The ChocAn Simulator Requirements Document

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1. Introduction

The ChocAn Simulator is a software data-management product for the Chocoholics Anonymous (ChocAn) organization, which seeks to help people recover from chocolate addiction. The software will be used by two types of clients: medical providers working with ChocAn, and members of the ChocAn care plan seeking medical services through ChocAn. It will also be used by managers at the ChocAn organization. The program keeps track of member medical records related to ChocAn. It manages members' membership status, keeping track of their monthly payments; it also uses member data to identify services provided. The software smooths the process of using ChocAn for both medical providers and members. The requirement document will provide an overview of the details of the project and its requirements that are needed to build the software; in sections, the document covers the product overview, the functional requirements, the non-functional requirements, and the milestones and deliverables.

1.1 Purpose and Scope

The purpose of The ChocAn Simulator is to manage, report, and provide a variety of data on the clients of the ChocAn organization. The ChocAn Simulator scope will include a variety of services that are used to process and manage the clients' data.

1.2 Target Audience

This document will, based on the requirements given, provide to contractors the information and functionality of the software program ChocAn.

1.3 Terms and Definitions

- ChocAn: The Chocoholics Anonymous organization.
- Software: A computer program and its related documentation.

- Stakeholder: a user of the software, including members, providers, and ChocAn management.
- Terminal: ChocAn's electronic hardware device into which data can be entered.
- EFT: Electronic Funds Transfer.
- Member: A person seeking access to medical services through ChocAn.
- Provider: A medical provider working with ChocAn to provide services to members.

2. Product Overview

In this section, we provide a brief overview of the software product's functionality and its users. While this section does cover general information about the functionality of the software product, the Functional and Nonfunctional requirements section of this document goes into greater detail. In this section, we define who stakeholders and users are and their corresponding use cases of the product. Finally, we provide details about the scope of limitations of this product and what features will be included based on these limitations.

The software product for ChocAn will handle data processing for requests made through provider and manager terminals via simulated keyboard inputs. Healthcare professionals partnering with ChocAn (provider) and managers at ChocAn are stakeholders because they are the direct users of the software product through their corresponding terminals. Conversely, people seeking medical care through ChocAn (members) are the users, as they merely rely on the ability of the software, operated by providers and managers, to keep records, control membership status, and bill members. The main goals of this software product is to store data regarding services provided to members; to provide stakeholders with reports; to manage members; and to track and

record financial information provided by Acme Accounting Services. Providers, through their terminal, will be able to check membership status, bill ChocAn for provided services, and access a provider directory. Managers, through their terminal, shall be able to update both member and provider records, including provider and member status, and generate reports from existing data. Finally, the software shall be able to generate member, provider, manager, and financial reports from existing data. These reports will be generated at the end of the week from records of services provided and sent to members using a third-party e-mail system.

The scope of this product is that of a data processing tool. The product will not handle communications or EFTs; it also will not provide a design for the ChocAn provider terminal. Instead, the product will be developed to access and store data from provider terminals and outside sources such as Acme Accounting Services. Through the terminal, and through its weekly e-mail reports, the product will allow access by providers and managers (with appropriate clearance) to data related to services provided to members.

2.1 Users and Stakeholders

Below we will list both the users and stakeholders of the software product. Stakeholders are defined as both managers and providers, as they are the direct users of the software via their corresponding terminals. Users are defined as members of ChocAn, as they are not direct users, but depend on the proper functioning of the software.

2.1.1 Members (User)

The members of ChocAn are clients suffering from chocolate addiction and seeking supportive medical care through ChocAn. Members, unlike providers and managers, do not have direct contact with the software. Members simply utilize the supportive medical services provided by ChocAn, and the record of

their care is stored by the software. This allows members to receive weekly reports based on their service history. Other data stored about members includes a membership identification number and membership status. Membership status can be active, but it can also be inactive; an inactive membership means the member is not currently eligible for care through ChocAn.

2.1.2 Provider (Stakeholder)

The providers have direct but limited access to the data stored by the software. Providers are able to use their terminal to view a provider directory supplied by the software. Additionally, providers can check membership status to verify active memberships of members, and they can bill ChocAn based on services provided to members. At any time, providers can request a report of services provided to ChocAn members at their clinic, containing information about services and any fees associated with them.

2.1.3 Manager (Stakeholder)

The managers have nearly unrestricted access to the software. Through their terminals, managers are able to edit the membership status of any member using the member data and provider details stored by the software. Managers receive weekly reports that are generated by the software product based on data supplied by members, providers, and third-party companies. In addition to the weekly reports, managers are able to generate several other types of reports at any time using the software.

2.2 Use cases

The use cases section of this document outlines the major interactions performed with the software by all users and stakeholders. The use case section will provide brief descriptions of the major functionalities provided by the software.

