operational and the legacy system is archived and no longer in use.

The VMS project will result in greater efficiency of day-to-day volunteer and administrative operations and significantly lower overhead costs in terms of orientation; it will automate the signup instructions and provide greater volunteer support in terms of registration and selecting desired volunteer opportunities, thereby providing volunteers with greater autonomy and flexibility. Additionally, volunteer coordinators will once again be focused on priority tasks instead of utilizing a significant portion of their time on administrative tasks.

NHL will issue a request for information in order to determine which products are immediately available to meet their business needs. Once the product is acquired, all implementation and data population will be conducted with internal resources.

5.2 Goals and Objectives

The VMS project directly supports several of the corporate goals and objectives established by NHL. The following table lists the business goals and objectives that the VMS project supports and how it supports them:

Business Goal/Objective	Description
Timely and accurate reporting	Web-based tool will allow real-time and accurate reporting of all volunteer and administrative metrics
Improve staff efficiency	Fewer staff required for managing these activities will improve efficiency
Increase management of volunteer turnover	Greater autonomy and flexibility will address volunteer concerns and allow volunteer coordinators to focus on priority tasks
Reduce overhead costs	Fewer staff required will reduce the company's overhead

5.3 Project Performance

The following table lists the key resources, processes, or services and their anticipated business outcomes in measuring the performance of the project. These performance measures will be quantified and further defined in the detailed project plan.

Key Resources / Processes / Services	Performance Measure
Reporting	Reduce reporting discrepancies (duplicates and gaps) and will require reconciliation biannually rather than monthly.
Timesheet / Admin data entry	Reduce volunteer coordinators' and managers' work by allowing volunteers to enter their data directly.
Software and System Maintenance	Decrease in cost and staff requirements as system maintenance will be reduced from once every month to biannually with the new system.
Staff Resources	Reduction of managers' weekly hours by five, which are no longer required as several functions will now be automated.

5.4 Project Assumptions

The following assumptions apply to VMS Project. As project planning begins and more assumptions are identified, they will be added accordingly.

- All staff and employees will be trained accordingly in their respective data entry, timesheet, and reporting tasks on the new web-based system
- Funding is available for training
- Funding is available for purchasing hardware/software for the web-based system
- All department heads will provide necessary support for successful project completion
- Project has executive-level support and backing
- Project will be user-friendly and therefore cost little to train new volunteers and staff in its use
- Project will be initially developed in cooperation with approximately 30 volunteer organizations located in the Puget Sound region with potential to expand nationally

5.5 Project Constraints

The following constraints apply to the VMS project. As planning begins and more constraints are identified, they will be added accordingly. There are limited IT resources available to support the VMS project and other ongoing IT initiatives. There is a limited number of commercial-off-the-shelf (COTS) products to support both payroll and administrative activities. As implementation will be done internally and not by the product developers or vendors, there will be limited support from the hardware/software providers.

5.6 Major Project Milestones

The following are the major project milestones identified at this time. As VMS project planning moves forward and the schedule is developed, the milestones and their target completion dates will be modified, adjusted, and finalized as necessary to establish the baseline schedule.

Table 5.6.1: VMS Project Estimated Milestones

Milestones/Deliverables	Target Date
Project Charter	01/01/2015
Project Plan Review and Completion	03/01/2015
Project Kickoff	03/10/2015
Phase I Complete	05/15/2015
Phase II Complete	07/15/2015
Phase III Complete	08/15/2015
Phase IV Complete	10/15/2015
Phase V Complete	12/15/2015
Closeout/Project Completion	12/31/2015

Table 5.6.2: Version Release Schedule

Version	Description	Requirement ID
0.1.1	Create a new database to hold old, current and new information	
0.1.2	Transfer information from legacy systems to new databases.	
0.2.1	Create a skeleton of a website that can pull information from the databases.	
0.2.2	Create a volunteer login system through Google+	FR-VRP-1, FR-VOL-1
	Add a “Sign-up” button to the website	FR-VRP-2
0.2.3	Create a coordinator login system through Google+	
	Allow the website to display information about NPOs.	FR-VOL-3
0.2.4	Allow beneficiaries to view the website	FR-BEN-2
	Allow beneficiaries to search for NPOs through the website	FR-BEN-1 FR-BEN-3
	Alpha release of website (End of Phase I)	
0.3.1	Create a skeleton mobile app (iOS) that allows volunteers and coordinators to log in and edit personal information	FR-VRP-3
0.3.2	Create a calendar that will display events and services	FR-CAL-1
0.3.3	Display calendar on both the website and mobile app	
0.4.1	Allow for coordinators to schedule events on the calendar	FR-CAL-3
	Enable volunteers to see the schedules on the calendar	FR-VOL-5
0.4.2	Create functionality that allows volunteers to sign up for scheduled events	FR-CAL-2
	Allow users to see how many volunteers have signed up for specific days	

Version	Description	Requirement ID
0.4.3	Allow coordinators to communicate with coordinators of other NPOs with emails	FR-SHR-2
	Allow coordinators to access their volunteers' (limited) information	FR-COO-1
	Enable coordinators to trade volunteers with other coordinators	FR-COO-3
	Alpha release of mobile version (End of Phase II)	
0.5.1	Allow volunteers to enable text and email notifications through the website	FR-NOT-3, FR-VOL-2
	Allow coordinators of organizations to share (limited) information about volunteers with each other	FR-SHR-1
0.5.2	Create text and email templates that will be sent out to remind volunteers about the events and days for which they have signed up	FR-NOT-1
	Create email templates that will be sent out to notify volunteers of potential opportunities and types of positions available	FR-NOT-2
	Beta release of website (End of Phase III)	
0.6.1	Allow volunteers to check in and check out during their shift with a code	FR-VOL-8
	Allow volunteers to track how many hours they have logged	FR-VOL-4
0.6.2	Allow volunteers to request specific date changes	FR-VOL-7
	Allow coordinators to set custom intervals for email and text notifications	FR-NOT-4
0.7.1	Polish the website and increase usability for volunteers and coordinators	NFR-USE-1
	Polish the website and increase usability for beneficiaries	NFR-USE-2
0.7.2	Create text and email templates to notify volunteers when they signed up for an opportunity and did not appear	FR-NOT-5

Version	Description	Requirement ID
	Ensure that the web version is compatible with the web browsers listed in the requirements	NFR-POR-1
	Beta Release of mobile app (iOS) (End of Phase IV)	
0.8.1	Create a notification tab that can be viewed after volunteers and coordinators log in	NFR-USE-3
	Create a schedule tab that can be viewed after volunteers and coordinators log in	NFR-USE-4
0.9.1	Create and distribute a usability feedback survey	NFR-USE-6
	Tweak website and app as needed	
	Full testing	
1.0.0	Full release of both mobile app and website (End of Phase V)	
1.0.1	Port to Android devices	
X.X.X	Testing, bug fixes and maintenance	

6 Strategic Alignment

The VMS project is in direct support of several missions as reported by non-profit volunteer organizations. By directly supporting these strategic plans, this project will improve the business and help move the organization forward to the next level of maturity.

VMS Strategic Plans	Goals/Objectives	Relationship to Project
Strategic Plan for Information Management	Improve record and keeping information management	-Allow for real-time information and data entry -Increase information accuracy -Consolidate repository for all volunteer and administrative data regarding their contribution to the organization
Strategic Plan for Information Management	Utilize new technology to support organization missions more effectively	-Allow orientation and administrative functions to be automated reducing the hours of staff required to manage these systems
Strategic Plan for Human Capital	Engage workforce and improve volunteer retention	-Allows volunteer to take an active role in managing his/her volunteer hours and selecting volunteer opportunities

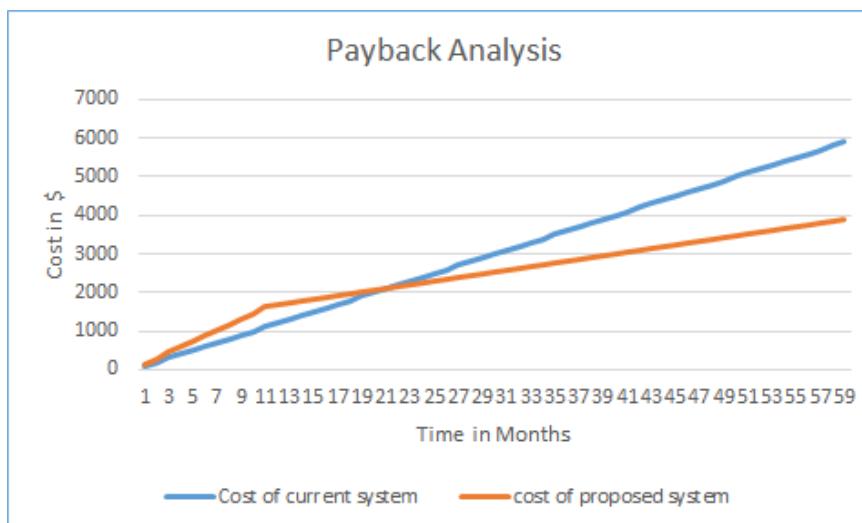
7 Cost Benefit Analysis

The following table captures the cost and savings actions associated with the VMS project, descriptions of these actions, and the costs or savings associated with them through the first year. At the bottom of the chart is the net savings for the first year of the project.

Action	Action Type	Description	First year costs (- indicates anticipated savings)
VMS Construction	Cost	Initial investment for VMS Project	\$17,000
Software Installation and training	Cost	Host tutorial videos to train volunteer coordinators	\$100

Reduce hourly payroll by 5 hours/week	Savings	An immediate reduction in overhead equal to fifteen percent of the annual salary of a volunteer. Assuming an average salary of \$35,000 for a food bank administrator, an average savings of 15% is $\$5,250 \times 30$	-\$157,500
Managers no longer required to work non-billable payroll and perform administrative tasks	Savings	Volunteer coordinators currently average five non-billable hours per week. It is anticipated that this number will be reduced to no more than two hours per week. At an average of \$25.80 per hour this results in $(\$25.80 \times 2 \text{ hours/wk} \times 30 \text{ managers}) = \1548.00 reduced cost per week.	-\$1,548
Reduce employee turnover by 10%	Savings	Savings in cost to out-process existing employee and recruit, hire, and train new employees is approximately \$3,500 in the first year.	-\$3,500
Net First Year Savings			-\$148,948

Based on the cost-benefit analysis above, we see that by authorizing the VMS project, non-profit organizations in the Puget Sound region will save \$148,948.00 in the first year alone. This represents a significant improvement in the area's operating costs and is a clear indicator of the benefit that this project will have on the organizations. A visual representation of the savings can be seen in the following diagram. Payback is realized after approximately 20 months.



8 Project Justification

8.1 Cost Estimation

The following is an estimation of the cost to develop the VMS project. Several variables were taken under consideration in the generation of this estimate. Since the inception phase was done by volunteers, there is zero upfront cost associated with it. This estimation was generated using COCOMO II, assuming that development will take place under a rational unified process. The following is a justification of the drivers used as parameters:

8.1.1 Scale drivers

To estimate the costs of this project, COCOMO II used several variables. The only deviations from average in these choices are for the following that are listed.

8.1.1.1 Precededness

The VMS is similar to other scheduling systems already implemented. For this reason, we chose high precededness.

8.1.1.2 Flexibility

At this stage in the development process, the requirements are somewhat flexible, as we are still waiting on validation from stakeholders. For this reason, we selected nominal with some relaxation.

8.1.1.3 Architecture Risk Resolution

Some questions remain to be determined, but it is assumed that the stakeholders have a solid understanding of how teams function given the nature of their nonprofit work. For this reason, architecture risk resolution was set as nominal.

8.1.1.4 Team Cohesion

Team cohesion was set as high as stakeholders are basically cooperative and team members are working well together.

8.1.1.5 Process Maturity

Given the nature of nonprofit organizations seeking external funding for various projects, we assume it is not high on the budget list. For this reason we selected SEI maturity CMM level II.

