

# The ChocAn Simulator

## Requirements Document

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# 1 Introduction

Chocoholics Anonymous is an organization that helps bring those addicted to chocolate into sobriety. As such, the organization requires software to keep track of its managers, providers, members, and the goods and services the members will receive through Chocoholics Anonymous. The purpose of this document is to detail the plan of development for the Chocoholics Anonymous terminal functionality. This document will cover the following:

- Different types of software users
- Privileges and functionality each user shall have
- How the software shall operate depending on member status
- Specifications describing how the software shall generate reports
- Specifications describing when the software may generate reports
- Procedures each user shall take to access their respective privileges
- Accessibility of the software
- Milestones regarding the development of the software

## 1.1 Purpose and Scope

This project is meant to create better access to organizing data for members, providers, and managers within Chocoholics Anonymous. This software seeks to allow for logging of services and medications for members, keep track of payment amounts and logs for each payment with their respective provider, generate regular, weekly reports about such payments for services and medication, and to track overall use of the Chocoholics Anonymous services on a weekly basis.

## 1.2 Target Audience

This document is intended for the developers of the software listed and investors interested in the project, as well as healthcare professionals and managers working with the Chocoholics Anonymous organization.

### 1.3 Terms and Definitions

This document utilizes the following terms:

ChocAn	Chocoholics Anonymous
EFT	Electronic Funds Transfer
Provider	Healthcare professional
Member	Patient

## 2 Product Overview

This program will enable managers and providers to treat members for chocolate addiction. Members have unlimited consultations and treatments. The software will keep track of all services provided throughout the facility in any given time period. It will also keep track of all available services, membership status, and payroll. Other organizations will be responsible for financial procedures, communications, and design of the terminal.

### 2.1 Users and Stakeholders

This section lists all parties who will be interacting, whether that be directly or indirectly, with the software.

#### 2.1.1 Manager

The managers will access the terminal to generate reports and oversee payroll.

#### 2.1.2 Provider

The providers may be dietitians, internists, and exercise specialists and will provide unlimited services to the members. Each provider has their own provider number, and each service that can be provided has a number associated with it as well. The providers will:

1. Check member status

2. Provide the service
3. Log the service in the software.

The providers will directly interact with the terminal.

### **2.1.3 Member**

Each member is assigned a member ID number, which links to their member profile. The member profile will keep track:

- Member status
- Fees owed
- Services received
- Member information

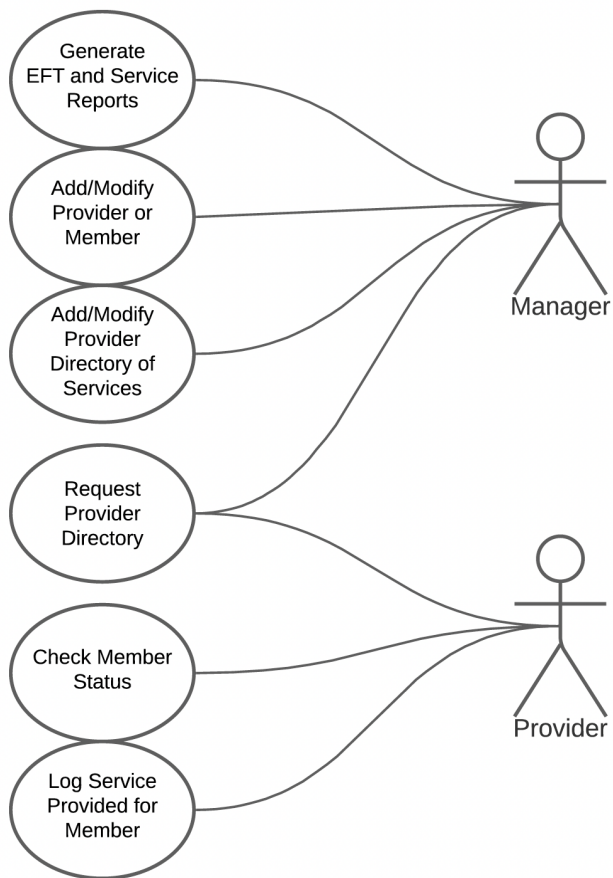
The members will not have direct access to a terminal, but will provide their member ID cards to providers when needed.

### **2.1.4 Other Organizations**

Other organizations will be responsible for components that interact with our software, including financial procedures, communications, and design of the terminal.

