

---

# **Software Requirements Specification**

**For**

## **Childcare Application**

**Version 1.04**

**Prepared by Nathaniel Graham**

**Brandon Fowler**

**Brain Lollis**

**Blaine Abbott**

**EWU Computer Science**

**01-15-2015**

# Table of Contents

<b>Table of Contents .....</b>	<b>ii</b>
<b>Revision History .....</b>	<b>ii</b>
<b>1. Introduction .....</b>	<b>1</b>
1.1 Purpose .....	1
1.2 Document Conventions .....	1
1.3 Intended Audience and Reading Suggestions .....	1
1.4 Project Scope .....	1
1.5 References .....	1
<b>2. Overall Description .....</b>	<b>2</b>
2.1 Product Perspective .....	2
2.2 Product Features .....	2
2.3 User Classes and Characteristics .....	2
2.4 Operating Environment .....	2
2.5 Design and Implementation Constraints .....	2
2.6 User Documentation .....	2
2.7 Assumptions and Dependencies .....	3
<b>3. System Features .....</b>	<b>3</b>
3.1 Manager Use .....	3
3.2 Guardian Use .....	4
<b>4. External Interface Requirements .....</b>	<b>4</b>
4.1 User Interfaces .....	4
4.2 Hardware Interfaces .....	4
4.3 Software Interfaces .....	4
<b>5. Other Nonfunctional Requirements .....</b>	<b>5</b>
5.1 Performance Requirements .....	5
5.2 Safety and Security Requirements .....	5
5.3 Software Quality Attributes .....	5
<b>6. Other Requirements .....</b>	<b>5</b>
<b>Appendix A: Glossary .....</b>	<b>5</b>
<b>Appendix B: Analysis Models .....</b>	<b>6</b>

## Revision History

Name	Date	Reason For Changes	Version
Brandon Fowler	01-15-2015	Initial Draft	1.0
Brian Lollis	01-18-2015	Second Draft	1.01
Brandon Fowler	02-04-2015	Additional Information	1.02
Brandon & Brian	03-17-2015	Corrections	1.03
Nathaniel Graham	06-03-2015	Final Review and Corrections	1.04

# **1. Introduction**

## **1.1 Purpose**

This SRS describes the software functional and nonfunctional requirements for release 1.0 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 1.0.

## **1.2 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. The words “parent” and “guardian” are used interchangeably.

## **1.3 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.

## **1.4 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.

## **1.5 References**

PDFsharp: <http://pdfsharp.com/PDFsharp/>  
SQLite 2015-02-25 (3.8.8.3): <http://www.sqlite.org/changes.html>  
Pagination Example: <http://tech.pro/tutorial/888/wpf-printing-part-2-pagination>  
Vertabelo (database schema): <https://www.vertabelo.com/>  
Glass Buttons Example: <http://www.jadeskaggs.com/2009/05/04/creating-custom-glass-buttons-with-xaml-inwpf/>  
WPF Message Box: <http://wpfmessagebox.codeplex.com/>

## **2. 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 parent side of the application will allow parents 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 reports for billing purposes, as well as the ability to add, remove, and edit parents and children. 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, or 8.1 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. Visual Studio 2013 Ultimate edition is the IDE being used for development, 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.

### **2.1 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.

### **2.2 Product Features**

Features will include functionality for checking children in/out of the childcare facility, adding and editing new administrators, parents, and children, compiling and printing billing reports, adding and editing events, and changing application settings. An application restoration feature is also available, and includes automatic weekly database backups.

### **2.3 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.

### **2.4 Operating Environment**

The application is being developed to be run on Windows 7, 8, and 8.1 based machines including desktops, laptops, and tablets. 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 2013.

## **2.5 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 will be given separate windows for access to functionality.

## **2.6 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 "superuser" 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.

## **2.7 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.

# **3. System Features**

## **3.1 Manager Use**

### **3.1.1 Billing Report**

#### **3.1.1.1 Description and Priority**

Provide a report for all parental expenditures. 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. From here you will be presented with the desired reports.

#### **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 Parent and Child Registration**

#### **3.1.2.1 Description and Priority**

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

### **3.1.2.2 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.

### **3.1.2.3 Functional Requirements**

REQ-1: SQLite database connection

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

## **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. 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.

### **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, as well as 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 edit settings, admin, or restore database buttons. This will take you to the proper window for the desired actions.

### **3.1.4.3 Functional Requirements**

REQ-1: SQLite database connection

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

## **3.2 Parent Use**

### **3.2.1 Check In 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. (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.

## **4. External Interface Requirements**

### **4.1 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.

### **4.2 Hardware Interfaces**

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

### **4.3 Software Interfaces**

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

### **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, and 8.1. This application is also dependant on “Visual C++ Redistributable for Visual Studio 2012”, which must be downloaded and installed separately.

## **Appendix A: Glossary**

- SCCA: Spokane Club Childcare Application



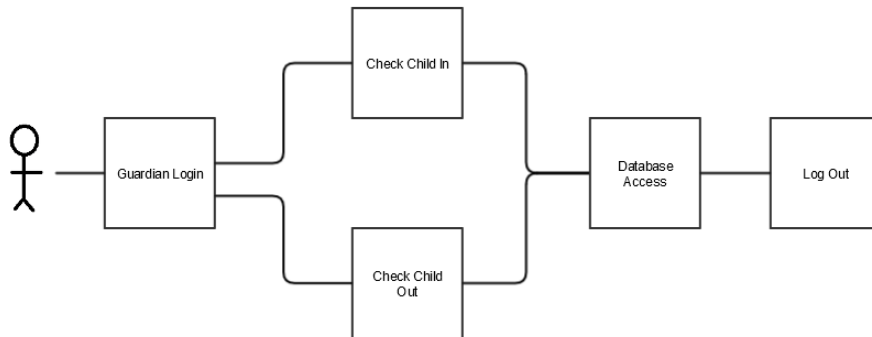
## **Appendix B: Analysis Models**

Class Diagram:

*Class diagram is presented in xps format in the Documents folder accompanying this application.*

Use Case:

Guardian Use Case



Admin Use Case