8.1.2 Cost Driver

The following sections are justifications for selections of cost drivers, which are based on the following model. Note that this approximation largely depends on the budget of the stakeholder. For example, if an organization only has \$X,XXX to budget, then they may choose to post the job on a freelance website for bids or they may choose to contract the work.

Table 8.1.2.1 Costs for Component

Costs for Component: Component1			
Cost per Person-Month			
Inception	\$ <input type="text" value="0"/>	<input checked="" type="checkbox"/> Inherit IN	<input type="checkbox"/> Use Rates Tab & Labor Distribution
Elaboration	\$ <input type="text" value="0"/>	<input checked="" type="checkbox"/> Inherit EL	<input type="checkbox"/> Use Rates Tab & Labor Distribution
Construction	\$ <input type="text" value="2000"/>	<input type="checkbox"/> Inherit CN	<input type="checkbox"/> Use Rates Tab & Labor Distribution
Transition	\$ <input type="text" value="1000"/>	<input type="checkbox"/> Inherit TR	<input type="checkbox"/> Use Rates Tab & Labor Distribution
Maintenance	\$ <input type="text" value="500"/>	<input type="checkbox"/> Inherit MN	<input type="checkbox"/> Use Rates Tab & Labor Distribution

8.1.2.2 Site

Because of the size of this project (approximately 5000 lines of code), it is assumed that the development team will be small and will work in close proximity; therefore, this was set at extra high, meaning that the team will be co-located in the same complex with easy accessibility to each other, thereby making project coordination more efficient.

8.1.2.3 Reliability

In considering the risk of software failure, we assumed that volunteer coordinators will be responsible for backing up their own data of volunteers. For this reason, the cost of the software failure would be low, because NHL would be able to restore all their data by managing their accounts.

8.1.2.4 Complexity

The volunteer management system uses simple principles to help automate the tasks of volunteer centers. For this reason, it is simple in terms of design and therefore complexity was set to low.

8.1.3 Cost Models

The following tables are a cost estimate for this project based on output generated by Costar 7.0.

The following activity report is an estimation of time required to complete the project.

Table 8.1.3.1 Activity Report

VMS-Estimate 1 - Activity Report						
Costar 7.0 Demo	02/23/2014	16:11:13	Page: 1			
Estimate Name:	VMS-Estimate 1			Estimate ID:		
Model Name:	COCOMO II 2000			Model ID:	2000	
Process Model:	COCOMO II Model			Phases:	MBASE	
	Effort in Person-Months					
Activity	IN	EL	CN	TR	Total IN to TR	MN
Management	0.1	0.3	0.8	0.2	1.4	0.0
Environment / CM	0.1	0.2	0.4	0.1	0.7	0.0
Requirements	0.2	0.5	0.6	0.1	1.4	0.0
Design	0.1	0.9	1.3	0.1	2.4	0.0
Implementation	0.1	0.3	2.8	0.2	3.4	0.0
Assessment	0.1	0.3	1.9	0.3	2.6	0.0
Deployment	0.0	0.1	0.2	0.4	0.7	0.0
Totals	0.6	2.6	8.1	1.3	12.6	0.0

The following detailed report of cost estimate is in person months.

Table 8.1.3.2 Detailed Report

VMS-Estimate 1 - Detail Report				
Costar 7.0 Demo	02/23/2014	16:13:16	Page: 1	
Estimate Name:	VMS-Estimate 1		Estimate ID:	
Model Name:	COCOMO II 2000		Model ID:	2000
Process Model:	COCOMO II Model		Phases:	MBASE
Component Name:	Component1		Component ID:	
Increment:	1		Level:	1
Developed Size:	5,000		EAF:	0.6403
Phase	Effort (Person-Months)	Cost (K\$)	Duration (Months)	Staffing
IN -- Inception	0.6	0.0	1.0	0.7
EL -- Elaboration	2.6	0.0	2.9	0.9
CN -- Construction	8.1	16.2	4.8	1.7
Development (EL+CN)	10.6	16.2	7.7	
TR -- Transition	1.3	1.3	1.0	1.3
Totals (IN+EL+CN+TR)	12.6	17.5	9.6	
MN -- Maintenance (per year)	0.0	0.0		0.0

The following activity report is an estimation of time required to complete VMS Project.

Table 8.1.3.3 Activity report

VMS-Estimate 1 - Activity Report						
Costar 7.0 Demo	02/23/2014	16:11:13	Page: 1			
Estimate Name:	VMS-Estimate 1			Estimate ID:		
Model Name:	COCOMO II 2000			Model ID:	2000	
Process Model:	COCOMO II Model			Phases:	MBASE	
	Effort in Person-Months					
Activity	IN	EL	CN	TR	Total IN to TR	MN
Management	0.1	0.3	0.8	0.2	1.4	0.0
Environment / CM	0.1	0.2	0.4	0.1	0.7	0.0
Requirements	0.2	0.5	0.6	0.1	1.4	0.0
Design	0.1	0.9	1.3	0.1	2.4	0.0
Implementation	0.1	0.3	2.8	0.2	3.4	0.0
Assessment	0.1	0.3	1.9	0.3	2.6	0.0
Deployment	0.0	0.1	0.2	0.4	0.7	0.0
Totals	0.6	2.6	8.1	1.3	12.6	0.0

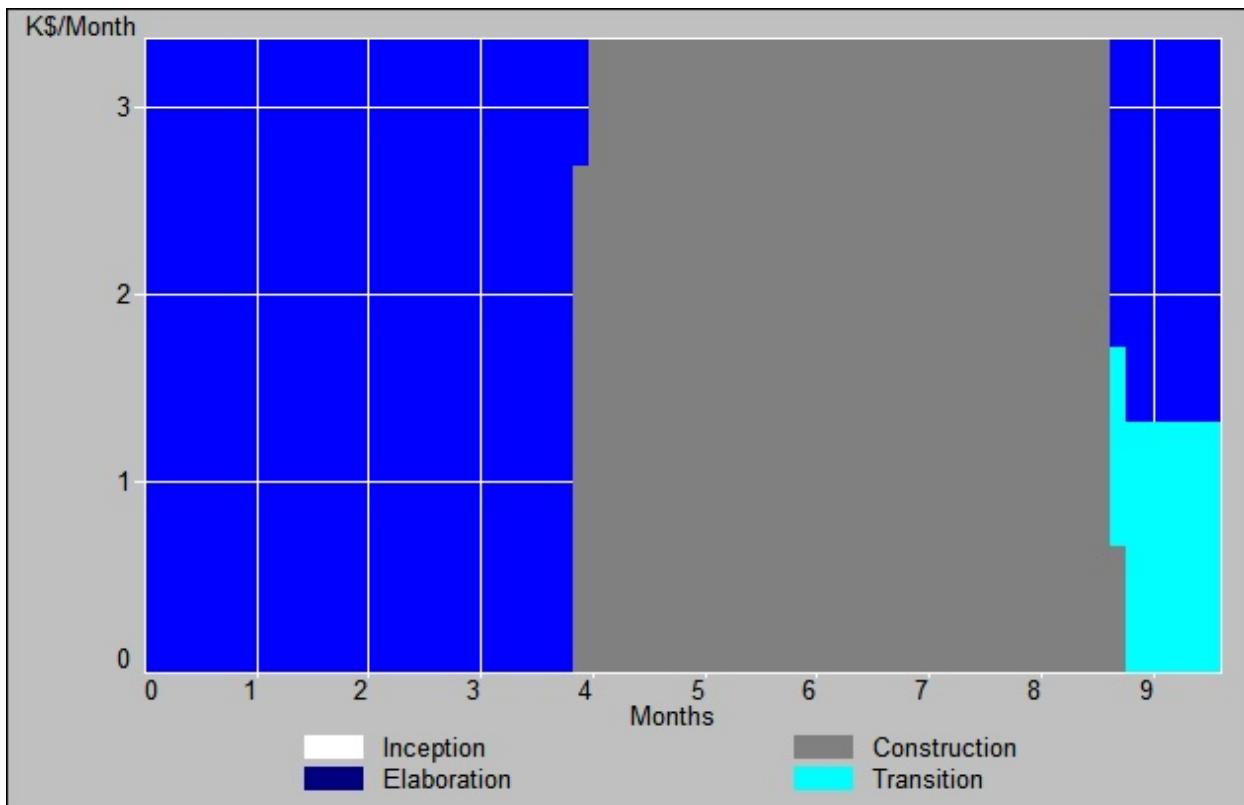
The following is an estimated schedule to completion for the VMS Project.

Table 8.1.3.4 Estimate schedule

VMS-Estimate 1 - Schedule Report						
Costar 7.0 Demo		02/23/2014 16:14:12			Page: 1	
Estimate Name:	VMS-Estimate 1			Estimate ID:		
Model Name:	COCOMO II 2000			Model ID:	2000	
Process Model:	COCOMO II Model			Phases:	MBASE	
Month	IN	Effort this Month (Person-Months)			Cumulative Effort	Cost (K\$) This Month
		EL	CN	TR	Total	Cumulative Cost (K\$)
1	0.6	0.0	0.0	0.0	0.7	0.0
2	0.0	0.9	0.0	0.0	0.9	0.0
3	0.0	0.9	0.0	0.0	0.9	0.0
4	0.0	0.8	0.3	0.0	1.0	0.5
5	0.0	0.0	1.7	0.0	1.7	3.4
6	0.0	0.0	1.7	0.0	1.7	7.2
7	0.0	0.0	1.7	0.0	1.7	10.6
8	0.0	0.0	1.7	0.0	1.7	14.0
9	0.0	0.0	1.1	0.5	1.6	16.6
10	0.0	0.0	0.0	0.8	0.8	17.5

The following is a chart that displays the cost profile associated with each period of the VMS Project.

Chart 8.1.3.5 Cost Profile



The following table provides insight into the total cost of developing VMS Project and each component.

Table 8.1.3.6 Estimate Cost and Breakage

VMS-Estimate 1 - Cost & Breakage Report								
Costar 7.0 Demo		02/23/2014 16:12:42		Page: 1				
Estimate Name:	VMS-Estimate 1				Estimate ID:			
Model Name:	COCOMO II 2000				Model ID:	2000		
Process Model:	COCOMO II Model				Phases:	MBASE		
Increment 1 of 1								
Names of Leaf Components	Developed Size	IN Cost	EL Cost	CN Cost	TR Cost	Total Cost (K\$)		
Component1	5,000	0.0	0.0	16.2	1.3	17.5		
Incr 1 Total	5,000	0.0	0.0	16.2	1.3	17.5		
Grand Total	5,000	0.0	0.0	16.2	1.3	17.5		

9 Alternatives Analysis

The following alternative options have been considered to address the business problem. These alternatives were not selected for a number of reasons which are also explained below.

No Project (Status Quo)	Reasons For Not Selecting Alternative
Keep the mainframe legacy system in place	<ul style="list-style-type: none"> • Unnecessary expenditure of funds for increased staffing levels • Continued occurrence of a high number of data errors • Poorly-regulated and untimely reporting • Lack of automation
Alternative Option	Reasons For Not Selecting Alternative
Outsource the implementation of a web-based platform	<ul style="list-style-type: none"> • Significantly higher cost • Expertise already exists in house • Vendor's lack of familiarity with our internal requirements
Alternative Option	Reasons For Not Selecting Alternative
Develop software internally	<ul style="list-style-type: none"> • Lack of qualified resources • Significant cost associated with software design • Timeframe required is too long

10 Approvals

The signatures of the people below indicate an understanding in the purpose and content of this document by those signing it. By signing this document you indicate that you approve of the proposed project outlined in this business case and that the next steps may be taken to create a formal project in accordance with the details outlined herein.

Approver Name	Title	Signature	Date

Part C: Design Document

Volunteer Management System (VMS)

Design Document

Version 1.8

March 13th, 2014

Mariana Chagoyan

Jason Fu

Dat Nguyen

Brian Quigley

Prepared for North Helpline Food Bank
UWB CSS 370
Winter 2014

1 Glossary of Terms

Table 1.1: Glossary of Terms

Term	Definition
Beneficiary	A person who benefits from an NPO service.
Coordinator	A person who is the representative from a particular NPO and is responsible for managing the system.
End users	A person who uses the product. Within the scope of this project, “end users” usually refer to volunteers and beneficiaries.
NHL	North Helpline Food Bank
Position	An allocated block of time that an NPO has designated as an available volunteer time period, referenced in half hour increments.
Stakeholder	Entities that have an interest in the project.
Web server	Remote computer system that maintains the database and web servers with VMS system.

