# Software Requirements Specification

## for

# Mercy Clinic's Volunteer Management System

**<Version 1.6>**

**Prepared by Mercy Team**

**Mercy Clinic**

**05/05/2020**

# Table of Contents

# Revision History

| Name | Date | Reason For Changes | Version |
|------|------|--------------------|---------|
| Nestor | 02/11/2020 | 1.1, 1.2, 2.1, 2.2, and 2.5 | 1.0 |
| Minh Nguyen | 02/17/2020 | 3.2, 4.1, and 5.1 | 1.1 |
| Wynn Pho | 04/04/2020 | Fixed format<br><br>Made minor changes to 3.1 & 3.2 so that they are similar to UC's | 1.2 |
| Wynn Pho | 04/07/2020 | Finish section 3<br>-- section 3.1, 3.2, 3.3, … , 3.15<br>Changed the orders of the subsections 3.1-3.16:<br>   - 3.1 - 3.13: Admin's<br>      - Numbering is based on what's most convenient to navigate through the page<br>      - UC12 & UC13 is combined into one (section 3.12)<br>   - 3.14, 3.15: Volunteer's<br>Changed wordings (slot -> slot, schedule -> slot, scheduler system -> schedule system...) so they all match<br>Modified UCs so it would better reflect what we have implemented | 1.3 |
| Minh Nguyen | 04/22/2020 | Update section 1.3<br>Update section 2.3 & 2.4<br>Complete section 4:<br>   - Update section 4.1 graph<br>   - Complete section 4.2, 4.3 and 4.4 | 1.4 |
| Kenzie Clarke | 05/05/2020 | Reviewed document<br>Removed template inclusions<br>Resolved comments | 1.5 |
| Wynn Pho | 05/05/2020 | Modified System Features<br>Reviewed document | 1.6 |

# 1.    Introduction

## 1.1    Purpose

This document describes the functional and nonfunctional requirements for software release 1.0 of the Mercy Clinic scheduling web application. This document is intended to be used by the members of the project team who will implement and verify the correct functioning of the system. Unless otherwise noted, all requirements specified here are committed for release 1.0.

## 1.2    Project Scope

The Mercy Clinic web application shall permit registered Mercy Clinic volunteers to schedule themselves for time slots created by an administrator at Mercy Clinic through a calendar on the webpage. Along with the Administrator having the capabilities to review, modify, or create new volunteers or Administrative users as well as give volunteers to check in/out when they are at the clinic and have their hours recorded. A detailed description is available in the Vision and Scope Document [1], along with the features that are scheduled for full or partial implementation in this release.

## 1.3    References

### 1.3.1  Vision and Scope Document
Vison Document

### 1.3.2  Use Cases
Use Cases

### 1.3.3  Glossary
Glossary

# 2.    Overall Description

## 2.1    Product Perspective

The website is a replacement system to replace the current paper system which requires the Administrator to calculate and search for hours of volunteers by hand, paper and Administrator must constantly send emails to volunteers regarding available time slots and reminders and, Volunteers must call to get availability and select a time slot to volunteer for.
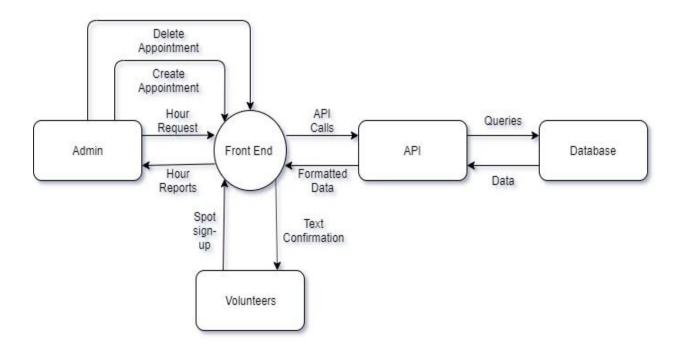


*Figure 1.1 - A diagram of the system features interacting with one another. Loosely based on UML format.*

## 2.2    User Classes and Characteristics

| User class | Description |
|---|---|
| Volunteer | A Volunteer is a registered person in the Mercy Clinic database who wants to schedule themselves to volunteer for an available time slot during Mercy Clinic's operating hours. A slot is generally for a need in the Medical, Dental, or Support category that covers Mercy Clinic's available services to the public. Volunteers are |

| | |
|---|---|
| | expected to schedule themselves through the webpage on their smartphones, tablets, or desktop/laptop computer. Along with scheduling they will be expected to check-in and check-out on a tablet or computer at Mercy Clinic to track actual hours. |
| Administrator | An Administrator will be able to track volunteer hours, generate reports of hours, automate email reminders, create new administrative users, delete administrative users, modify volunteer hours, create time slots in the calendar, and delete time slots in the calendar. |

## 2.3   Operating Environment

OE-1: The website shall operate on these web browsers: Windows Internet Explorer versions 10 and up; Firefox versions 71; Google Chrome (all versions); and Apple Safari versions 11.0 and up..