2.2.1 Reporting Services

One of the primary goals of the software is to correctly log completed services and store this data in a file at the ChocAn Data Center; the data will be tied to both a provider and a member. To do this, the software must validate the member is a member by checking the file of active members based on their name and membership number. Next, the provider will input the date in MM-DD-YYYY format and find the correct service code from the provider directory to log the service provided. The terminal will then ask for information about the session, and the software should find the fee based on the entered information. The data should then be stored in a file, available for review by the provider or manager, to be sent out in weekly reports.

Use Case Name:	**Reporting Services**
Summary:	Providers should be able to bill ChocAn for services by entering information about the services provided and have that data stored at ChocAn Data Center in a file.
Basic Flow:	1. A provider provides a member with a service and needs to input information about the service for billing. 2. The provider logs into their terminal and verifies that the member has an active membership with ChocAn using the member's name and member number. 3. Date of the service will be keyed in using the following format: MM-DD-YYYY. 4. Provider finds the correct service code from the provider directory. a. If the service code is incorrect, an error message will appear. 5. The provider enters any comments about the service that was provided . 6. The above information is written to disk. 7. A fee for the service is displayed to the provider's terminal. 8. The fee is then entered into a form with the current date, time, date the service was provided, member name, number, and service code.
Preconditions:	● Check that terminal has provider privileges.

2.2.2 Manager Reports

Managers will have the capability to manually generate reports through their terminal throughout the week in addition to the weekly reports provided by the software. The reports received by the manager should include member reports, provider reports, EFT reports, and the usual weekly reports. These reports include information that is stored throughout the week via service logging outlined in 2.2.1 of this document.

Use Case Name:	**Manager Reports**
Summary:	Through a manager terminal the manager should be able to retrieve reports including: member reports, provider reports, EFT reports, and weekly reports.
Basic Flow:	1. Privileges of the terminal requesting a report are checked. 2. The manager can request one/all of the following reports: a. Member Report b. Provider Report c. EFT Report d. Weekly Report (Automatically sent at the end of the week) 3. A report generated from data kept on file in the database should be returned to the manager.
Preconditions:	● Check that the terminal user has manager privileges.

2.2.3 Editing of Member Information

One use case of this software is the ability of managers to interact with the data of new or existing members and providers. Through the manager's terminal, all member fields and all provider information shall be editable, including personal information and member status. This functionality will allow managers to create and edit member and provider accounts.

Use Case	**Editing of Member Information**

Name:	
Summary:	Through a manager's terminal, managers should be able to edit information about members and providers of ChocAn including: adding members, deleting members who have resigned, updating records, adding providers, deleting providers, and updating provider information.
Basic Flow:	1. Check that terminal has manager privileges. 2. Find the member/provider in the database that needs to be modified or create a new member/provider. 3. Retrieve and review updated information and store to disk.
Preconditions:	• Check that the terminal user has manager privileges.

2.2.4 Account Credentials

Since both providers and managers have access to the terminal, credentials will be checked against a file containing a list of credentials. This way, provider terminals do not have access to managerial commands—such as editing member information—as outlined in section 2.2.3 of this document.

Use Case Name:	**Account Credentials**
Summary:	Both providers and managers have access permissions based on their thus the system needs some sort of check that data being processed is accessible by the group requesting it.
Basic Flow:	1. When a request comes from the terminal make sure the credentials of the requester match the access permissions of the data attempting to be accessed. a. If permission is granted, allow access. b. If permission is **not** granted, do not allow access and display an error message.
Preconditions:	• Permissions are set on data files.

2.2.5 Provider Directory

Providers shall have access to a provider directory from their terminal that allows them to view service codes. These numerical service codes shall be attached to a corresponding name and fee. These fees should be retrieved to the provider for verification and stored for financial records.

Use Case Name:	**Provider Directory**
Summary:	The provider directory should supply a listing of six digit service code numbers and a corresponding service name and fee to the provider email.
Basic Flow:	1. The provider inputs billing information for a service report. 2. The provider is prompted to enter a six digit service code number for the provided service. 3. The provider directory can be requested and sent via email and displayed alphabetically to the provider with names of services and corresponding service code numbers. 4. The provider should then be able to enter a number from the directory. a. If successful, a fee is displayed to the terminal from the service code selected from the provider directory for confirmation. b. If unsuccessful, an error message is displayed.
Precondition:	• The provider directory must be requested and will be sent via email.

3. Functional Requirements

Chocoholics Anonymous software shall provide functionality to ChocAn provider terminals, including billing and managing ChocAn members. The software shall generate reports. The software shall direct payments to providers to compensate them for services rendered to members; to do so, it will use billing information provided by Acme Accounting.

3.1 ChocAn software shall act as a terminal software for ChocAn authorized care providers.

This is one of the core aspects of the software. Providers shall be able to look up prices, charge for services, and verify member's statuses.