2 VMS Project Introduction

The VMS project is a centralized web- and mobile-based platform with service applications to facilitate volunteer management and administrative. VMS will be designed to allow NPOs to pool information with other NPOs (non-profit organizations) who wish to share the use of web and service applications.

3 General Problems for NPOs

3.1 Lack of a Centralized Web-Based Platform System

Many NPOs don't have a centralized web platform system that allows them to control all volunteer management and administrative functions and relies on using different outside web and service applications for volunteer management.

NPOs need a system that automates the process of volunteer duties and speed the process of registering. Volunteers currently waste time by trying to call or email their coordinators when trying to perform basic tasks such as entering service work hours. Coordinators also waste a lot of time when providing relevant informational resources to volunteers that relate to the following:

- Keeping volunteer record information organized and searchable to facilitate their management and access

- Instructing volunteers with a sign up online process which involves filling out a volunteer application and signing up for shifts online
- Properly balancing and allocating volunteers' time to deal with understaffed and overstuffed volunteer service conditions

3.2 Fluctuation of Volunteer Staffing

The Bureau of Labor Statistics for Volunteering in the United States reported that about about 62.6 million people volunteered through or for an organization at least once between September 2012 and September 2013. Volunteers spent a median of 50 hours on volunteer activities during the period from September 2012 to September 2013.

Balancing and allocating volunteer hours on a weekly basis is a problem for many NPOs. A common example is that on weekends, especially on Saturdays, most volunteers have the day off from their daily routine and are willing to volunteer. However, on weekdays, the demand for volunteers goes up, as there are not enough volunteers. Table 3.2.1 presents the number of volunteers for overstaffing and understaffing conditions. Based on these numbers, we can assume that for an overstaffing condition, an NPO is losing up eight hours for every volunteers that is additional to the optimal staffing condition.

Table 3.2.1: Staffing Condition of North Helpline Food Bank

Staffing Condition	Ranking of Volunteers
Understaffed	Fewer than 24 volunteers
Overstaffed	More than 30 volunteers
Optimally staffed	Between 24 and 30

Volunteer staffing fluctuates constantly, creating difficulty for coordinators because they have to spend a lot of time in volunteers' enrollment process instead of focusing on more important responsibilities. This fluctuation creates an increase of overhead costs and wastes labor for coordinators in repetitive volunteer enrollment tasks.

3.3 Problems with Current Data Storage Methods

Many web applications for volunteer management have certain deficiencies such as slow input or limited output possibilities. Further, some do not provide volunteers with sufficient sign-up process information and typically coordinators still need to reach out to find more volunteers and provide them additional information on how to use applications and for signing up for shifts online.

Some of these applications are :

- VolunteerSpot
- Salesforce
- United Way
- Volunteermatch
- IntelliVOL

4 General Scope

VMS will operate with local NPOs and it will operate within the greater Seattle area, affecting approximately 30 NPOs at early release.

5 The Solution

The VMS will provide solutions to the aforementioned problems. During the process of its creation, data will be migrated from the NPO's current legacy systems to the VMS web-based platform. The VMS project will provide volunteers with information related for the volunteer sign-up process, allowing them to log in to the system and to sign up for volunteer services. Coordinators will have the ability to view and post to a calendar with events and to email scheduled volunteers. All of this effort to digitize and ease the volunteer sign-up process.

6 Objectives

Objectives of the VMS focus on facilitating an efficient exchange between three actors in the system: beneficiaries, who seek resources; volunteers, who donate resources; and NPOs, who distribute resources.

6.1 Beneficiary objectives

- Connect beneficiary with local NPOs.
- Find information on NPOs:
 - Contact Information
 - Hours of operation
 - Services offered

6.2 Volunteer objectives

- Connect volunteer with local NPOs
- Provide a schedule of available volunteer positions for that location

6.3 NPO objectives

- Enable efficient volunteer hour management.

7 Intended Audiences

Intended audiences of stakeholders for this specification of the VMS include:

Table 7.1: Intended Audiences

Title	Description
North Helpline Volunteer Coordinator	Caleb Smith - VMS project area specialist -- consultant
Instructor	Mark Kochanski, M.S.
Project Managers	Responsible for planning, executing, and closing this project
Developers	Responsible for implementing the VMS system
Beneficiaries	People who may be interested in the latest developments in volunteer operations
Volunteers	People who will use the system to help them schedule their time, locate, and register NPOs requesting volunteers
NPOs	Organizations who will use the VMS to place volunteer requests and notify other NPOs, volunteers, and beneficiaries of their presence

8 Requirements Elicitation Methods

8.1 Survey and Questionnaire

Several surveys were conducted to gather opinions from our stakeholder. Mr. Caleb Smith, a North Helpline volunteer coordinator, was contacted via email, allowing him to gather answers and detailed information from other employees.

8.2 Survey and Questionnaire Result

Since Mr. Caleb Smith did well in answering our survey, we were able to gather large bits of information from different areas. His answers are very detailed and extremely helpful. He gave us validation and information that allowed us to produce information in the Business Case document. Stakeholder correspondence can be found in Appendix C of the document.

9 References

This specifications document references or complies with the following documents:

- Requirements section of *Sommerville Software Engineering*. 9th ed.
- IEEE style and convention of requirements specification.
- Agilemodeling.com for use case diagram and use cases -- implemented in V2.0
- Lecture notes provided by instructor management: Mark Kochanski.

10 Functional Requirements

This document uses IEEE style format for defining requirements of the system. It is organized in terms of functionality of each type of user: NPOs (Section 2.1), volunteers (Section 2.2), and beneficiaries (Section 2.3).

10.1 Non-Profit Organizations

The following functional requirements relate directly to the NPOs user experience.

Table 10.1.1: Coordinator Account Management

Requirement ID	Requirement Description	Priority
FR-COO-1	The system shall allow the NPO coordinator to access volunteer contact information via Google account.	High
FR-COO-2	The system shall allow the NPO coordinator to track volunteer hours to anticipate scheduling needs.	Medium
FR-COO-3	The NPO coordinator shall be able to distribute volunteers to different locations and time slots based on their availability, skills, and service preferences.	High
FR-COO-4	The system shall allow the NPO coordinator to verify whether or not a volunteer has checked in.	High
FR-COO-5	The NPOs shall provide a description of requirements for volunteers or abilities required to perform duties associated with a position.	Medium

Table 10.1.2: Volunteer Registration and Profile Creation

Requirement ID	Requirement Description	Priority
FR-VRP-1	The system shall allow volunteers to sign in by integrating the Google Sign-in feature.	High
FR-VRP-2	Sign-up button shall be linked to Google sign-up page.	High
FR-VRP-3	Volunteers should be able to edit changes in their contact information, current availability, skills, services and location of preference.	High

Table 10.1.3: Calendar

Requirement ID	Requirement Description	Priority
FR-CAL-1	The web service and mobile application shall display a view of volunteer calendar which displays events and services in dates, weeks, and months.	High
FR-CAL-2	The system should allow volunteers to view and sign up for voluntary services through their calendar.	High
FR-CAL-3	NPO coordinator should be able to make modifications in the calendar such as add and remove events.	High
FR-CAL-4	The system should automatically close an event on calendar once volunteer sign up reached expectation.	Low

Table 10.1.4: Notifications

Requirement ID	Requirement Description	Priority
FR-NOT-1	Volunteers should be reminded via text and email about volunteer opportunities in which they have signed up.	Medium
FR-NOT-2	Volunteers should be notified via email about available opportunities, types of positions available, and the number of people needed.	Medium
FR-NOT-3	The system should allow volunteers to temporarily disable and enable notifications at any time.	Medium
FR-NOT-4	Notifications shall be distributed in logical intervals (monthly, quarterly, annually).	Medium

	weekly, or daily) and can be set, altered or deleted by the organization.	
FR-NOT-5	Volunteers should be notified via text and email if they signed up for voluntary services and didn't show up.	Low

Table 10.1.5: Information Sharing with Other NPOs

Requirement ID	Requirement Description	Priority
FR-SHR-1	The system shall allow organizations in the same network to access volunteers' information and schedules.	Medium
FR-SHR-2	The system shall allow organizations to communicate with each other and reallocate volunteers if necessary.	High

10.2 Volunteers

The following functional requirements relate directly to the volunteer's user experience (see Table 10.2.1).

Table 10.2.1 : Volunteer Requirements of VMS

Requirement ID	Requirement Description The system...	Priority
FR-VOL-1	Shall allow volunteers to register with the VMS service.	High
FR-VOL-2	Shall allow volunteers to set up notification reminders via email and/or via the mobile application.	Medium
FR-VOL-3	Shall allow volunteers to search for an NPO by: <ul style="list-style-type: none"> • FR-VOL-3.1 : Location • FR-VOL-3.2 : Available timeslots for service 	High
FR-VOL-4	Should track the volunteers' previous locations and log the number of hours volunteered for each location with a total.	Medium
FR-VOL-5	Shall display a schedule of volunteer positions available.	High
FR-VOL-6	Should allow the volunteer to decide whether their name appears in the volunteer position or remain anonymous.	Low
FR-VOL-7	Should allow volunteers to be able to request specific dates and work positions.	Medium
FR-VOL-8	Should allow volunteers to check-in and check-out for their	High

	specific service day.	
FR-VOL-9	Shall allow volunteers to search for service via search bar on the main homepage.	High
FR-VOL-10	Shall allow volunteers to search for service via the schedule calendar.	High

10.3 Beneficiaries

The following functional requirements relate to the beneficiary's user experience.

Table 10.3.1: Beneficiary Requirements of VMS

Requirement ID	Requirement Description	Priority
FR-BEN-1	The web service shall display a view of Google map with pinpoints of NPO locations based on beneficiary's access location.	High
FR-BEN-2	The web service shall display a view with following information about the NPO: <ul style="list-style-type: none"> • FR-BEN-2.1 : Hours of operation • FR-BEN-2.2 : Location address • FR-BEN-2.3 : NPO representative phone number 	High
FR-BEN-3	As the beneficiary clicks on an NPO pinpoint location, the beneficiary should see a list that consists of what types of goods and services the NPO provides.	High

10.4 Functional Requirements Verification

All of the functional requirements can be verified by performing unit tests, integration tests, and acceptance tests. As part of the verification process, the developers should review this section and the use cases provided in section 12.

11 Non-Functional Requirements

The following sections and tables describe non-functional requirements of the system.

11.1 Availability

The system shall be available to everyone simultaneously, as several users will be connecting at the same time. The system shall be focused on predicting the uncertainty of common problems even when maintainability levels are high (see Table 8.1.1).

Table 11.1.1 : Availability Requirements

Requirement ID	Requirement Description	Priority
NFR-AVAIL-1	End users access shall have an availability of 98% of all time.	High
NFR-AVAIL-2	The web service should not have more than an average of 1.5 hours of unscheduled downtime per month.	Medium
NFR-AVAIL-4	The web service shall reflect changes on NPO's database within 6 seconds.	Medium

11.2 Usability

The system shall be usable and shall express the requirements in similar metrics and familiar vocabulary to users. This is a very important requirement since our end users consist of volunteers and beneficiaries who may have varying technical backgrounds. (See Table 3.2.1)

Table 11.2.1 : Usability Requirements

Requirement ID	Requirement Description	Priority
NFR-USE-1	Volunteers shall be able to find Sign in / Sign up button on the homepage within 10 seconds.	High
NFR-USE-2	Volunteers shall be able to find search bar on the homepage within 10 seconds.	High
NFR-USE-3	When volunteers are on their account page, notification tab should be displayed under Account Overview.	Medium
NFR-USE-4	When volunteers are on their account page, schedule tab should be displayed under Account Overview.	Medium
NFR-USE-5	Beneficiary shall be able to find NPO location tab on the homepage within 10 seconds.	High
NFR-USE-6	Usability survey feedback should yield 90%+ satisfaction result.	Low

11.3 Maintainability

The system shall be maintainable by estimating risks and problems so that users may anticipate scheduled downtime and plan accordingly (see Table 8.3.1).

Table 11.3.1 : Maintainability Requirements

Requirement ID	Requirement Description	Priority
NFR-MAIN-1	Scheduled downtime for maintenance shall not exceed 7 hours per month.	Medium
NFR-MAIN-2	The average time required to fix a minor defect shall not exceed one week.	Medium
NFR-MAIN-3	The average time required to implement a new minor enhanced function shall not exceed one week.	Medium
NFR-MAIN-4	When implementing a new module, no more than one or two modules shall be modified.	High

11.4 Portability

The system shall be portable, so it is easy for end users to move and access our web service and mobile applications when using different web browsers and mobile operating systems. Therefore, the VMS should work on different web browsers and mobile operating systems to target a larger audience.

Table 11.4.1 : Portability Requirements

Requirement ID	Requirement Description	Priority
NFR-POR-1	<p>The web service shall be compatible with the following web browsers:</p> <ul style="list-style-type: none"> • NFR-POR-1.1 : Internet Explorer 8 to 11 • NFR-POR-1.2 : Firefox 20 to 30 • NFR-POR-1.3 : Chrome 24 to 30 • NFR-POR-1.4 : Opera 15 to 19 • NFR-POR-1.5 : Safari 4 to 7 	High
NFR-POR-3	The average time needed to port the mobile application from iOS to Android should not exceed 4 weeks.	Medium
NFR-POR-4	The average time needed to port the mobile application from iOS to Windows Phone should not exceed 4 weeks.	Medium

11.5 Non-Functional Requirements Verification

Non-functional requirements can be verified through testing but employ different testing techniques depending on the requirements.

- **Availability:** Load testing is ideal since it can determine how the system will behave under normal and peaked conditions.
- **Usability:** Usability testing allows users to have hands-on experiences with the application and provide feedback and opinions.
- **Maintainability:** To maintain high cohesion and low coupling, code review and analysis should be performed in order to verify the modularity of the system. In addition, maintainability can also be tested by measuring how long it would take to correct problems of the system.
- **Portability:** This requirement can be tested by measuring work effort in terms of the person-hours it requires to move the application to the new environment.

12 Use Cases

12.1 Users Profiles

Table 12.1.1: Users Profiles and Descriptions for the VMS

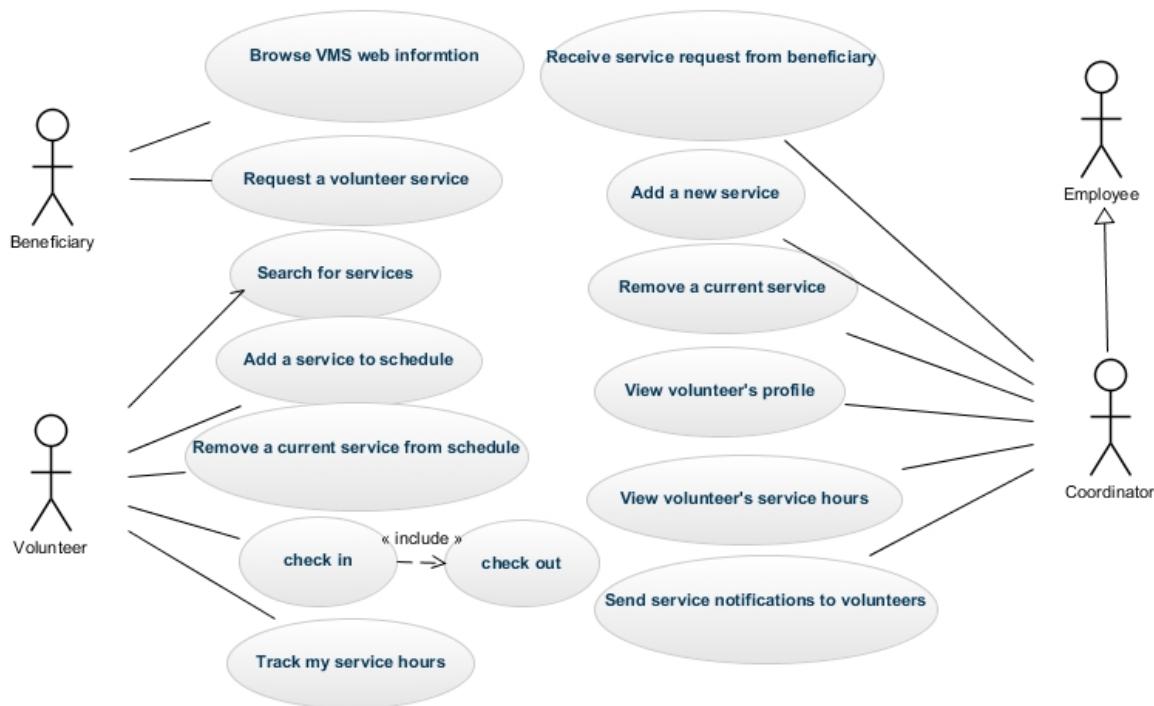
Actors	Profiles Description
Administrator	Has the responsibility for registering all different users of the system as the following: new volunteers and new non-profit organizations. Admin also has unrestricted access to the Volunteer Management System including removing volunteers' accounts from VMS database.
Beneficiary	Is able to access our VMS website and has restricted access to the VMS.
Staff	Has the responsibility for registering volunteers, tracking their service hours (time in and time out). Has restricted access to the VMS.
Volunteer	Has the responsibility for signing in and out of the system and restrictive access to the VMS.

12.2 Use Case Diagrams

12.2.1 Use Case Diagrams involving Volunteer, Beneficiary, and Coordinator

The use case diagram in Figure 12.2.1.1 shows beneficiary actors that were described in section 5.1. In order to minimize the complexity of this diagram, several connections were left out. For instance, every use case will typically involve an interaction with the system and web server, but since this is a secondary activity, it is not shown in the drawing.

Figure 12.2.1.1: Beneficiary, Coordinator and Volunteer Use Case Diagram



12.3 Formal Use Case Scenarios

12.3.1 Beneficiary Use Case Scenarios

Table 12.3.1.1: Beneficiary Use Case 1

Use Case ID:	UCB-1,
Name:	Beneficiary browses VMS web information.
Primary Actors:	Beneficiary
Goal in Context:	Provide the beneficiary with supplemental information.
Precondition:	The beneficiary accesses the VMS website with Internet connected devices. The beneficiary has no goods and/or needs a service.
Trigger:	The beneficiary is in need of goods and/or service.
Main Scenario:	<ol style="list-style-type: none"> 1. The beneficiary opens up the website. 2. The beneficiary searches for a nearby NPO by typing a zip code in the search bar. 3. The system returns a result list based on proximity to the inputted zip code. 4. The search result includes, at a glance, types of services that the NPO offers, as well as hours of operation. 5. The beneficiary may select a specific NPO to see more information such as its address and phone number in order to plan his trip accordingly.
Alternative Scenario 1:	<ol style="list-style-type: none"> 4.1 The search result returns no NPO is found within the criteria. 4.2 The beneficiary may return to step 2 to continue searching.
Alternative Scenario 2:	<ol style="list-style-type: none"> 4.2.1 The beneficiary quits searching for information.
Postconditions:	The beneficiary finds what he is looking for.
Exception:	

12.3.2 Volunteer Use Case Scenarios

Table 12.3.2.1: Volunteer Use Case 1

Use Case ID:	UCV-1
Name:	Volunteer adds a service via search bar.
Primary Actors:	Volunteer
Goal in Context:	To volunteer for a position.
Precondition:	The volunteer is currently registered with VMS and logged in to his account.
Trigger:	The volunteer has an open timeslot that he would like to donate.
Main Scenario:	<ol style="list-style-type: none"> 1. The volunteer opens the website and searches for an NPO by entering his search criteria in the search bar. 2. The system returns a registered list that contains NPOs that match the search criteria. 3. The volunteer selects a position at an NPO where he would like to volunteer. 4. The system validates the NPO position is available. 5. The system updates the NPO schedule. 6. The NPO updates volunteer schedule and adds that service day to volunteer's Google Calendar. 7. The system decreases availability slots for position volunteer signed up for. 8. The volunteer will receive a reminder email and text notification (optional) within 24 hours.
Alternative Scenario 1:	<ol style="list-style-type: none"> 3.1 The volunteer has already signed up with another NPO at the same timeslot. 3.2 The system displays an error message. 3.3 The system offers alternative timeslots.
Alternative Scenario 3:	<ol style="list-style-type: none"> 3.1.1 The selected position is already filled up. 3.1.2 The system display an error message. 3.1.3 The system offers recommended positions.
Alternative Scenario 2:	<ol style="list-style-type: none"> 2.1 The system returns a list with no available NPO. 2.2 The volunteer may return to step 1 to continue searching for available opportunities.
Alternative Scenario 4:	<ol style="list-style-type: none"> 2.2.1 The volunteer quits searching.

Postconditions:	The volunteer has scheduled a position with a NPO.
------------------------	--

Table 12.3.2.2: Volunteer Use Case 2

Use Case ID:	UCV-2
Name:	Volunteer adds a services via calendar.
Primary Actors:	Volunteer
Goal in Context:	To volunteer for a position.
Precondition:	The volunteer is currently registered with VMS and logged in to his account.
Trigger:	The volunteer has an open timeslot that he would like to donate.
Main Scenario:	<ol style="list-style-type: none"> 1. The volunteer opens the website and clicks on the Calendar button. 2. On the monthly calendar view, the volunteer looks for a date when he is available to volunteer. 3. The volunteer clicks on that date and the system display information about NPOs offering services, shift hours, and locations. 4. The volunteer signs up for the service. 5. The system validates the NPO's position is available. 6. The system updates the NPO's schedule. 7. The NPO updates volunteer schedule and add that service day to volunteer's Google Calendar. 8. The system decrease availability slots for the position that the volunteer signed up for. 9. The volunteer will receive a reminder email and text notification (optional) within 24 hours.
Alternative Scenario 1:	<ol style="list-style-type: none"> 2.1 All dates within current displayed month are filled up. 2.2 The volunteer clicks on next month. 2.3 Go to step 3.
Postconditions:	The volunteer has scheduled a position with a NPO.
Exception:	

Table 12.3.2.3: Volunteer Use Case 3

Use Case ID:	UCV-3
Name:	Volunteer removes a service day from schedule.
Primary Actors:	Volunteer
Goal in Context:	To remove a service day from volunteer's work schedule.
Precondition:	The volunteer is currently registered with VMS and logged in to his account. The day the volunteer wants to remove is an active work day on his schedule.
Trigger:	The volunteer cannot attend the event or chooses not to appear.
Main Scenario:	<ol style="list-style-type: none"> 1. The volunteer opens the website and clicks on Schedule Management. 2. The system displays a monthly view of the volunteer's schedule. 3. The volunteer clicks on the date he wants to remove. 4. The volunteer clicks on the Remove button. 5. The volunteer confirms his decision. 6. The system validates the removed service day. 7. The system increases position availability for the position and date has been taken off volunteer's schedule.
Alternative Scenario 1:	3.1 The date is in the past. 3.2 "Remove" button is disabled.
Postconditions:	Service day is deleted from volunteer's schedule.
Exception:	

