Software Requirements Specification

For

Childcare Application

Version 2.0

Prepared by Micah Netz

Juan Naputi

Shawn Todd

EWU Computer Science

2016-11-18

Table of Contents

Table of Contents [2](#__RefHeading___Toc26969053)

1. Introduction [3](#__RefHeading___Toc26969055)

1.1 Purpose [3](#__RefHeading___Toc26969056)

1.2 Document Conventions [3](#__RefHeading___Toc26969057)

1.3 Intended Audience and Reading Suggestions [3](#__RefHeading___Toc26969058)

1.4 Project Scope [3](#__RefHeading___Toc26969059)

1.5 References [3](#__RefHeading___Toc26969060)

2. Overall Description [4](#__RefHeading___Toc26969061)

2.1 Product Perspective [4](#__RefHeading___Toc26969062)

2.2 Product Features [4](#__RefHeading___Toc26969063)

2.3 User Classes and Characteristics [5](#__RefHeading___Toc26969064)

2.4 Operating Environment [5](#__RefHeading___Toc26969065)

2.5 Design and Implementation Constraints [5](#__RefHeading___Toc26969066)

2.6 User Documentation [5](#__RefHeading___Toc26969067)

2.7 Assumptions and Dependencies [5](#__RefHeading___Toc26969068)

3. System Features [6](#__RefHeading___Toc26969069)

3.1 Manager Use [6](#__RefHeading___Toc26969070)

3.2 Guardian Use 7

4. External Interface Requirements [7](#__RefHeading___Toc26969072)

4.1 User Interfaces [7](#__RefHeading___Toc26969073)

4.2 Hardware Interfaces [7](#__RefHeading___Toc26969074)

4.3 Software Interfaces [8](#__RefHeading___Toc26969075)

5. Other Nonfunctional Requirements [8](#__RefHeading___Toc26969077)

5.1 Performance Requirements [8](#__RefHeading___Toc26969078)

5.2 Safety and Security Requirements [8](#__RefHeading___Toc26969079)

5.3 Software Quality Attributes [8](#__RefHeading___Toc26969081)

6. Other Requirements [8](#__RefHeading___Toc26969082)

# Introduction

## Purpose

This SRS describes the software functional and nonfunctional requirements for release 2.0 of the Spokane Club Childcare Application (SCCA). This document is intended to be used by the members of the project team that will implement and verify the correct functioning of the system. Unless otherwise noted, all requirements specified here are high priority and committed for release 2.0.

## Document Conventions

Bold titles refer to a new section. Numbering for each section will start with the section number, followed by a dot and then subsequent subsection numbers.

## Intended Audience and Reading Suggestions

This document is for use by the application developers and for the client, the Spokane Club, to remain informed of project specifications. It is also for use by any future team that continues work on this project, and for previous teams to view changes.

## Project Scope

The SCCA will permit guardians to check in/out their children to/from the Spokane Club childcare center. This will also provide the managers/administrators functionality for adding and editing new administrators, parents, and children, compiling and printing/saving billing reports, adding and editing events, and changing application settings. Database backups are also automatically created and available for application restoration.

## References

Childcare App V1.0: <https://github.com/nrgraham23/ChildcareApp>

Childcare App V2.0: <https://github.com/Micduhh/Senior-Project-Childcare-Application> SQLite 2015-02-25 (3.8.8.3): <http://www.sqlite.org/changes.html>

# Overall Description

This application is for use by the Spokane Club to assist in the management of records and billing reports for the childcare facility. The application will have an administrator use section, and a parent use section. The guardian side of the application will allow parents and guardians to log their children in/out of childcare and compute the price for such services. The manager side of the application will have the ability to add childcare services, change the pricing of said services, compile detailed reports for billing purposes, as well as the ability to add, remove, and edit parents and children. New additions to this are the ability to edit in and out times for children as well as detailing event prices and timelines. The overall purpose of the program is to simplify and expedite current manual processes involved with childcare services offered at the Spokane Club.

This application is intended to run on a Windows 7, 8, 8.1, or 10 operating system with the .Net Framework version 4.5. It will also have access to a SQLite database. The database used by this application will be a stand-alone database and will not access other databases or data currently running on Spokane Club systems. The application itself will not interact with any of the Spokane Club's currently running systems. Certain security measures will be taken to prevent such attacks as SQL injection. To ensure the program is stable, we shall be running extensive tests including unit tests.

The application has been developed by senior level, undergraduate students currently attending Eastern Washington University. Post development versions have been created by separate groups of the same institution. The IDE used for development is Visual Studio 2015 Community edition, and the languages being used are C# and XAML. The Spokane Club Childcare Application Software is being developed free of charge for use by the Spokane Club and as such, all liability and any necessary upkeep is the responsibility of the Spokane Club.

## Product Perspective

This software is intended to replace the current pen and paper record keeping system for checking children in and out of the Spokane Club Childcare facility. It will expedite the billing process, and reduce resource expenditures. The 2.0 version is intended to expand upon the electronic record keeping system by adding additional functionality, as well as fixing unintended problems existing in the system.

## Product Features

Features will include functionality for checking children in/out of the childcare facility; calculating individual child charges based on hours and event rates; adding and editing new administrators, parents, and children; compiling and printing billing reports from customizable timelines; compiling billing reports for specific customer; adding and editing events and adjusting rates for events by initial hour/rate, additional hour/rate, and overtime hour/rate; and changing application settings. An application restoration feature is also available, and includes automatic weekly database backups. Updated functionality to account for database files being found anywhere within scope of the project.

## User Classes and Characteristics

This software is intended to be used by parents to check children in/ out of the system. It will also be used by administrators for adding and editing new administrators, parents, and children, compiling and printing billing reports, adding and editing events, and changing application settings.

## Operating Environment

The application is being developed to be run on Windows 7, 8, 8.1, and 10 based machines including desktops and laptops. The operating environment will include tools such as a SQLite database, and the .net framework version 4.5. Development tools will include C#, and Visual Studio 2015.

## Design and Implementation Constraints

Design of this software will need to protect against SQL injection. Administrator passwords and guardian PINs are also hashed using the MD5 hashing algorithm built into C# and the .Net framework. There will be multiple levels of administrative access, allowing some database changes to be made only by a top-level administrator. Parents and administrators are given separate windows for access to functionality.

## User Documentation

An accompanying document has been developed for the SCCA that will function as the user manual called: “Childcare Application User Manual”. This document describes program functionality and procedures. The manual has been designed for entry level computer users. A second document is provided to explain the use of the “super user” account for creating the first administrator and is called: “First User Setup”. This document is intended to be used by an administrator when setting up the application for use at the Spokane Club. These documents are provided in the software installation CD and contain updates from the subsequent versions.

## Assumptions and Dependencies

It will be assumed that this software will be used in a windows environment. It will also be assumed that the system will be compatible with the .Net framework and a SQLite database. No internet connection is required for the use of the SCCA. It is assumed that the user of the program will manually populate guardian/child databases and create and manage administrator accounts beyond the given super user.

# System Features

## Manager Use

**3.1.1** **Billing Report**

**3.1.1.1 Description and Priority**

Provide a report for all parental expenditures and provide totals for the given time frames. Updated functionality to report on time frames as well as individual customers. This item is of high priority.

**3.1.1.2 Stimulus/Response Sequences**

Log in as an administrator. From the administrator menu, click any of the billing/reports buttons. This will take you to the indicted reports page. Select start and finish date ranges. From here you will be presented with the desired reports and totals.

**3.1.1.3 Functional Requirements**

REQ-1: SQLite database connection

REQ-2: Allow managers to create reports for billing.

REQ-3: Allow managers to create invoices that will streamline the billing process.

**3.1.2** **Report Save/Print**

**3.1.1.1 Description and Priority**

Provides a printable report PDF file for all parental expenditures and provide totals for the given time frames. Report is saved externally in user defined location under user defined file name. File can then be transferred and printed at user’s discretion. This item is of high priority.

**3.1.1.2 Stimulus/Response Sequences**

Log in as an administrator. From the administrator menu, click any of the billing/reports buttons. This will take you to the indicted reports page. Select start and finish date ranges. Once report is displayed on screen, user can click save button at the bottom middle of the page.

**3.1.1.3 Functional Requirements**

REQ-1: SQLite database connection

REQ-2: PDF reader/printer software

**3.1.3** **Event and Fee Modifications**

**3.1.3.1 Description and Priority**

Provide functionality for adding and editing events as well as transactions. Updated functionality includes modularity for Event or Day-Care rates, all modifiable from daily to hourly rates. Further updated functionality to add overtime and 3rd hour time shift, hour and rate modular specifications. This item is of high priority.

