

The ChocAn Simulator

Requirements Document

Authors: Daniel Mendez, Alexander Salazar, Alexander Dupree,
Arman Alauizadeh, Kyle Zalewski, Dominique Moore

Table of Contents

1. Introduction	2
1.1 Purpose	2
1.2 Scope	2
1.3 Target Audience	3
1.4 <i>Terms and Definitions</i>	3
2. Product Overview	4
2.1 Users	4
2.2 Stakeholders	5
2.3 Use cases	6
3. Functional Requirements	10
3.1 System Access	10
3.2 Shared Requirements	10
3.3 Provider Requirements	11
3.4 Manager Requirements	11
4. Nonfunctional Requirements	12
4.1 Security and Privacy	12
4.2 Reporting.	12
4.4 Testability	13
5. Milestones and Deliverables	14
5.1 Requirements document	14
5.2 Design document	14
5.3 Test Plan document	14
5.5 ChocAn Report and Final Deliverables	14

1. Introduction

This document outlines the product overview, requirements, and milestones of the ChocAn data processing software system.

1.1 Purpose

Chocoholics Anonymous (ChocAn) is a healthcare network that provides quality care and treatment for those addicted to chocolate. ChocAn desires to develop an information system to assist in the delivery and recording of this quality care. The overall goals of this system will be to provide an accessible interface for ChocAn providers to record healthcare treatment administered to ChocAn members. This system shall also provide an accurate and full accounting of all healthcare transactions between members and providers; as well as compile this data into regular, or on-demand, reports for authorized ChocAn managers.

1.2 Scope

This system is intended to *assist* in the record and management of ChocAn healthcare treatment. It will not provide payment processing services for providers nor shall it be able to enforce that providers are honest in their recording of services rendered. This system's scope is to act as a responsible custodian of ChocAn records by validating all fields of a transaction report and updating the respective member and provider records appropriately. This scope extends to compiling data records into a variety of reports that can be accessed by authorized ChocAn managers. Furthermore, this document is intended to deliver a high-level requirements overview of the system. In some areas, these requirements will be lacking detail which will be derived after further consultation with system stakeholders.

1.3 Target Audience

This document is intended for all ChocAn application stakeholders. This includes managers and medical providers who are involved with the specification of this software as well as the developers and engineers contracted to design and implement the software specifications.

1.4 Terms and Definitions

<i>ChocAn</i>	- Chocoholics Anonymous
<i>Manager</i>	- Administrator for the Chocoholics Anonymous organization
<i>Member</i>	- A member of the ChocAn medical service network
<i>Provider</i>	- Health care professional that provides ChocAn services for members
<i>Record</i>	- Shorthand for either a Member or Provider record which stores the information relevant to the record holder
<i>Service</i>	
<i>Directory</i>	- File that is accessible within the application to lookup ChocAn services and the corresponding service codes
<i>Transaction</i>	- Health care service rendered between a provider and member.

2. Product Overview

The ChocAn software will allow centralized cataloguing of services, clients, and providers within the Chocoholics Anonymous network. This cataloguing will result in significantly increased efficiency in providing treatment and, by extension, more effective treatment overall. Users will be those who access the software to add, edit, or read data stored within the system. Stakeholders will be defined as anyone who will directly or indirectly benefit from the software, or otherwise hold interest in its success. Use cases will describe specific real-world applications of the software as it is intended to be used.

2.1 Users

This section lists and defines the groups which will comprise the end users of the final software.

2.1.1 - Providers

Providers will be the most frequent users of the product. The product is designed so that at every appointment, providers will access and update client information. The interface must be particularly user friendly for this specific group in order to allow the best increase in productivity.

2.1.2 - Managers

Managers will interact with the software any time a report needs to be run, or provider information needs to be amended (to add new providers as well as delete removed ones). They also will use the software to add and remove members from the database. Their usage may not be as frequent as providers, but the work done in this context is very important to the operations of Chocoholics Anonymous.

2.2 Stakeholders

This section lists and defines the groups who have an interest in the success of the product at large. This includes users, developers, and those who are affected by the efficiency and effectiveness of Chocoholics Anonymous treatment.

2.2.1 - Members

Network members (users of the Chocoholics Anonymous network services) will benefit from the increased connectedness of providers in the network. All providers will have access to a complete record of services used by the member, which will allow a streamlining of service and ultimately more effective treatments.