Table 12.3.2.4: Volunteer Use Case 4

Use Case ID:	UCV-4
Name:	Volunteer checks in and checks out.
Primary Actors:	Volunteer, Staff
Goal in Context:	To record the hours and date volunteer has worked.
Precondition:	The volunteer shows up to work on service day he signed up for.
Trigger:	The volunteer wants to keep track of the hours and date that he has volunteered.
Main Scenario:	<ol style="list-style-type: none"> 1. The volunteer checks in with the pre-installed VMS app on his mobile device. 2. The volunteer finishes the shift and checks out. 3. The system receives and automatically records the date and hours.
Alternative Scenario 1:	<ol style="list-style-type: none"> 1.1 The volunteer checks in by using paper log provided by NPO. 1.2 The volunteer checks out by using paper log. 1.3 At the end of the day, staff enters data recorded by the log into NPO database. 1.4 The system updates recorded date and hours accordingly.
Alternative Scenario 2:	<ol style="list-style-type: none"> 1.1.1 The volunteers forgets to check in as they begin his shift. 1.1.2 The volunteer notifies staff of the situation. 1.1.3 The volunteer provides staff with the time when they started his shift. 1.1.4 The staff overrides checking in for the volunteer. 1.1.5 Go to step 2.
Alternative Scenario 3:	<ol style="list-style-type: none"> 2.1 The volunteer forgets to check out and leave. 2.2 The volunteer contacts the staff to notify of the situation. 2.3 The volunteer provides staff with approximate time when he finished his shift. 2.4 Go to step 1.3
Postconditions:	The date and hours the volunteer worked is recorded in NPO database.
Exception:	

12.3.3 NPO Coordinator Use Cases

Table 12.3.3.1: Coordinator Use Case 1

Use Case ID:	UCC-1
Name:	Add new service to system.
Primary Actors:	Coordinator
Goal in Context:	To create a new service opportunity.
Precondition:	Coordinator is logged on to the system.
Trigger:	A new service has been funded and begins to go into operation.
Main Scenario:	<ol style="list-style-type: none"> 1. The coordinator opens the VMS app and clicks on the “Add a New Service” button 2. The system displays a form that contains all required information to create a new service. 3. The coordinator fills in location. 4. The coordinator fills in operation time. 5. The coordinator fills in contact information. 6. The coordinator fills in service type. 7. The coordinator fills in service description. 8. The coordinator selects positions needed and enter how many volunteers would be need. 9. The coordinator selects “Permanent” check box. 10. The coordinator then click “OK” button and confirm the addition of new service. 11. The system closes the form, updates database, and prompts back to main view when done.
Alternative Scenario 1:	<ol style="list-style-type: none"> 4.1 The system checks the filled-in operation time and discovers a time conflict with an existing service. 4.2 The system displays an error message. 4.3 The coordinators confirms time conflict. 4.4 Operation time field is blanked. 4.5 Return to step 4.
Alternative Scenario 2:	<ol style="list-style-type: none"> 9.1 The coordinator selects “Temporary” check box. 9.2 Two new date fields, “From” and “To”, are displayed. 9.3 The coordinator fills in both fields. 9.4 Go to step 10.
Alternative Scenario 3:	<ol style="list-style-type: none"> 10.1 The coordinator clicks “Ok” but one or many of the required fields are blank. 10.2 The system displays a reminder message. 10.3 The coordinator confirms and fills in missing fields.

	10.4 Go to step 10.
Postconditions:	New service is added to the system.
Exception:	

Table 12.3.3.2: Coordinator Use Case 2

Use Case ID:	UCC-2
Name:	Remove a current service from the system.
Primary Actors:	Administrator
Goal in Context:	To remove a service from the system.
Precondition:	Coordinator is logged in to the system.
Trigger:	There is a budget deficit and in order to keep a balanced budget, a service has to be canceled.
Main Scenario:	<ol style="list-style-type: none"> 1. The administrator opens the VMS app and clicks on the “Remove a Service” button. 2. The system displays a list of all services that are being offered by NPO. 3. The administrator selects the service that needs to be canceled. 4. The administrator confirms removal. 5. The system proceeds to remove the service and its related entities from the database. 6. The system sends out a reminder email to all active employees and volunteers.
Alternative Scenario 1:	<ol style="list-style-type: none"> 3.1 The administrator selects more than one service. 3.2 The system displays an error message. 3.3 The administrator confirms and deselect services. 3.4 Go to step 4.
Postconditions:	Service is pulled off from database and system.
Exception:	

13 Architectural and Component Design

13.1 Introduction

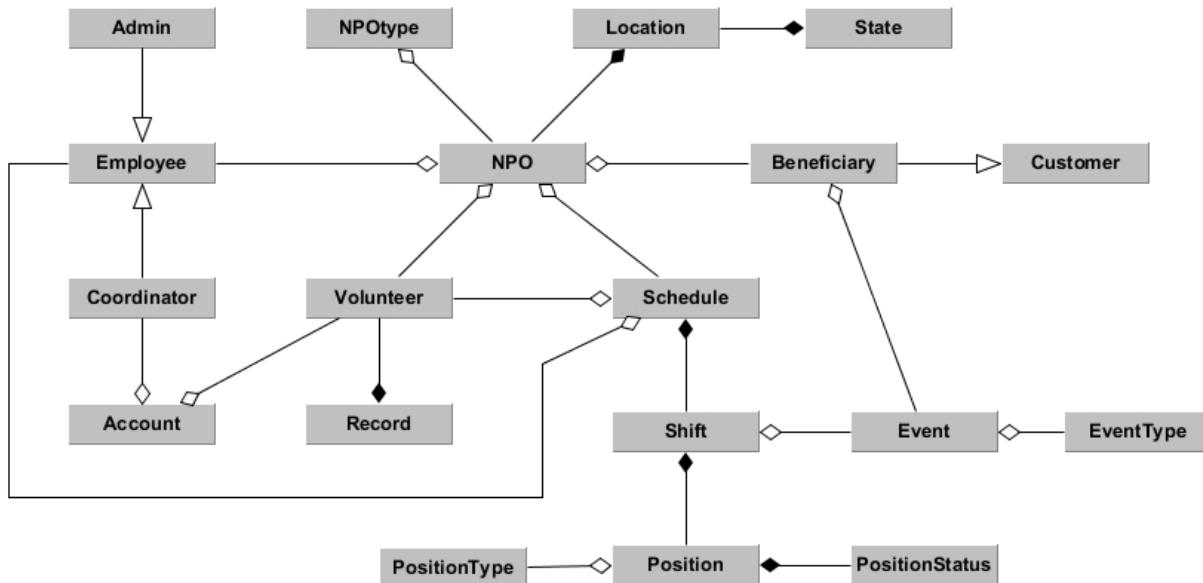
This section outlines the architecture that we plan to use to create a website and mobile app for our the Volunteer Management System for non-profit organizations. The website and mobile app will be the portal for volunteers and beneficiaries to interact with NPO.

13.2 Software

13.2.1 Classes

Domain diagram 13.2.1.1 describes all necessary entities included in our VMS system as well as their relationships. The domain model diagram defines key conceptual objects of the systems and specifically shows the relationships among the objects.

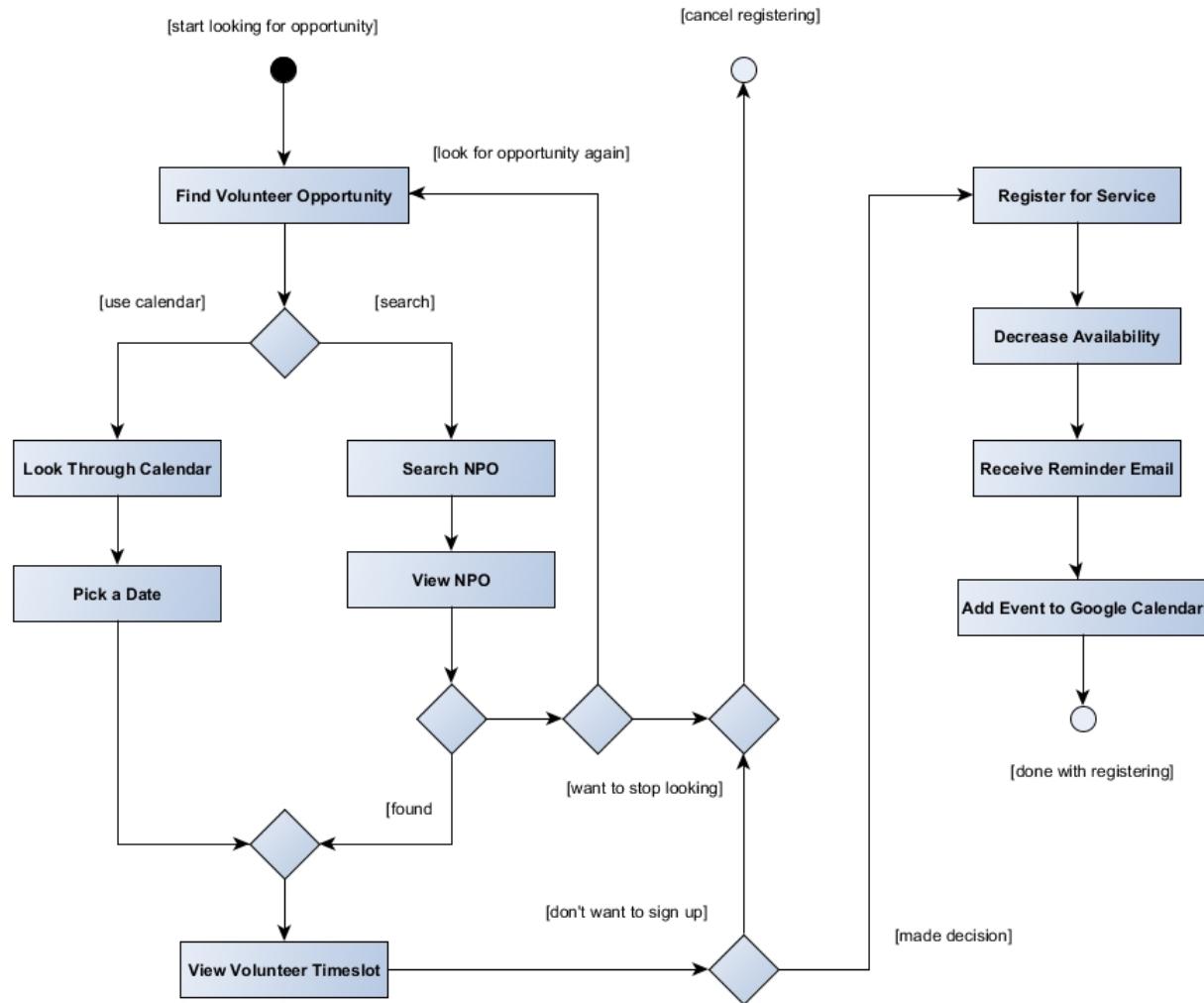
Figure 13.2.1.1:VMS Application Domain Diagram



13.2.2 Activity Diagram

Activity diagram 13.2.2.1 describes the workflow of stepwise activities and actions of the VMS system. The activity diagram focuses on the business process flow aspect and allows developers to analyze different tasks and work processes needed to implement the system.

Figure 13.2.2.1 Activity Diagram for Finding Volunteer Opportunity



13.2.3 Wireframes

The following wireframes show how a user will interact with the VMS system beginning with the homepage (**Image: 12.2.3.1**), and continuing with the user profile page (**Image: 12.2.3.2**), and finally the user calendar page and user event page (**Image: 12.2.3.3**).

Image: 12.2.3.1-VMS Homepage

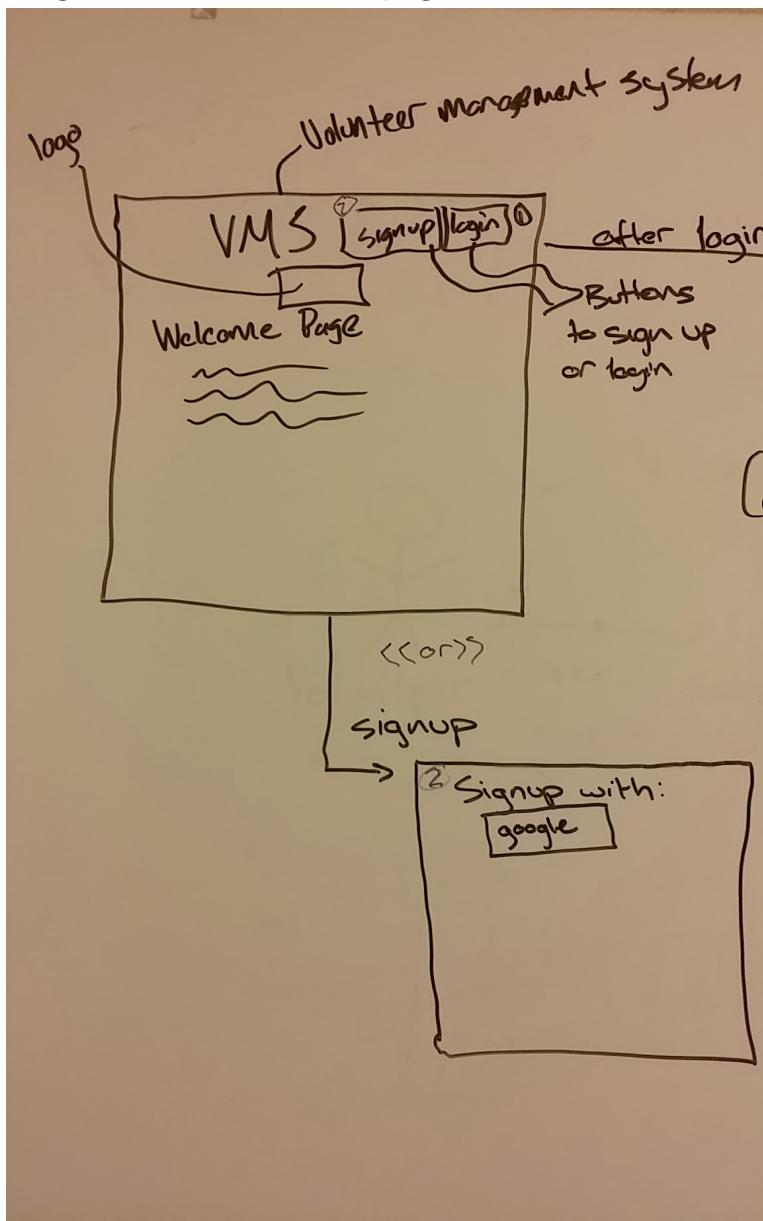


Image: 12.2.3.2 User Profile Page

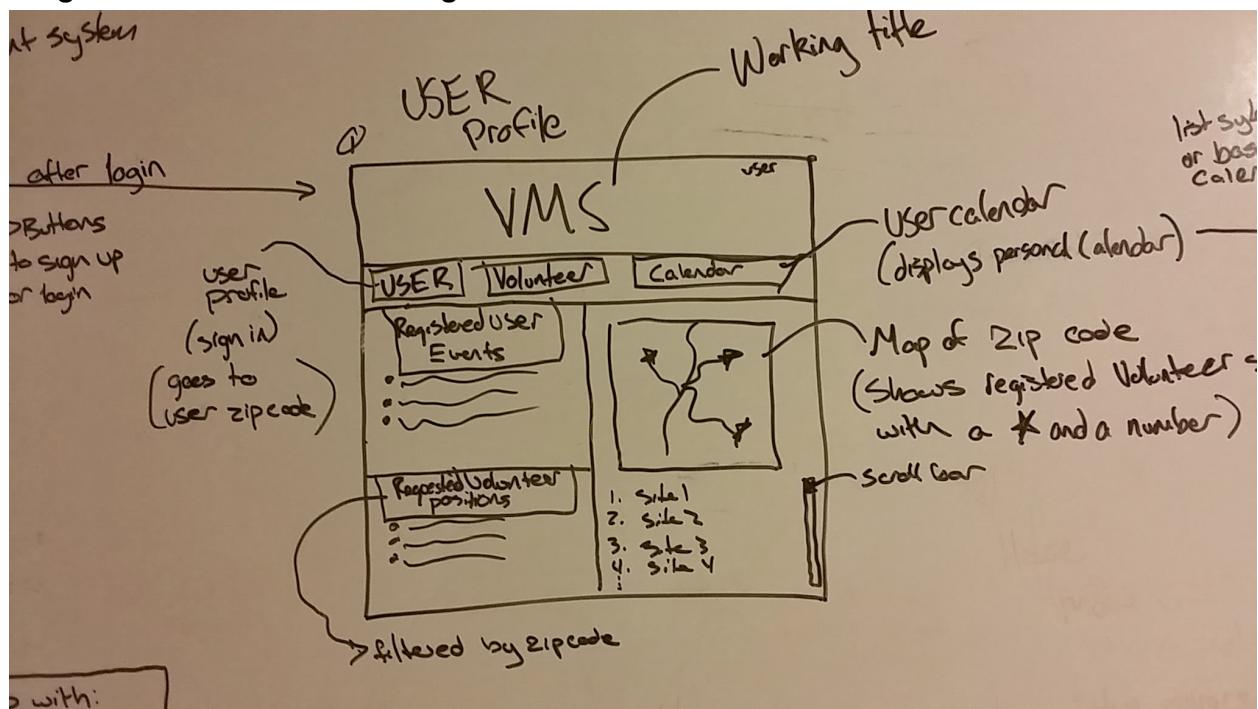
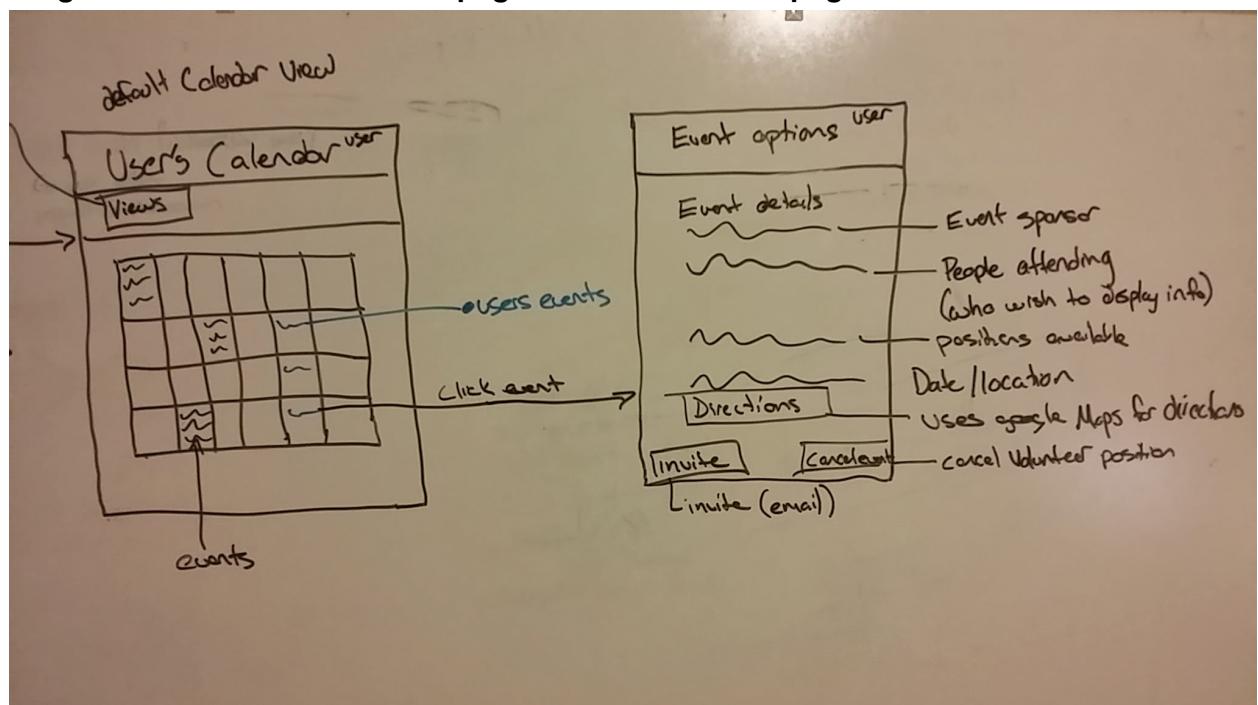


Image: 12.2.3.3 - User Calendar page and Event details page



13.3 Infrastructure

13.3.1 Database

It remains to be determined whether or not the database will be owned independently or paid for via a monthly subscription. Independent ownership of the database will more than likely be the case.

13.4 Architecture Style

According to the software requirement specifications, availability, portability, maintainability, and portability will be the four most important non-functional requirements of our system. We decided to pick our Model-View-Controller (MVC) as our architecture style.

13.4.1 Reasoning

We picked Model-View-Controller architectural design pattern because it lends well to web-based product. Using this pattern, the Controller module will restrict database information only for internal users and grant permissions for internal users to make modifications. Meanwhile, external users, depending on their roles (volunteers or beneficiaries), will be provided with different types of information and functionality. MVC allows for incremental updates and implementation for modularity.

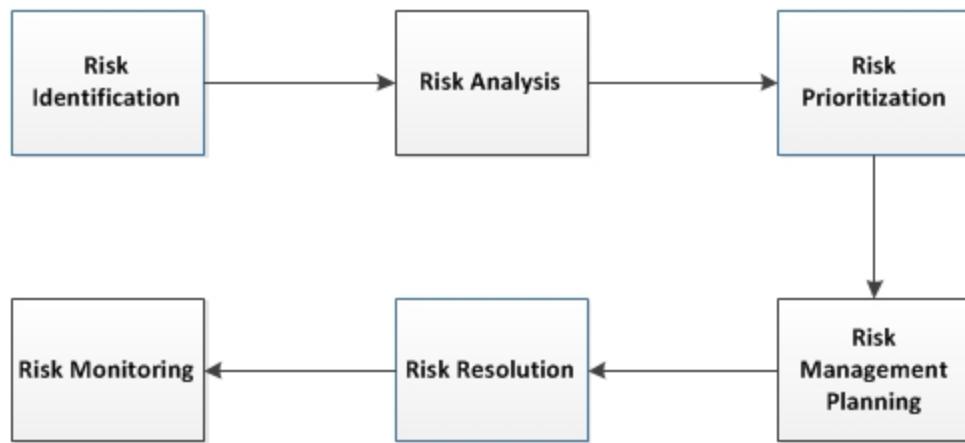
14 Risk Management

Risk management involves two parts: assessment and control.

14.1 Risk Management Approach

The risk management approach we used follows Boehm's software risk management model described in diagram 14.1.1.

Figure 14.1.1 : Risk Management Model



14.2 Risk Assessment

We focused on assessing the components of possible risks by performing identification, analysis, and prioritization.

14.2.1 Risk Identification

During risk identification, we created a list of as many project and product risks as possible before they become problems. The following properties of risks are identified at this stage: source of risks, potential risks events, and symptoms of risks

Table 14.2.1.1.1: Risk Categories Definitions

Types of Risks	Description
Project Risks	Risks that affect the project or the resources dedicated to the project.

Product Risks	Risks that affect the quality or performance of the software being developed.
Business Risks	Risks that affect the viability of the software in term of business requirements.

Source: Williams, Laurie. "Risk Management." Reading. *North Carolina State University*. 2004. Web. 1 Mar. 2014.

14.2.1.1 Risk Elicitation Techniques

Table 14.2.1.1.1 defines the risk elicitation techniques that have been used in order to identify risks associated with the VMS project.

Table 14.2.1.1.1: Risk Elicitation Techniques

Risk Elicitation Method	Description
Taxonomy	By implementing taxonomies, a defined classification of potential project risks, we were able to emphasize risks that are unique to the VMS project.
Drivers	By using drivers, we are able to focus on higher risk drivers which potentially contain high impact risks. In addition, each driver can be analyzed to indicate success or failure state.
Similar Project Comparison	By examining similar project-risk-management artifacts presented in previous projects, we were able to consider and articulate the risks for VMS Project.

14.2.1.2 VMS Project Top 10 Risk

Table 14.2.1.2.1 : Top 10 Risks

Risk ID	Risk Definitions	Category	Source of Risks
Rk-01	Insufficient funding from investors	Project Product	Project doesn't look feasible to potential stakeholders.
RK-02	Underestimation in Cost-Benefit Analysis	Project	Lack of experience and improper use of Cost and Benefits Analysis methodology
RK-03	Data Migration Between different Systems	Project Product	Each NPO may use several different volunteer management applications.

RK-04	Differences in Operational Procedures and Policies	Project	Each NPO has different operational procedures and policies on volunteer enrollment and standardizing them can delay the project.
RK-05	Released Software Partially Fulfills Stakeholder Expectations	Project Product	Lack of communication from the stakeholder can lead to a misunderstanding of the project's expectations.
RK-06	Impractical Timeframe Schedules	Project Product	Developers underestimate required time to complete a function or module.
RK-07	Developers leave the project before it is finished	Project Product	Developers could leave with critical information which could potentially lead to the project's delay.
RK-08	Insufficient time and effort dedicated to the design process	Project Product	Rushing in the design process can lead to improper implementation, waste of time and resources.
RK-09	Inconsistency of requirements with released software product	Project Product	Inexperienced developers may not be familiar with generating proper documentation and may perceive the requirements incorrectly.
RK-10	Not enough developers with appropriate background and experience	Project Product	Very experienced developers may not approve of the benefits of this project

14.2.2 Risk Analysis

After risks have been identified, we perform risk analysis based on probability and impact assessments. Therefore, we can evaluate risks and make decisions based on the likelihood and seriousness of each risk.

14.2.2.1 Probability Assessment

Probability assessment is performed to determine the likelihood of when a risk can occur. At each risk analysis iteration, risk probability is selected from Table 14.2.2.1.1, which shows risk probability definitions.

Table 14.2.2.1.1: Risk Probability Definitions

Probability Category	Probability	Description
Very High	0.90	Risk event expected to occur.
High	0.70	Risk event more likely to occur.
Medium	0.50	Risk event may or may not occur.
Low	0.30	Risk event less likely to occur.
Very Low	0.10	Risk event not expected to occur.

14.2.2.2 Impact Assessment

Impact Assessment is performed to determine the consequences and estimate the impact of the risk on the project.

Table 14.2.2.2.1: Risk Impact Scales Definitions

Project Objective	Negligible 0.1	Minor 0.25	Serious 0.40	Critical 0.55	Catastrophic 0.80
Cost	Insignificant cost overrun	Between 5-10% cost overrun	Between 10-20% cost overrun	Between 20-35% cost overrun	Greater than 35% cost overrun
Schedule	Insignificant schedule slip	Less than 1-month schedule slip	Between 1- and 3-month schedule slip	Between 3- and 6-month schedule slip	Greater than 6-month schedule slip
Scope	Barely noticeable	Minor areas impacted	Major areas impacted	Unacceptable to stakeholders	Product is effectively useless
Quality	Barely noticeable	Less than 2% reduction in product function	Between 2-5% reduction in product function	Between 5-10% reduction in product function	Greater than 10% reduction in product function

14.2.2.3 Risk Analysis Results

Please refer to Table 14.2.3.1 for a combined result of risk analysis and risk prioritization.

14.2.3 Risk Prioritization

After risks are organized in table 14.2.3.1, we rank them in terms of probability and impact scales. High probability, high impact risks will go the top of the table while low probability, low impact risks drop to the bottom. As a result, risk exposure scores will be calculated using the following formula:

Loading...

Table 14.2.3.1: Risk Exposure Table

Probabilities	Impact 0.1	Impact 0.25	Impact 0.4	Impact 0.55	Impact 0.80
0.9	0.09	0.225	0.36	0.495	0.72
0.70	0.07	0.175	0.28	0.385	0.56
0.50	0.05	0.125	0.20	0.275	0.40
0.30	0.03	0.075	0.12	0.165	0.24
0.10	0.01	0.025	0.04	0.550	0.08

14.3 Risk Control

Risk control focuses on how to react to a particular risk by management planning, resolution and monitoring.

14.3.1 Risk Management Planning

At this stage, the team develops strategies and plans to minimize the effects of risk could have done to the project. Risks that are top of the risk tables need to receive more attention as they are most likely to happen and can cause more serious damage.

14.3.1.1 Risk Management Methods

- Risk Avoidance - Change the overall aspects of the project plan to eliminate risks that have been identified.
- Risk Transfer - Transfer risks responsibilities to a third party.
- Risk Mitigation - Reduce the risk's probability and impact to an acceptable level.
- Risk Acceptance - Consciously accept the existence and consequences of the risks with no action taken.

14.3.1.2 Risk Method Tables

Please refer to table 14.3.2.2.1 for top 10 risks and their control methods.

14.3.2 Risk Resolution

At this stage, the team developed specific action for each risk and the actions are documented Risk Resolution column in table 14.3.2.2.1.

Table 14.3.2.2.1: Top 10 Risks & Control Method

Risk ID	Exposure Score	Control Method	Risk Resolution
RK-01 Insufficient funding from investor	0.385	Mitigation	<ul style="list-style-type: none"> -Provide stakeholders with positive net value cost analysis. -Incorporate investors' input -Continue to assess and justify project based on economic evaluation
RK-02 Underestimation in Cost-Benefit Analysis	0.275	Mitigation	<ul style="list-style-type: none"> -Approach financial analyst for advices -Trim unnecessary and unwanted features with stakeholder's approval
RK-03 Data Migration Between Systems	0.275	Mitigation	<ul style="list-style-type: none"> -NPO and developers decide critical data to migrate -Ensure that all data is tested properly -Keep original and final records of migrated data. -Be vigilant in monitoring status of the data
RK-04 Differences in NPO's Operational Procedures and Policies	0.275	Avoidance	<ul style="list-style-type: none"> -Negotiate with NPO to come up with compromises -Use and establish a single, unified platform for all stakeholders, projects and applications used.
RK-05 Released Software Partially Fulfills Stakeholder Expectations	0.240	Mitigation	<ul style="list-style-type: none"> -Analyze needs of the stakeholder accurately -Schedule frequent meetings to obtain a clear statement of work and definition of needs

RK-06 Impractical Timeframe Schedules	0.240	Avoidance	<ul style="list-style-type: none"> -Develop a project management plan for all the activities in advance to allow implementation as scheduled and at a high standard. -Develop a project management plan for all the activities sufficiently -Schedule frequent meetings to stay on track -Commit to achieve short-term objectives for all the phases of the project
RK-07 Developers leave the project before it is finished	0.225	Mitigation	<ul style="list-style-type: none"> -Reestimate schedule for flexibility -Redistribute tasks -Hire replacements as soon as possible
RK-08 Insufficient time and effort dedicated to the design process	0.200	Avoidance	<ul style="list-style-type: none"> -Project manager oversees the design process and approves design plan -Develop early prototyping
RK-9 Inconsistency of requirements with released software product	0.075	Mitigation	<ul style="list-style-type: none"> -Create a checklist to ensure application meets requirements -Release open and closed beta tests to gather feedbacks before official release
RK-10 Not enough developers with appropriate background and experience	0.025	Avoidance	<ul style="list-style-type: none"> -Extend employee recruiting areas -Implement online collaboration

14.3.3 Monitoring

At this final stage, the team must regularly monitor the progress of each risk and revisit them at regular intervals to check for new and changing risks.

Appendices

A: Letter Template

The purpose of this artifact was to solicit stakeholders in an attempt gain validation on our project.

Your name
date

Dear (insert name of NPO),

Hello, I represent a team of computer science students from the University of Washington. Our team is working on a project that may benefit you as a non-profit organization (NPO). We are seeking outside support in developing the needs of our project and believe that your organization may be a valuable resource in identifying those needs.

Our project's vision is to help NPOs communicate with volunteer efforts and help them maximize their community efforts by coordinating donation drives and help centers. Our group is formed from students that have had volunteer experiences in the past, and noticed that some areas may be improved.

The goal of our project is to create a business proposal to develop a mobile application and web service that will detail: the problem the project addresses; how it will help; estimated costs of developing the project, including a detailed budget report; and the risks associated with costs of building it, such as a feasibility and viability report.

Please be advised that our team will not be providing an implementation of our proposed project, but rather a plan to implement it, including a cost analysis.

If you are interested in this project, we would like to have you on our team as a consultant. All that we would ask is your input on our progress periodically. We may need your assistance in verifying our project to ensure that we have satisfied our proposed requirements, which would include a brief initial interview. At the end of our project, which will last no more than 10 weeks, we will provide you with the documentation you would need to implement our solution.

If you have any questions, please reply to this email or contact me at (phone number).

Sincerely,

(your name)

B: Stakeholder Correspondence (Project Validation)

Response from Email 1 sent from Stakeholder North Helpline on January 21, 2014

On Jan 21, 2014, at 9:40 AM, volunteers <volunteers@northhelpline.org> wrote:

Dear Mr. Nguyen,

My name is Caleb Smith and I'm the volunteer coordinator for North Helpline Emergency Services and Food Bank. I was excited to learn about your proposal. North Helpline is greatly interested in the development of any resource that can help connect our volunteers with the information they need. Accordingly, I would be pleased to act as a consultant on your project and provide you with any input that you might need.

If there is any further information that I can provide you with regarding North Helpline and our volunteer protocols, please let me know. Also, feel free to provide me with any additional details about your project, interviewing or other methods of supporting your work. Thank you for alerting North Helpline to this opportunity. I look forward to learning more about your project as it progresses.

Caleb Smith
Volunteer Coordinator
North Helpline
206-367-3477
www.northhelpline.org
volunteers@northhelpline.org

Email 2 sent to Stakeholder North Helpline on January 16, 2014

On Feb 16, 2014, at 9:45 PM, Mariana Chagoyan <chagoyanm3@yahoo.com> wrote:

Dear Mr. Caleb Smith,

My name is Mariana Chagoyan and I am team member from the computer sciences program at the University of Washington Bothell. Recently, Dat Nguyen, contacted you in regards to our project.

He informed you our team is working on creating a Volunteer Management System that helps benefit non-profit organizations (NPOs) by facilitating volunteer management tasks as well as making information resources available to volunteers through the development of website tool focused to improve communication and the maximization of volunteers resources.

Our project's goal is to create a business proposal to develop a mobile application and web service that will detail the problem the project addresses, how it will help, estimated costs of developing the project including a detailed budget report, and the risks associated with costs of building it such as a feasibility and viability report.

Therefore we would appreciate if you could please help us with specific data necessary to address the solution of current problems that you may be dealing and answer our survey questions post it right below this email.

Respectfully,

Mariana Chagoyan
chagome@uw.edu
206-724-1383

Response from Email 2 sent from Stakeholder North Helpline on January 20, 2014

On Feb 20, 2014, at 7:03 PM, Caleb Smith <volunteers@northhelpline.org> wrote:

Hello Mariana,

Here is my response to the survey that you sent us. I hope this information helps and please let me know if I can clarify any items or if you need any supplemental details. Thank you.

Caleb Smith
Volunteer Coordinator
North Helpline
[206-367-3477](tel:206-367-3477)
www.northhelpline.org
volunteers@northhelpline.org

Email 3 sent to Stakeholder North Helpline on February 20, 2014

Dear Caleb Smith,

My name is Dat Nguyen and I am a student at the University of Washington Bothell. We spoke previously about a potential web / mobile application that would help make the entire volunteer experience more efficient.

Our web and mobile application would allow volunteers to register by connecting to their Google accounts (or with a different email if they do not have one). From there, volunteers will be able to see which non-profit organizations in his or her area are in need of volunteers or have an excess. The volunteer will then be able to sign up for shifts with a few presses. When the volunteer gets to the event for which he has signed up, he will be able to check in and check out with a single key press.

Therefore, the application saves you time interacting with volunteers to provide information or instructions. It also reduces the process of recording hours on paper and data entry. Overall, the application that we hope to develop will guide volunteers to sign up for account, sign up for shifts, and keep track of hours with simple and intuitive steps.

Lastly, thank you for replying to the survey we sent you. We would like to ask you a few follow-up questions to the survey by interview. What is the best available time that we can call or schedule a meeting with you? I also include the questions we would like to ask below.

We look forward to hearing from you.