**3.1.3.2 Stimulus/Response Sequences**

Log in as an administrator. From the administrator menu, click the edit / add events or the edit transactions buttons. This will take you to the proper window for the desired actions. Fill in desired elements: discount, overtime hour (the hour overtime will start\_, overtime rate (rate to charge during over time hour), additional hour (the hour the secondary rate will start), additional rate (rate to be charged during additional hour).

**3.1.3.3 Functional Requirements**

REQ-1: SQLite database connection

REQ-2: Allow managers to add/edit events/transactions

**3.1.4** **Application Settings, Edit Admins, and Restore Database**

**3.1.4.1 Description and Priority**

Provide functionality for editing application settings, editing administrator information, and restoring the database. This item is of high priority.

**3.1.4.2 Stimulus/Response Sequences**

Log in as an administrator. From the administrator menu, click the button most relevant to the task you wish to perform. This will take you to the proper window for the desired actions.

**3.1.4.3 Functional Requirements**

REQ-1: SQLite database connection (depending on the setting)

REQ-2: Allow managers to edit application settings, administrators, and restore databases

**3.1.5** **Parent and Child Registration**

**3.1.5.1 Description and Priority**

Provide functionality for adding and editing parents and children. This item is of high priority.

**3.1.5.2 Stimulus/Response Sequences**

Log in as an administrator. From the administrator menu, click any of the Add/Edit Parent/Child buttons. This will take you to the appropriate window. From here you will be able to add or edit new or existing guardians or children.

**3.1.5.3 Functional Requirements**

REQ-1: SQLite database connection

REQ-2: Allow managers to add/edit parents/children

## Parent Use

**3.2.1** **Check In/Out Children**

**3.2.1.1 Description and Priority**

A registered guardian will be able to check a registered child into the system. The same guardian, or another registered guardian, can then check the child out of the system. This item is of high priority.

**3.2.1.2 Stimulus/Response Sequences**

A registered guardian will be allowed to enter their user identification number and PIN number. Upon verification, the guardian will be allowed to access the check in screen where they can select any child registered to them. They must first select an event, then they will be allowed to select and check in children. This screen will also display all children that are logged in and registered to the guardian. The guardian will be able to select and log out any children registered to them.

**3.2.1.3 Functional Requirements**

REQ-1: Allow an account to be created for each parent to use the application.

REQ-2: Allow parents to check in/out their children.

REQ-3: Keep log of time children are checked into the Spokane Club Childcare facility.

REQ-4: Keep log of children that are checked in during special events.

# External Interface Requirements

## User Interfaces

Guardians will be provided a separate interface from administrators. Guardians will interact with a simple and natural, button driven user interface. Administrators will be provided more complex tools necessary for entry or modification of system data and specifications.

## Hardware Interfaces

The application interface will be compatible with Windows desktop/laptop PCs.

## Software Interfaces

Both the guardian and administration sides of this software will interface with Windows 7, 8, 8.1, or 10 and a SQLite database.

# 5. Other Nonfunctional Requirements

## 5.1 Performance Requirements

There are no nonfunctional requirements specified.

## 5.2 Safety and Security Requirements

Sensitive data related to specific children will be protected from unauthorized users. Users will not be able to look up information on other parents or their children. All passwords and PIN's will be hashed using the MD5 hashing algorithm within C#. We have also taken proper care to prevent SQL injection attacks. User identification numbers will be verified as valid, and protected against unauthorized access. All database interactions will be protected against SQL injection.

**Note** for admin users: When adding a guardian/child do not let the guardian enter their personal information without admin supervision. Due to the adding mechanism being under administrator control, the new user will have access to admin privileges while adding themselves so should not be left alone.

## 5.3 Software Quality Attributes

This application is designed to be easy to use and easy to understand. The application has been designed in a manner that a novice computer user would be able to quickly understand how to operate it.

# 6. Other Requirements

This application was designed to run on a modern computer with Windows 7, 8, 8.1, and 10. This application is also dependent on “Visual C# Redistributable for Visual Studio 2015” or later, which must be downloaded and installed separately.