2.2.2 - Providers

Provider information is stored with ChocAn and accessible through this application. Furthermore, the total fee owed to a provider is calculated by way of the providers service records. The security of the providers information and the accounting of the providers payments create a vested stake for providers in this system.

2.2.3 - Managers

Managerial summary reports are generated from this system. As such, the completeness and accuracy of these reports will greatly influence business decisions a manager must make. Therefore, managers have a stake in this system as well.

2.2.4 - Software Development Team

The software development team will be responsible for the start-to-finish process of implementing the desired features in the software and have a stake in the success of this system.

2.2.5 - Provider Technical Support

Each provider's chosen technical support team will be responsible for tier-one troubleshooting of software use, and will be the point of contact at the particular provider for issues that must be escalated beyond tier-one.

2.3 Use cases

This section will describe the specific use scenarios for which the software is designed to accommodate. This is intended to be an exhaustive list of cases for which our software will necessarily perform all expected functionality.

2.3.1 View Member or Provider Records

Actors: Member, Provider or Manager

Use Case Overview: Provider or Manager may view a member's record.

Precondition: A provider or manager is logged into the system

Basic Flow:

1. A ChocAn ID is entered into the terminal by either physically sliding the Members ID card through the reader or by entering a providers ID.
2. If the number is valid, the record for that account number may be viewed.

Alternative Flow 1:

- 1A1. The number is not valid, an error message is displayed and the system awaits a valid ChocAn ID.

Alternative Flow 2:

- 1B1. The number is valid, but the account is suspended. A message will be displayed outlining the nature of the suspension.

2.3.2 Add Service Transaction

Actors: Provider, Member

Use Case Overview: Provider will add a service transaction to a members record.

Precondition: Provider is logged into the terminal, Member has membership card and ChocAn service has been rendered

Basic Flow:

1. Provider enters the date and time the service was provided.
2. Provider uses the *Service Directory* to look up the appropriate service code and enters it into the terminal
3. Provider may enter additional comments in the comments field.
4. The complete transaction record will be displayed. This includes the service code, service description, current date time, date of provided service, and additional comments.
5. Both provider and member will verify the accuracy of the record by entering their respective ChocAn IDs

Alternative Flow 1:

- 1A1. The provider enters a non-existent date
- 1A2. An error message will be displayed on the screen
- 1A3. Provider will enter a correct date and continue with the transaction record

Alternative Flow 2:

- 2A1. The provider enters a non existent service number
- 2A2. An error message will then be displayed on the providers screen.
- 2A3. The provider then can enter the correct service number and continue with the transaction record.

2.3.3 Update Member or Provider Record

Actors: Provider or Manager

Use Case Overview: Provider or Manager will update or edit a record.

Precondition: Member has their membership card and a Provider or Manager is logged into the system.

Basic Flow:

1. A ChocAn ID is entered into the terminal by either physically sliding the Members ID card through the reader or by entering a providers IDI.
3. The Provider/Manager may update the name and contact information fields of the record. Transaction records will not be able to be updated.

Alternative Flow 1:

- 1A1. The number is not valid, an error message is displayed and the system awaits a valid ChocAn ID.

2.3.4 Create Member or Provider Account

Actors: Manager

Use Case Overview: The manager will create a member account.

Precondition: Manager is logged into the system

Basic Flow:

1. The manager indicates whether they are creating a provider account or a member account.
2. Name and contact information is entered into account fields
3. Account information is displayed and manager verifies information is correct.
4. A unique ChocAn ID is generated for the account and attached to the record.

Alternative Flow 1:

- 3A1. Incorrect information can be edited before account is finalized.

2.3.5 Delete Member or Provider Account

Actors: Manager

Use Case Overview: The manager will delete a member or provider account.

Precondition: Manager is logged into the system

Basic Flow:

1. Manager enters the ChocAn ID of the account to be deleted
2. System displays account information and prompts manager to confirm that they want to delete this account.
3. Manager confirms or deny the request to delete account

2.3.6 View Summary Reports

Actors: Manager

Use Case Overview: The manager wishes to see a summary of provider activity for the week.

Precondition: Manager is logged into the system.

Basic Flow:

1. Manager requests the system to generate summary reports for the current week.
2. Report is generated and displayed to the manager. Summary report may include details such as a list of providers to be paid that week, the number of consultations each had along with their total fee.

3. Functional Requirements

For this software to be considered functional it must be able to view and edit account information as well as create, validate and log transactions and compile summary reports.

3.1 System Access

3.1.1 - The system shall validate system access through a provider or manager unique identification number.

3.1.2 - Invalid identification numbers shall be rejected with an explanation given.

3.1.3 - The system shall provide a role based access login system that restricts certain system functions to a specific role

- a. Providers will be limited to viewing and updating their own record as well as the record of the current patient they are provided service for
- b. Managers will be able to create, edit, and delete both provider and member records as well as receive on-demand reports compiled from the ChocAn data center. Managers are also limited within member/provider records to non-confidential data.

3.2 Shared Requirements

3.2.1 - The system shall allow managers and providers to update account information.

- a. Only name and contact information may be edited.

3.2.1 - ChocAn IDs and transaction records shall not be modifiable in any context within the system

3.3 Provider Requirements

3.3.1 - System shall create and record healthcare transactions made by providers

- a. Only one transaction shall be recorded by a provider at a time

3.3.2 - *System shall perform validation on required transaction record fields.*

- a. ChocAn services are identified through a unique service code.
- b. The cost and description of the service is determined by the service code.

3.3.3 - Provider shall be able to edit the transaction record freely until the record is finalized by the user.

3.3.4 - Transaction records shall be validated by the provider and member before a transaction is finalized.

- a. Records are finalized by having both provider and member enter their ChocAn IDs.

3.4 Manager Requirements

3.4.1 - The system shall provide reports on transaction records and account activity when requested.

- a. Members shall receive weekly reports detailing ChocAn activities
- b. Providers shall receive weekly reports detailing ChocAn services rendered and amount owed

3.4.2 - Managers shall have access to summary reports about provider activity throughout the ChocAn network

3.4.3 - System shall allow authenticated managers to create/edit/delete member and provider records.

4. Nonfunctional Requirements

For our software to remain effective, we must outline how users will be able to interact with the system. Records only being accessible with a valid ID token and permissions. Reports must be kept up to date. Report formatting means every report must be for an individual member or provider, you cannot mix multiple of either into a report. Our service directory must stay up to date with relevant information for providers to view.

4.1 Security and Privacy

4.1.1 - Records shall be separated into their own units. That is, records will not be aggregated into a singular file or database entry. This ensures searchability and privacy requirements are being fulfilled.

4.1.2 - Only managers have read/write access to Provider/Member records as well as reports. However, all managers must first verify their identity with appropriate credentials when logging into the service.

4.1.3 - Only members and their appropriate provider may see their ChocAn transaction history. This ensures that members can use ChocAn services with confidentiality.

4.2 Reporting

4.2.2 - Reports are generated on-demand or on an interval basis. Reports are not pre-compiled and regularly updated, but rather are compiled with the information available at the time of the report request. This ensures reports have the most up-to-date information and reduces the load on the ChocAn software.

4.2.2 - Reports shall be delivered in the format specified by ChocAn

4.4 Testability

4.4.1 - ChocAn software will be shipped with at least 90% code coverage

4.4.2 - Each module within the system will be accompanied by unit tests for that module.

5. Milestones and Deliverables

5.1 Requirements document - October 31st, 2019

This document in its entirety will detail all functional and non-functional requirements outlined by the client, ChocAn. It will be delivered no later than October 31st, 2019.

5.2 Design document - November 4th, 2019

The design document will detail the architecture and design of the ChocAn system, implementing the requirements agreed upon by ChocAn and the engineers. It will detail how the engineers will create the software, the language the software will use, how the data for the ChocAn members will be stored, and the abilities it gives the clients who purchased the software. The design document will be delivered no later than November 4th, 2019.

5.3 Test Plan document - November 18th, 2019

The test plan document will give the client a sense of security about the software they are purchasing. This document gives information on how the software engineers will test the software they are providing as to ensure the functional ability of the product. The document will describe how the software should work in optimal conditions, how the software will handle user errors, and limits of the software. The test plan will be delivered no later than November 18th, 2019

5.5 ChocAn Report and Final Deliverables - December 6th, 2019

The final and complete version of the ChocAn software will be delivered at this stage. The software itself will have implemented all requirements outlined in this

document. The source code, build instructions, and any other requisite data will be delivered at this stage no later than December 6th, 2019. Accompanying this deliverable will be a ChocAn software report, drafted by the design team to provide a retrospective into the project.