OE-2: The website shall operate on a Heroku Dyno running the current approved production web servers for node.js

OE-3: The website shall allow user access from anywhere in the world using anytype of internet connection; and by various mobile OSs such as Android and iOS.

## 2.4   Design and Implementation Constraints

CO-1: The website's design, code and maintenance shall conform node.js documentation for version 12.16.2 LTS, and express js documentation for version 5.0
CO-2: The website shall use the current version of MySQL 8.0.19
CO-3: All HTML code shall conform to the HTML 5.0 standard.
CO-4: All Cascading Style Sheets shall use the latest version of Bootstrap, Version 4

## 2.5   Assumptions and Dependencies

DE-1: Each volunteer will have either an email or a phone number.
DE-2: Hosting will be done through Heroku.

# 3.    System Features

## 3.1    Admin Creates Slots

### 3.1.1    Description
An administrator has administrative access to the Calendar system as only administrators hold accounts in the system. For the Volunteers to schedule or cancel their shifts, admin must create a schedule by putting empty time slots with the job function on a specific date in a calendar that requires the job. Priority = High.

### 3.1.2    Functional Requirements
The  Calendar system shall let an administrator who is logged into the main system create one or multiple slots on the calendar. The Calendar system shall give the admin the options to choose date, time, category and occurrence for slots. After the admin is done inputting, the Calendar system shall record those slots in the database and display them on the calendar, which is seen by both administrators and volunteers.

## 3.2    User Selects/Views a Slot

### 3.2.1    Description
An administrator or a volunteer can use the Calendar system to select a slot. This is an important ability for the users as it is the first step in performing tasks such as scheduling and slot or canceling one. Priority = High.

### 3.2.2    Functional Requirements
The Calendar system shall let a user, either an administrator or a volunteer, see slots on the calendar. The Calendar system shall display dates and number of slots available for each day on the calendar and allow the user to select the day they would like to view. After the user selects, the Calendar system shall display all slots' information(slot number, position title, start time, end time, availability status) for that day.

## 3.3    Admin Schedules a Slot for a Volunteer

### 3.3.1    Description
An administrator can schedule a slot for a volunteer. The volunteer may ask the admin by either calling or meeting in person to help them schedule a volunteer slot. The admin gives the volunteer available time slots for the volunteer to pick one, then the admin puts it in the schedule system. Priority = High.

### 3.3.2    Functional Requirements
The Calendar system shall let an administrator who is logged into the main system

schedule a slot for a volunteer. First, the Calendar system shall display all the available time slots. Then the Calendar system shall let the admin select the time slot the volunteer wants scheduled and put in the volunteer's name and contact information for that time slot. If the volunteer does not exist in the database/the admin inputs incorrect information, the Calendar system shall throw an error and prompt the admin to enter information again because it only allows existing volunteers to schedule for slots. Then the Calendar system shall make the time slot unavailable on the calendar and update the time slot in the database by linking it with the volunteer's information. Finally the Calendar system sends a confirmation email to the volunteer.

## 3.4    Admin Unschedules a Slot

### 3.4.1   Description

An admin can cancel a volunteer's previously scheduled slot. This might happen either because the scheduling was done on accident or because the volunteer can no longer maintain that slot due to unforeseen circumstances, and they have handed over the responsibility of updating the schedule to the admin. Priority = High.

### 3.4.2   Functional Requirements

The Calendar system shall let an administrator who is logged into the main system unschedule a slot. First, the system shall allow the admin to select the slot they want to cancel. The system shall present the selected slot's details and ask for confirmation of deletion. After the admin confirms that the selected slot is the correct slot, the Calendar system submits the deletion request to the database and the database shall remove the row corresponding to the slot. Finally, the schedule system shall inform the admin of the successful deletion.

## 3.5    Check In / Check Out

### 3.5.1   Description

A volunteer whose identity has been verified can check in / check out at the clinic using the Check In / Check Out System (CICO system). Priority = High.