## **2.2 Use Cases**

This section lists potential uses of the software.



### 2.2.1 Provider Gives a Service (Member Status is Valid)

When a member comes in for a service, they will hand their membership card to the provider. The provider will enter their provider ID to gain access to the terminal, and then enter the member's membership ID to check membership status. If their member status is valid, the member will receive the service. The provider enters the membership ID once more and records the details of the service provided, including the date the service was performed, the service code, and comments about the service. The fee for the service will be displayed.

### 2.2.2 Provider Gives a Service (Member Status is Suspended)

If a member's member status is set to suspended, the fees that they owe will be displayed. Acme Accounting Services manages membership status and fees and will update the records every night at 9pm.

### **2.2.3 Manager Requests Reports**

A manager can request financial reports and service reports at any time. Similarly to the providers, they will access the terminal by entering their manager ID number. From there, they can request reports detailing the services provided and the payment that each provider is entitled to.

### **2.2.4 Provider/Manager Requests Provider Directory**

A provider or manager can request a provider directory at any point in time which will give them a list of all the services available and their service code.

### **2.2.5 Manager Adds or Modifies a Member, Provider, or Service**

Managers can add or modify any information in a member, provider, or service in the provider directory at any time.

## **3 Functional Requirements**

The purpose of this section is to manage functional requirements for the ChocAn software.

Top-down the requirements will encompass the program requirements for managers, providers, and ChocAn members.

### **3.1 Manager Requirements**

The manager must be able to perform a variety of tasks. Access requirements include:

- Access to terminal Interface - Simulated by keyboard, output must appear on a screen.
- Access to the provider directory. Must be able to add, delete, and update accounts.
- Access to the provider service directory. Must be able to add, delete and update services.
- Access to the member directory. Must be able to add, delete, and update accounts.
- Access to accounting procedures to run all reports at midnight on fridays. See below.
- Access to reports must be allowed at any time.
- Generation of login information must be completed by the software.

#### **3.1.1 Accounting Procedure**



A Summary report run at Midnight on Friday includes reports that can be run at any time by a manager.

**3.1.1.1 Member Report - Includes:**

- Member name (25 characters).
- Member number (9 digits).
- Member street address (25 characters).
- Member city (14 characters).
- Member state (2 letters).
- Member zip code (5 digits).
- For each service provided, the following details are required:
  - Date of service (MM-DD-YYYY).
  - Provider name (25 characters).
  - Service name (20 characters).

**3.1.1.2 Provider Report - This report is sent to each provider via email attachment. (File.)**

- a. List of services the provider administered to members. This contains the same information as entered on the provider form, in the order they were entered in the computer. (See 3.2.1.2.j).
- b. At the end of the report contains a summary. The fields include:
  - Provider name (25 characters).
  - Provider number (9 digits).
  - Provider street address (25 characters).
  - Provider city (14 characters).
  - Provider state (2 letters).
  - Provider zip code (5 digits).
  - For each service provided, the following details are required:
    - Date of service (MM-DD-YYYY).
    - Date and time data were received by the computer (MM-DD-YYYY, HH:MM:SS).
    - Member name (25 characters).
    - Member number (9 digits).
    - Service code (6 digits).
    - Fee to be paid (up to \$999.99).
  - Total number of consultations with members (3 digits).
  - Total fee for the week (up to \$99,999.99).

**3.1.1.3 EFT Data -** is written to disk (a text file in our case). Banking computers will take data and transfer funds. Data Includes the following:

- Provider name

- Provider number
- Total amount to be transferred

**3.1.1.4 Summary Report** - This report is given to the manager of accounts payable. It includes:

- Every provider to be paid for the current week (Saturday through Friday).
- The number of consultations each provider fulfills.
- Each provider's total fee for the week packaged with consultations above.
- Total number of providers that provided services.
- The total number of consultations.
- The overall fee total for all services rendered by providers.

### **3.1.2 New Provider Records (Adding to Provider Database)**

Managers shall collect the following data from new providers:

- Provider name (25 characters).
- Provider number (9 digits - randomly assigned).
- Provider street address (25 characters).
- Provider city (14 characters).
- Provider state (2 letters).
- Provider zip code (5 digits).

### **3.1.3 New Provider Records (Adding Provider and Services to Provider Directory)**

Managers shall collect the following data from new provider who wishes to add services:

- Service name
- Randomly assign a service number via software and verify that it's not been taken.
- Corresponding service fees

### **3.1.4 New member records (Adding to member directory)**

Managers shall collect the following data from new members:

- Member name (25 characters).
- Member number (9 digits randomly assigned).
- Member street address (25 characters).
- Member city (14 characters).
- Member state (2 letters).
- Member zip code (5 digits).

## **3.2 Provider Requirements**

The provider must be able to perform a variety of tasks. Requirements include:

- Provider specific terminal interface

- Access to read provider directory at any time using a separate application. See shared requirements.
- Billing Interface
- Provider login information must be generated by the software during account creation.

### **3.2.1 Provider Terminal**

There shall be a provider interface that allows for login and billing.

#### **3.2.1.1 Provider Login**

- Ask the provider to log in with their member number and display success/fail.
- Input member card reading in name and 9-digit number.
- Display “Validated” if the number is valid, “Invalid Number” if it’s missing, or “Member Suspended” if the account has been suspended.
- Proceed to billing interface.

#### **3.2.1.2 Billing Interface**

- After provider access is granted via provider login: input shall be requested for member name and 9-digit number.
- Check validity of name & 9-digit number, and display “Validated” if validated.
- Provide input for the date in the format MM-DD-YYYY and validate input. Invalid input will result in an error message.
- Allow the provider to use the provider directory to find the 6-digit service code.
- Provide input for the service code and validate input in the provider directory. Invalid input will result in an error message.
- Display the service name to the provider from the provider directory to verify the correct service.
- Allow the provider to record comments about the service provided.
- Write the billing record to disk. Data to be written includes:
  - Current date and time (MM-DD-YYYY HH:MM:SS).
  - Date service was provided (MM-DD-YYYY).
  - Provider number (9 digits).

- Member number (9 digits).
  - Service code (6 digits).
  - Comments (100 characters) (optional).
- i. Display fee to be paid for the service to the provider for their own records.
  - j. Verify provider information: Record date, name and member#, service code, fee to be paid. (Save this in a file to be used for the provider report. Add new entries at the end.)

### **3.3 Member Requirements**

The member does not use a terminal, however they have auxiliary data needs. These will be covered by managers and providers.

### **3.4 Shared Requirements**

While each party must use the software in different ways, there are a few components that will be shared.

#### **3.4.1 Provider Directory**

The system shall have a provider directory - This is a software product including an alphabetical list of service names, codes and fees for each provider. This must be available to the provider at any time, as well as the manager.:

- a. It shall allow adding.
- b. It shall allow editing.
- c. It shall allow deletion.
- d. It shall allow exporting of the provider services as a document.
- e. Service codes must be generated by the software.

### **3.5 External Vendor Requirements**

- a. The program shall allow editing of records by Acme accounting each night at 9pm. No action is needed as this will be implemented by another party.

## **4 Nonfunctional Requirements**

The purpose of this section is to outline product, organizational, and environmental requirements for the data processing system to be developed for and provided to ChocAn.

### **4.1 Product Requirements**

These are requirements for reliability, security, and usability that must be met by the software system. Communication and data center issues are not in the scope of this document.

#### **4.1.1 Accessibility and Downtime**

This section outlines when certain parties require access and acceptable downtime.

##### **4.1.1.1 Provider Access**

The system must be available to all providers at all times so that they may verify customers, look up service code, and record new service entries, with the exception of scheduled periodic nightly downtime for updates and maintenance. Unscheduled downtime shall not exceed 5 seconds daily.

##### **4.1.1.2 Manager Access**

The system must be available to managers at all times so that they may add, update, and delete any member, provider, or service records as needed, as well run any necessary reports.

Unscheduled downtime shall not exceed 5 seconds daily.

##### **4.1.1.3 Acme Accounting Services Access**

The system must be available each evening at 9 PM for Acme Accounting Services to update member records with payments, suspending members that are past due, and reinstating suspended members that have paid arrears. While payment records are updated, any new service records will sit in queue until the update is complete, allowing providers to make entries without interruption.

##### **4.1.1.4 ChocAn Inhouse Accounting Access**

The services file for the week must be free to run ChocAn accounting procedures on Friday nights at midnight. The file will be locked and any new entries will be sent to the next week's file at this point.

#### **4.1.1.5 Electronic Funds Transfer (EFT) Access**

At the end of the week, after the services have been verified by the providers, a file with information for performing the EFT will be generated and made available to the application that will be doing the EFT.

#### **4.1.2 Security Requirements**

The data processing software will receive login validation from the terminal and then provide access to the data based upon the credentials.

#### **4.1.3 Usability Requirements**

Terminal input will be simulated using keyboard input and data to be transmitted to the terminal display will appear on screen. The menu displayed will be based on the user (provider, manager, etc.) credentials provided.

### **4.2 Organizational Requirements**

This section will cover any system requirements derived from policies and procedures within ChocAn, or the developer's organization.

#### **4.2.1 Operational Process Requirements**

Access to read, write, update, or delete records will be managed based on the member, manager, or providers' access codes.

The different roles should have access as follows:

- Member code will only validate membership for that member.
- Acme Accounting Services will be able to record payments, and suspend or reinstate members as needed. This access is outside the scope of work performed by this organization.

- Providers will be allowed to enter service records, submit requests for the Provider Directory, and obtain the end-of-week report of services rendered.
- Managers will be allowed to run any reports, add, delete, and update any member or provider records, including correction of service records and Provider Directory.

Any user codes (Member, Provider, or Manager codes) will be generated by the system.

#### **4.2.2 Development Process Requirements**

The system will be developed using the C++ programming language using compatible IDEs. Other languages may be used as needed.

#### **4.2.3 Environmental Requirements**

Data processing and storage will be located in the ChocAn Data Center.

### **4.3 External Requirements**

This section will cover any regulatory, legislative, or ethical requirements.

#### **4.3.1 Regulatory and Legislative Requirements**

The system must be developed in accordance with any local and national privacy standards and laws in the regions of use.

#### **4.3.2 Ethical Requirements**

If any ethical privacy issues arise that are not covered by standards and legislation, the system must be developed to address those issues.

## **5 Milestones and Deliverables**

In this section we will look at deliverables produced at two distinct development milestones and a final product, as well as their respective build stages. Including iterations made and what each build stage will be introduced to the test phase.

### **5.1 ChocAn Software Algorithm**

The design phase is completed to produce a development plan and implementation schedule for software functionality and organization of data for finances and reports. This will contain the development plan for the creation of lists (directories) for users as well as the design for access uptime and planned service downtime for accounting procedures.

Deliverables:

1. Completed design plan for software managing various users and data.
2. Software build/implementation schedule.

## **5.2 Incremental Test Build**

This will provide the initial functional build for alterations and testing, ensuring that the requirements have been met for the software. User interactions for reports and services will be implemented for managers, members and providers. In addition billing and payroll will be included for testing.

### **5.2.1 Users and Data Built**

A user object is made to contain specific user and relevant personal information on that user, be it a manager, member or provider. Data for services and user directories are initialized and will be expanded later.

Deliverables:

1. Managers have access to the terminal interface
2. Providers have access to the terminal interface.
3. Directories for members, providers and managers are created.
4. Directories for service data created.

### **5.2.2 Interaction Between Users and Data**

Users are able to be added/removed or edited, and interactions with reports and services are active. Managers are able to access provider and provider service directories as well as reports of members. Providers gain access provider directions and with billing information likely added in a future stage.



Deliverables:

1. Manager access to provider Directory.
2. Managers have access to the service directory.
3. Manager access to member directory.
4. Manager access to reports.
5. Provider access to read provider directory.

### **5.2.3 Billing and Payroll**

Manager and provider class utilities of payroll and billing are introduced, utilizing member and provider directories. Summary reports shall be created for managers; each report shall contain a list of providers, their services rendered, and their related financial data for the week. Financial and service reports requests will be sent to the proper recipients via email. Providers are also able to initiate billing via member reports. ACME account access shall be completed by a separate entity for end of week payroll and regular off hour member directory updating.

Deliverables:

1. Provider Access to billing interface.
2. Manager access to member reports.
3. Manager access to provider reports.
4. Manager access to accounting procedures.

### **5.3 Final Build**

Integration of changes and debugging during the skeleton build make for full interactivity between users and user data as well as reports and directories in this release. The final build is the complete implementation of the ChocAn software, while the terminal design, financial procedures and communications will be managed by a third party.

Deliverables:

1. Completed ChocAn Software, to provide a system that can keep track of its managers, providers, members in addition to services and finances.