3.1.1 All communication to the ChocAn system from provider terminals shall be via simulated keyboard inputs.

Card swipes and button inputs shall be transmitted to the ChocAn software program as simulated keyboard inputs.

3.1.2 Providers shall be able to check Members' status.

When a member card is swiped on a provider terminal, or their member number is keyed in, the member's current account status will be displayed on the terminal: Verified, Invalid, or Suspended. Members' status will be verified using a file which is managed by Acme Accounting Service. Acme Accounting Service will update the member status file daily at 9PM.

3.1.3 Providers shall be able to request a "Provider Directory"

At any time, a provider will be able to request a Provider Directory, which will be generated by the ChocAn software program and saved to a directory. There, an external system will email the file to the provider. The file will be named <Provider ID>_Directory.txt. It will include services provided by the provider: specifically, it will include their names, their codes, and their prices.

3.1.4 Providers shall be able to bill Chocoholics Anonymous for services rendered.

After a member's status is verified, a provider can create a bill for a service rendered. The date of the service will be keyed in, allowing the provider to bill for past or future appointments. The service number (as defined in the Provider Directory) will also be keyed in and verified. Finally, the provider will be able to add comments. The information entered, along with the fee, will be displayed for provider verification; the provider will then have the opportunity to make changes. After the information is confirmed, it will be sent to ChocAn and saved at the ChocAn Data Center.

3.2 Chocoholics Anonymous software shall have an interactive mode, so the managers may perform administrative tasks.

The ChocAn software product shall have an interactive mode where managers can manually run reports, manage members, and manage provider details and records.

3.2.1 Manager Terminals shall communicate to the ChocAn software through simulated keyboard inputs.

Similar to the Provider terminals, the Manager terminals shall communicate with the systems via simulated keyboard inputs. The terminals themselves and the associated communication methods will be provided by another contractor.

3.2.2 Managers shall be able to add, remove, or modify members and their status.

In the interactive mode, the managers shall be able to add and remove current members. As described in section 2.2.3, managers will be able to update the personal information and account status of each member.

3.2.3 Managers shall be able to update provider records.

In the interactive mode, the managers shall be able to add and remove current providers. As described in section 2.2.3, managers will be able to update the identifying information of any provider.

3.2.4 Managers shall be able to generate reports on demand.

While reports will automatically be generated weekly, managers will be able to manually trigger the creation of reports. This includes individual member reports, provider reports, EFT reports, or the weekly summary report. The contents of each of these reports are detailed in section 3.3.

3.3 Chocoholics Anonymous software shall have a report-generating mode, for the purposes of creating various reports for members, providers, and billing

Automatic report generation shall be done on Fridays at midnight. Each member who utilized ChocAn services during the week shall receive a report, which is detailed in section 3.3.4; similarly, each provider who provided ChocAn services during the week shall receive a report, which is detailed in section 3.3.5. An EFT shall be created for use by Acme Accounting to direct appropriate payments to care providers for services rendered. A summary report, detailing payments and services provided, shall be created for management use.

3.3.1 Report timing and generation

Reports will automatically be generated at midnight on Fridays. Reports can be generated on command by managers, either through an option in the UI, or by

launching the software product from the command line with a particular argument.

3.3.2 Report delivery via email shall be handled by a third-party system

When a report is generated, an external system will be responsible for attaching it to email(s) and sending it to the relevant party or parties.

3.3.3 Report naming format and grouping

Reports shall be organized into files—namely member reports, provider reports, EFT reports, and weekly reports, as detailed in sections 3.3.4 to 3.3.7. The member report will be an individual file, named following the format <member code>_<date>.txt. Similarly, the provider report will be an individual file, named following the format <provider code>_<date>.txt. The EFT report shall be a single file in the format EFT_<date>.txt. Similarly, the weekly report will be called Weekly_Summary_<date>.txt.

3.3.4 Member report contents

Member reports shall, in the following format, firstly summarize the information of the member, and secondly review the services that they used.

- 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).

3.3.5 Provider report contents

Provider reports shall, in the following format, firstly summarize the information of the provider, and secondly review the services they provided to members.

- 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 will be listed:
    - 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).

3.3.6 Electronic Funds Transfer report contents

The EFT report will, in the following format, include the provider's identifying information and the total bill for the services they provided.

- Provider name (25 characters).
- Provider number (9 digits).
- Total fee for the week (up to $99,999.99).

3.3.7 Weekly report contents

The weekly report will, for every provider that billed services in the week, include their identifying information, the number of consultations they provided, and their fee totals for the week. It will also include the total number of providers who provided services, the total number of consultations, and the overall fee total.

- For every provider:
    - Provider name (25 characters).
    - Provider number (9 digits).
    - Total number of consultations with members (3 digits).
    - Total fee for the week (up to $99,999.99).
- Total number of providers who billed ChocAn (3 digits).
- Overall total number of consultations with members (5 digits).
- Overall total fees for the week (up to $9,999,999.99).