Best,
Dat Nguyen

-----Validation Email-----

On Sun, Mar 2, 2014 at 11:57 PM, Brian Quigley <bquig@uw.edu> wrote:

Dear Caleb Smith,

My name is Brian and I am writing to you on behalf of my computer science team at the University of Washington. Firstly I would like to thank you for your response to our previous survey, it was very helpful in designing our system, by giving us specific information about your current practices and areas that may be improved.

The purpose of this email is to further validate our design with your feedback, and secondly to try to establish metrics related to your current system in order to determine if our project is feasible.

I would love to get on your calendar this week. You mentioned to Dat that Tuesday mornings are your most flexible, would you be available for a telephone interview this Tuesday? I know Dat proposed several questions to you in an earlier email, and I will include a complete list at the bottom of this email. I would like to ask you these questions, and I could talk with you about our current phase to get your opinion.

Cheers,
Brian Quigley

-----Response to email in survey 2 Appendix C

C: Surveys

Survey 1

1. Names and total numbers of the non-profit organizations involved with your organization.

North Helpline is one non-profit organization with a food bank, that provides food for registered clients, and an Emergency Services Office, that registers clients for the food bank, helps provide financial assistance to individuals facing eviction and utility shut-off notices.

2. What's the range number of "events" or "volunteer service" that you host under the following type of day situations?

- a. Daily – North Helpline is open five days a week from Tuesdays through Saturdays. We have no daily events open to volunteers at this time.
- b. Daily (Holidays) – During the holiday season, we typically have volunteers serving in food drives that are conducted with local participating grocery stores around the North Seattle area.
- c. Weekly (Mondays through Fridays) – During the week volunteers are always needed to serve during our food distributions. Our food bank is open to clients Wednesdays from 10am to 1pm and Thursdays from 4:30pm to 6:30pm. Volunteers are serving during this time by doing sorting, stocking, handing out food, checking-in clients, greeting clients and helping clients carry their groceries to their cars by cart. On Fridays, North Helpline is not open to clients, but we still need volunteers to help with the sorting and unloading of donations; the time for this shift is from 8:00am to 12:00pm.

We also need volunteers to serve in our Emergency Services Office. Volunteers working in this capacity will be helping register clients for our food bank, assisting with financial services and providing social service references for clients who need it. Volunteers will need to be able to commit to a few hours per week and to an overall six-month commitment to serve in the ES office. This is a fast-paced and demanding position that is a good fit for volunteers who enjoy working with the public.

North Helpline is also looking for individuals to serve as grocery rescue volunteers. Grocery Rescue volunteers will drive around to our donors around the community who collect food for NHL. When the buckets of these donors are full, grocery rescue volunteers to pick the items that they have and transport them back to NHL. This position also requires a long-term commitment of service.

- d. Weekends – North Helpline is open for food distributions on Saturdays for the hours of 10am to 1pm. Volunteers will be performing the same tasks during this shift as they would during our other weekly food distributions. North Helpline is closed on Sundays.
- e. Monthly – We have annual events every year to help support the operations of North Helpline's Food Bank and Emergency Services Office. The two biggest events that we hold is our Spaghetti Dinner fundraiser that happens every year around the end of February or the beginning of March. The second is our Empty Bowls event that is held in May. These are major events for NHL and we need dozens of volunteers to help with both preparation and practice of them.

3. Generally what's the number of volunteers involved in one event under the following conditions?

- a. Understaffed – 24 volunteers or less
- b. Overstaffed – 30 volunteers or more
- c. Well-Staffed – between 25 to 30 volunteers

4. Do you currently have an existing automated system or paper system that allows you to manage volunteer services or your events? Why or why not?

North Helpline combines both a paper system and an automated system for the management of volunteers. We use this system to store volunteers' hours-serviced, applications, court-letters, service-learning contracts and other essential materials. We also have paper documents that are used for volunteer sign-ins and applications.

We find that using both methods of record-keeping not only provides a long term-resource for us, but also helps volunteers who lack the means or do not possess the time for using a

completely automated system. However, our automated programs have proven invaluable as a convenient tool for volunteers, in terms of finding information relevant to them. It also helps keep volunteer records organized and easily searchable.

5. Describe your current Data Storage Methods (files, databases, paper/folders) and the problems associated with them.

- a. For files involving our documentation process, we use a resource that compresses all of our volunteer info and reference forms together. Through this system, I am able to locate and isolate information quickly and efficiently. All paper documents that needed to be added to this system are scanned and added to their appropriate destinations. I have no problems with this process as it currently stands.
- b. I have computer files associated with volunteer resources, volunteer position listings for the food distributions/events, volunteer coordination handbook, holiday events, volunteer applications, and volunteer orientation files, volunteer recruitment files and volunteer information for newsletters and articles. We also use online database resources like VolunteerSpot, Salesforce, United Way, VolunteerMatch, and IntelliVol. VolunteerSpot can make for slow inputting and has limited output possibilities. IntelliVOL does not provide many outlets for connection to its users. Salesforce has many output possibilities and is usable in various formats.
I would appreciate if the online databases could provide students with more information regarding the volunteer sign-up process. Typically, I still need to reach out toward volunteers who express an interest in volunteer and give them additional info regarding using VolunteerSpot to sign up for shifts online. I don't usually have a problem with our files and folders beyond their need for constant updating.
- c. Our current data expression methods are represented through our volunteer applications, volunteer sign-in sheets, events calendar and my quarterly reporting forms that are a part of my AmeriCorps reporting. Some these reports, particularly the AmeriCorps quarterly reports require information that we don't keep track of (i.e. – baby boomer volunteers, etc.) A resource that will track volunteers by age of service would be a specifically welcome instrument.

6. What are the most common problems that you wish to solve on a normal basis when dealing with volunteer management tasks?

I would like any resources that helps streamline my ability to connect volunteers with the information that they need to go about signing up, which relates to filling out a North Helpline volunteer application and instructions on VolunteerSpot. I would also like new methods of handling volunteer overstaffing and understaffing. I have volunteer emergency contact lists; however these lists can rarely provide the backup necessary to fulfill my volunteer needs in cases where the food bank or Emergency Services office may be shorthanded.

7. Demographically, how would you describe your organization as well as the type of community of volunteers that you deal with on a normal basis?

Demographically speaking, North Helpline is located in North Seattle along the eastern extension of the city. The volunteers that I deal with on a normal basis represent a diverse age of groups. I have volunteers of differing geography, age groups, seniors and students, ethnicities, income levels and educational backgrounds. I enjoy the ability to work with many disparate volunteer

groups and the time I spend with them helps to strengthen my volunteer coordination skills.

Survey 2

UW Bothell computer sciences project: Mobile volunteering app. Questions #2

- 1) Could you estimate how much your current system costs NHL annually?** The current system we use costs a little less than \$1,000 dollars a year.
- 2) You mentioned that you have an obligation to Americorps. Does Americorps sponsor many organizations similar to yours? If so do you think Americorps would be interested in developing a system that better expressed their requests? (for example, if volunteers gave information like their age on a volunteer application) Also do you have any specific metrics on how many organizations would fall under this umbrella.** As a member of Americorps, I report on my work at North Helpline, my service site, to the Washington Service Corps. AmeriCorps works with a number of non-profit organizations across the Seattle area and around the country. The Washington Service Corps might be interested in the applications of your system; however I cannot speak for the organization itself. Moreover, not all AmeriCorps members service as volunteer coordinator. It seems as though the usefulness of this system would vary for both members and service sites.
- 3) How important is it that NHL has software event support as compared to day-to-day facilitation? (in other words, which has a higher priority, events or day to day)** I would say that both carry their own level of importance. However, I would put more emphasis on the day to day operations of our organization over events. Our events are those that require volunteers are usually large fundraising events. These events are rarely understaffed or over-staffed or overstaffed and the proceeds always go toward the day to day operations of our facility, which is focused on having food in the food bank to distribute to our clients and the resources to help our clients with eviction notices, utility shutoffs and baby cupboard services.
- 4) How often is your non-profit organization understaffed during events?** We have not been understaffed for our events thankfully. Overstaffing has been more of an issue during events, but that has only occurred in rare occasions when volunteer duties are contracted due to unexpected circumstances.
- 5) Can you foresee any tangible benefits to our solution (tangible benefits can be measured in dollars in man-hours)? (may need background on our current design as of now)** Yes, I can see many tangible benefits in the solution your team is proposing. A system of your kind could potentially reduce a lot of the time I spend on giving repetitive information to volunteers, allowing me to spend more time on other projects. It could also help our volunteers by clarifying information about our volunteering expectations while simultaneously defining the difference between our needs and the requirements of their service-learning classes.

6) How many days of the week are you either understaffed or overstaffed? It fluctuates from time to time. I am typically overstaffed on Thursdays and Saturdays during the middle of the month while schools are in session. Conversely, I am typically understaffed during the summer months when schools are out. Therefore, I would say once or twice a week.

7) How much time, on average, do you spend every week interacting with volunteers to provide them with information or instructions that could be theoretically automated?(this question is posed in an effort translate an intangible benefit of the system, saving time, into a tangible benefit, saving money) in other words, would this save you time in your job? Yes, your proposed system would save me time in regard to my obligations. If I could have an automated way of giving volunteers information regarding VolunteerSpot and signing-up to volunteer online, it would save me a great amount of time in my introductions about serving to potential volunteers. I feel that a lot of my orientation information that I provide to first time volunteers could also benefit from your proposed system. I want to be careful make sure that volunteers still have enough contact with me that they feel appreciated and welcomed, but otherwise I will have to deal with a dozen or more volunteers at once and it would be nice to have volunteers that are fully orientated and ready to serve in case I have other duties to deal with, such as helping large groups, signing community service forms, service-learning contracts, etc.

8) If our service offered clients a way to check in to receive groceries, would that allow volunteers to be more effective in facilitating other tasks, thereby requiring less volunteers or serving more clients? As a result what would be the cost savings of this impact? Actually, I think that your proposed system would be more useful for our volunteers than our clients. We have our own database for dealing with clients and I think switching over to a new program might be more problematic than useful in terms of registering clients for the food bank. I am primarily interested in the system's applications for helping volunteers.

9) If you had more control over when people volunteered could your organization be more effective? For example, if a client wanted to volunteer on a day, and you knew that they could be more effective on another day such as Fridays for loading, would that help your organization? What would be the savings. Yes, having more control of when people came in and volunteer would definitely allow our organization to be a great deal more effective. However, the problem that I encountered is that not all areas of volunteers can be controlled. Volunteers cannot always meet their obligations through no fault of their own and sometimes miscommunication is a natural result.

10) Along the same lines, if someone was great at one particular aspect do they currently do that task on a weekly basis. (besides grocery rescue) Yes, we have a number of regular volunteers who after demonstrating a particular talent in a position have assumed that role long-term. We have volunteers who we save positions in the food bank for because they have shown that they are dependable and heavily skilled in that area.

11) How do you currently solicit volunteers? Is it effective? How could it be improved? I currently use online resources like United Way of King County, Volunteer-Match and IntelliVOL to recruit volunteers. We also use our website, newsletter and word-of-mouth to publicize volunteer opportunities. I have a lot of success when utilizing these resources, but I would always like more resources whenever they are available.

12) Does the current system allow for a volunteer to apply for a specific position? No, volunteers are allowed to express interest, if they wish in a particular area and if possible I will try to accommodate them. However, I tend to place volunteers based on the needs of the food bank.

13) Do volunteers have easy access to their information? E.g. logged hours or days serviced. Currently volunteers need to come to me to check their hours and days served. I think it would be helpful if they had some system with which they could use to track their time served on their own.

14) Does the current system allow for an organization such as a grocery store to volunteer to host an event? If it did would it make facilitating events more efficient? Yes, our current method of recruiting does encourage groups and organizations to volunteer for opportunities with our site. I believe that the groups could benefit from more access to our orientation information and expectation in the same way that individual volunteers could.

15) Does the current system allow volunteers to be able to see the highest priority needs of your organization? No, the highest prioritized need for our organization is always expressed by me, the volunteer coordinator, in my initial contacts with the individual or group interested in volunteering.