### 3.5.2   Functional Requirements

The Volunteer Management System shall let an administrator who is logged in navigate to the CICOS. The CICOS shall display all the fields (name, phone number and/or email address) that a volunteer needs to enter to identify themselves. If the volunteer does not exist in the database/the volunteer inputs information that does not match any row in the database, the CICOS shall throw an error and prompt the volunteer to enter information again because it only allows existing volunteers to check in/out. After the volunteer has successfully identified themselves, the CICOS shall allow them to choose either Check in or Check out then record the time they check in / out in the database. If the volunteer chooses to check out without checking in earlier, the CICOS shall ask them to input the time they came in. If the volunteer has checked in and out that day, the CICOS shall inform them that and stop them from checking in / out again. When the user chooses

to check out, the CICOS shall calculate their time duration and record those time entries in the database.

## 3.6    Admin Adds and Updates a Shift Session

### 3.6.1   Description

A volunteer may forget to both check in/out or enter their times wrong when they manually punch clock, so an administrator can create new shift sessions for a volunteer and edit existing shift sessions. Priority = High.

### 3.6.2   Functional Requirements

**Add a shift session**: The Volunteer system shall let an administrator who is logged in the main system create a new shift session for any volunteer. When the administrator selects a volunteer in the volunteer list to view, the Volunteer system shall display an option that allows the admin to create a new time entry. If the admin clicks that option, the Volunteer system shall prompt the admin to enter a new date, time in and time out for the said volunteer. After the admin has filled in those fields, the Volunteer system shall record the information in the database and display a new shift session in the volunteer's list of time entries.

**Update a shift session**: The Volunteer system shall let an administrator who is logged in the main system update a shift session for any volunteer. When the administrator selects a volunteer in the volunteer list to view, the Volunteer system shall display all the shift sessions of that volunteer. In each shift session, the Volunteer system shall display an option that allows the administrator to edit date, time in and time out. After the admin has edited, the Volunteer system shall update the row corresponding to that shift session in the database. Finally, it shall reflect the change on the volunteer's list of shift sessions.

## 3.7    Admin Generates Reports

### 3.7.1   Description

An administrator can generate hour reports for one volunteer/multiple volunteers (depending on their department) in a period of time as a .csv file. Priority = High.

### 3.7.2   Functional Requirements

**Generate report for one volunteer:** The Volunteer system shall let an administrator who is logged in the main system generate reports for one volunteer. When the administrator selects a volunteer in the volunteer list to view, the Volunteer system shall display all the shift sessions of that volunteer. The Volunteer system shall display an option that allows the admin to generate a report for that volunteer. If the admin chooses that option, the Volunteer system shall prompt the admin to enter the start and end date of the report. After the admin has filled in those fields, the

Volunteer system shall scan the database for all the hour entries of the volunteer in that time period, then generate a .csv file that will be automatically downloaded.

**Generate report for multiple volunteers:** The Volunteer system shall let an administrator who is logged in the main system generate reports for volunteers from a certain department or all departments. The Volunteer system shall display an option that allows that admin to generate reports. When clicking that option, the admin is prompted to enter the department(s) and the start and end date. After the admin has filled in those fields, the Volunteer system shall scan the database for all the hour entries in that time period, then generate a .csv file that will be automatically downloaded.

## 3.8   Volunteer Schedules a Slot

### 3.8.1   Description
A volunteer can schedule a slot for themselves using the Calendar system. Priority = High.

### 3.8.2   Functional Requirements
The Calendar System shall display all the available time slots (that administrators have created) along with their information on the calendar. The volunteer can select a time slot, at which point the system asks the user for their first name, last name and email address. After the volunteer enters the information, the Calendar System scans the database to see if the volunteer exists, if yes, the system sends a confirmation email to the email address that the volunteer provided.

# 4.    Data Requirements

## 4.1    Data Dictionary

**Users table:**

| Data element | Description | Composition or data type | Length | Value |
|---|---|---|---|---|
| id | A unique id for user (admin) | int | 5 | Randomly-generated integer |
| first_name | User's first name | varchar | 25 | Alphabetic |
| last_name | User's last name | varchar | 25 | Alphabetic |
| email | User's email | varchar | 25 | Alphanumeric with @ and . allowed |
| phone | User's phone | varchar | 25 | Numeric with - allowed |
| gender | User's gender | varchar | 25 | Alphabetic |
| user_name | User's username | varchar | 25 | Alphanumeric |
| password | User's password | varchar | 75 | No restrictions since passwords are hashed keys |

**Volunteers table:**

| Data element | Description | Composition or data type | Length | Value |
|---|---|---|---|---|
| V_id | A unique id for volunteer | int | 11 | Randomly-generated integer |
| V_firstname | Volunteer's first name | varchar | 45 | Alphabetic |
| V_last_name | Volunteer''s last name | varchar | 45 | Alphabetic |
| V_gender | Volunteer's gender | varchar | 10 | Alphabetic |
| V_category | Volunteer's department | varchar | 45 | Alphabetic |

| V_role | Volunteer's role | varchar | 45 | Alphabetic |
| V_birthday | Volunter's birthday | date | | Numeric with - allowed |
| V_email | Volunteer's email | varchar | 45 | Alphanumeric with @ and . allowed |
| V_phone | Volunteer's phone | varchar | 20 | Numeric with - allowed |

**Slots table:**

| Data element | Description | Composition or data type | Length | Value |
| --- | --- | --- | --- | --- |
| s_id | A unique id for slot | int | 11 | Randomly-generated integer |
| s_starttime | Slot start time | datetime | | Numeric with - and : allowed |
| s_endtime | Slot end time | datetime | | Numeric with - and : allowed |
| s_type | Department | varchar | 45 | Alphabetic |
| s_role | Role | varchar | 45 | Alphabetic |
| s_creator | User's username | varchar | 25 | Referenced from users table |

**Checkincheckout table:**

| Data element | Description | Composition or data type | Length | Value |
| --- | --- | --- | --- | --- |
| timestamp | A unique id for check in /check out slots | int | 11 | Randomly-generated integer |
| V_id | A unique id for volunteer | int | 11 | Referenced from volunteers table |
| s_id | A unique id for slot | int | 11 | Referenced from slots table |
| date | Check in / check out | date | | Numeric with - |

| | date | | | allowed |
|---|---|---|---|---|
| intime | Check in time | time | | Numeric with : allowed |
| outtime | Check out time | time | | Numeric with : allowed |
| checkinchecko uttimediff | Duration | time | | outtime - intime |

## 4.2   Reports

The website shall generate reports for multiple volunteers/ one volunteer under .csv format. The reports information is based on volunteers name (first & last), department, date of work, check in time, check out time and duration.

Volunteer hours report csv sample:

| First_Name | Last_Name | Department | Date | Check In Time | Check Out | Duration |
|---|---|---|---|---|---|---|
| Wynn | Pho | Medical | 2/26/2020 | 1:00 PM | 6:00 PM | 5:00 |
| Wynn | Pho | Medical | 2/28/2020 | 12:45 AM | 12:45 AM | 0:00 |
| Wynn | Pho | Medical | 2/28/2020 | 12:45 AM | 12:45 AM | 0:00 |
| Wynn | Pho | Medical | 2/28/2020 | 12:45 AM | 12:45 AM | 0:00 |
| Wynn | Pho | Medical | 3/2/2020 | 10:00 PM | 10:00 PM | 0:00 |

| **Report ID** | |
|---|---|
| Report Title | Volunteer Hours Report |
| Report Purpose | Show the hours that the volunteers have worked |
| Report Users | Donors / Admins / Volunteers |
| Data Source | Check in / check out system |
| Frequency & Disposition | Report is generated based on admin's request. The report can be opened to view as an excel file that is automatically downloaded to the admin's device. |
| Latency | Complete report must be downloaded / ask to be downloaded to user within 3 seconds after it is requested |
| Visual Layout | Table |

| Header and Footer | None |
|---|---|
| Report Body | Volunteers first & last name, department, date of work, check in time, check out time and duration |
| End-of-Report Indicator | None |
| Interactivity | Admin can edit information on Excel |
| Security Access Restrictions | Only admin has the privileges to access |

## 4.3    Data Acquisition, Integrity, Retention, and Disposal

DI-1: The system shall retain all information related to volunteers, open slots, scheduled slots, check in time and check out time until the administrator decides to remove them from the system
DI-2: The system shall retain all information related other administrators until the master administrator (user name: admin) decides to remove them from the system
DI-3: The system shall discard the volunteer hours report immediately after it has been generated and sent to the client for downloads.

# 5.    External Interface Requirements

## 5.1    User Interfaces

UI-1: The Calendar page which will display all available slots for the volunteers to sign up
UI-2: The Admin logs in page
UI-3: The Admin dashboard with many tabs function designed for the admins
UI-4: The Calendar page for the admins to create slots, edit slots and delete slots
UI-5: The Volunteer page for the admins to edit volunteers hours, add or delete volunteers and to generate reports
UI-7: The Check In Check Out for volunteer to clock in and clock out to record their time
UI-8: The Administrators page is for the admin to create and add more admin privilege accounts

## 5.2    Hardware Interfaces

No hardware interfaces have been identified.

# Appendix A: Glossary

*Please see the Glossary document included in deliverables for this project.*