4. Nonfunctional Requirements

The nonfunctional requirements of the ChocAn software product are detailed in this section; the software product should adhere to these requirements in order to fulfill all operational and contractual demands. They encompass the broad operational aspects of the system, as well as the mediums through which the functional requirements are accomplished.

4.1 Implementation language

The ChocAn software product is to be written in either Java, C++, or C#.

4.2 Operating system compatibility

The ChocAn software should be able to operate without issue on terminals running:

- The Red Hat Enterprise Linux distribution
- A Windows PC running a Linux emulator

4.3 System availability & uptime

The ChocAn data processing software should be stable, providing as close to 100% uptime as reasonably possible. Software updates should take place outside of normal working hours. Database communications should take no more than X seconds, and reports should be generated in less than Y seconds.

4.4 Integration with other systems

The ChocAn software product shall integrate with systems provided by other firms, including the physical provider and manager terminals, the payment processing software from Acme Accounting software, and the EFT service.

4.5 Acceptance testing

In order to pass acceptance testing, the ChocAn data processing software must meet the following requirements:

4.5.1 The software will simulate terminal input via keyboard input, and data to be transmitted must appear on screen.

4.5.2 Both the provider terminal and manager terminal will be simulated.

4.5.3 Generated reports will be created as a file. For member reports, the file name will be in the format <member code>_<date>.txt; for provider reports, the file name will be in the format <provider code>_<date>.txt.

4.5.4 The provider directory will be created as a file.

4.5.5 No reports will actually be sent as email attachments.

4.5.6 EFT data will be saved to a file containing the provider name, provider number, and the amount to be transferred.

5. Milestones and Deliverables

The goals listed in this section will indicate our progress and ultimately help us reach project completion. This section will consist of the milestones and deliverables descriptions, dates at which they are required to be completed, and goals.

5.1 Requirements Document

The requirements document will provide a general overview of the project requirements, description, and process outline. The deliverable that will be produced in this stage is the requirements document, which will consist of five sections: introduction, product overview, functional requirements, nonfunctional requirements, and milestones and deliverables. This will be due on Jan. 29th, 2021.

5.1.1 Requirements Document Design

Each section of the requirements document will be assigned to a single member of the team. In the case that there are not enough sections for each member to receive an assignment, the remaining member will edit and proofread the document. To allow for editing, each individual section of the requirements document will be completed by Jan.25th, 2021. The document will be completed by 11:00PM on Jan. 29th, 2021.

5.1.2 Requirements Document Editing

The requirements document editing will consist of reviewing the document and making changes such that the document is adequately clear, consistent, and grammatical.

5.2 Design Document

The design document will provide the general design for how the project code will be implemented. The deliverable that will be produced in this stage is the design document, which will consist of five sections: introduction, design consideration, system overview, system architecture, and detailed system design. This will be due on Feb. 8th, 2021.

5.2.1 Design Document Design

Each section of the design document will be assigned to a single member of the team. In the case that there are not enough sections for each member to receive an assignment, the remaining member will edit and proofread the document. To allow for editing, each individual section of the requirements document will be completed at least two days before the final due date.

5.2.2 Design Document Editing

The requirements document editing will consist of reviewing the document and making changes such that the document is adequately clear, consistent, and grammatical.

5.3 Test Plan Document

The test plan document will provide a general outline of the testing procedures that will be taken in order to ensure that the code meets the requirements listed in sections 3 and 4. The deliverable that will be produced in this stage is the test plan document, which will consist of five sections: introduction, test plan description, unit testing, smoke testing, and system testing. This will be due on Feb. 22nd, 2021.

5.3.1 Test Plan Document Design

Each section of the test plan document will be distributed within the members of the team. In the case that there are not enough members to cover each section, the remaining member will receive the function of editing the document. The date by which the test plan document will be complete several days before it is due to allow for editing.

5.3.2 Test Plan Document Editing

The requirements document editing will consist of reviewing the document and making changes such that the document is adequately clear, consistent, and grammatical.

5.4 Code

The code will consist of the functional computer instructions that make up the ChocAn software product. The code will run as indicated by the requirements detailed in sections 3 and 4 of this document.

5.4.2 Testing

Testing will consist of analyzing the code by following the test plan. The ultimate aim will be to verify adequate performance of the requirements, which are listed in sections 3 and 4 of this document. In the case that the code does not function properly or deviates from the requirements, modifications will be made to the code until adequate performance is obtained.

5.5 Final Report and Final Deliverables

The project report and final deliverables will consist of the final product alongside documentation of the project development process. The deliverables produced for the final product will be the final code and the report on the project. These will be due March 12th, 2021.

General Schedule Outline of Deliverables: