Software Requirements Specification (SRS) for Rebate Recovery System

1. Introduction

1.1 Purpose

This Software Requirements Specification (SRS) document outlines the functional and non-functional requirements for the Rebate Recovery System, a cloud-based solution designed to automate and streamline the rebate recovery process for locally negotiated medical supplies vendor contracts. The system will leverage Azure resources to handle contract management, data extraction, validation, forecasting, and compliance reporting, reducing manual effort and improving accuracy and scalability.

1.2 Scope

The Rebate Recovery System will:

- Automate the extraction and codification of contract terms using AI.
- Handle contract amendments and maintain consolidated views.
- Perform fuzzy matching for items across inconsistent data sources.
- Validate and reconcile rebate data with financial records.
- Generate dashboards for tracking, forecasting, and compliance reporting.
- Recommend or generate SQL logic for contract codification.
- Identify patterns to support standardized data architecture.

The system will be hosted entirely on Microsoft Azure, utilizing Azure-native services for storage, compute, AI, databases, and analytics. It will integrate with existing data sources such as item master data and general ledger systems, assuming API or file-based access.

Out of scope:

- Vendor contract negotiation processes.
- Physical handling of paper contracts (assumes digital formats).
- Integration with non-Azure tools (e.g., Tableau will be replaced by Power BI).

1.3 Definitions, Acronyms, and Abbreviations

- **AI**: Artificial Intelligence
- **API**: Application Programming Interface

- **ETL**: Extract, Transform, Load
- **Fuzzy Matching**: Algorithmic matching that accounts for variations in data.
- **General Ledger**: Financial accounting system for recording transactions.
- **Item Master**: Centralized database of medical supplies items.
- **Rebate**: Financial incentive returned by vendors based on contract terms.
- **SQL**: Structured Query Language
- **SRS**: Software Requirements Specification

1.4 References

- Use Case Document: Rebate Recovery for Medical Supplies Vendor Contracts (dated August 12, 2025).
- Azure Documentation: Relevant services including Azure AI Document Intelligence, Azure OpenAI, Azure Blob Storage, Azure SQL Database, Power BI, etc.

1.5 Overview

This SRS is organized into sections covering overall description, specific requirements, and supporting information. Functional requirements are detailed by feature areas, with mappings to Azure services.

2. Overall Description

2.1 Product Perspective

The Rebate Recovery System builds on the manual processes described in the use case, transitioning to an automated, AI-driven platform. It addresses pain points such as manual extraction, amendment handling, and data inconsistencies by integrating Azure AI and data services, enabling scalable rebate management for healthcare organizations.

2.2 Product Functions

- Upload and store vendor contracts and amendments.
- Extract and codify contract terms (e.g., timelines, rebate rates, fiscal quarters).
- Manage amendments by consolidating changes into a single contract view.
- Match contract items to item master data using fuzzy logic.
- Validate rebates against general ledger data.
- Generate forecasts and compliance reports.
- Support AI-driven queries and SQL code generation.
- Provide interactive dashboards for monitoring.

2.3 User Classes and Characteristics

- **Contract Managers**: Upload contracts, query terms, and handle clarifications. Moderate technical skills.
- **Finance Analysts**: Perform validations and reconciliations. Familiar with financial data.
- **Data Analysts**: Configure dashboards and AI models. Advanced technical skills.
- **Compliance Officers**: Generate and review reports. Focus on regulatory adherence.
- **Administrators**: Manage user access and system configurations. IT expertise.

2.4 Operating Environment

The system will operate entirely within Microsoft Azure:

- **Compute**: Azure App Service or Azure Functions for serverless processing.
- **Storage**: Azure Blob Storage for contracts and documents.
- **Database**: Azure SQL Database for structured data (e.g., contract terms, item mappings).
- **AI/ML**: Azure AI Document Intelligence for extraction; Azure OpenAI for natural language processing, SQL generation, and pattern identification.
- **Data Integration**: Azure Data Factory for ETL pipelines.
- **Analytics/Reporting**: Power BI for dashboards and visualizations.
- **Security**: Azure Active Directory for authentication; Azure Key Vault for secrets management.
- **Networking**: Azure Virtual Network for secure connectivity.
- **Monitoring**: Azure Monitor and Application Insights for logging and performance tracking.

The system will support web-based access via browsers (e.g., Chrome, Edge) and integrate with Azure APIs for mobile or desktop extensions if needed.

2.5 Design and Implementation Constraints

- All components must use Azure-native services; no third-party cloud providers.
- Compliance with healthcare standards (e.g., HIPAA) using Azure's compliant services.
- API-first design for integrations.
- Scalable architecture to handle increasing contract volumes.

2.6 Assumptions and Dependencies

- Contracts are provided in digital formats (PDF, Word) uploadable to Azure Blob Storage.
- Access to external data sources (e.g., item master, general ledger) via APIs or secure file transfers.
- Azure subscription with necessary services provisioned.
- Users have Azure AD accounts for authentication.
- Initial AI models may require training data from historical contracts.

3. Specific Requirements

3.1 External Interfaces

- **User Interface**: Web-based portal built with Azure App Service, providing upload forms, query interfaces, and dashboard views.
- **File Interfaces**: Support for uploading PDFs/Docs to Azure Blob Storage.
- **API Interfaces**: RESTful APIs via Azure API Management for integrating with item master and general ledger systems.
- **Data Interfaces**: Azure Data Factory pipelines for ingesting Premier data and other sources.

3.2 Functional Requirements

3.2.1 Contract Upload and Storage

- REQ-1.1: The system shall allow users to upload contracts and amendments to Azure Blob Storage.
- REQ-1.2: Metadata (e.g., vendor, date) shall be captured and stored in Azure SQL Database.
- REQ-1.3: Trigger Azure Functions to initiate extraction upon upload.

3.2.2 Contract Term Extraction and Codification

- REQ-2.1: Use Azure AI Document Intelligence to extract terms like timelines, dates, rebate rates, and non-standard fiscal quarters.
- REQ-2.2: Azure OpenAI shall handle nuanced term interpretation and codification into structured data.
- REQ-2.3: Store extracted data in Azure SQL Database for querying.

3.2.3 Amendment Handling

- REQ-3.1: The system shall link amendments to original contracts in Azure SQL Database.

- REQ-3.2: Azure OpenAI shall consolidate changes, generating a unified contract view.
- REQ-3.3: Alert users via Azure Notification Hubs if conflicts arise.

3.2.4 Item Matching and Data Quality

- REQ-4.1: Implement fuzzy matching using Azure OpenAI or custom algorithms in Azure Functions to link contract items to item master.
- REQ-4.2: Handle inconsistencies (e.g., vague descriptions) with additional logic like OR statements.
- REQ-4.3: Azure Data Factory shall cleanse and integrate data from Premier and item master sources.

3.2.5 Validation and Reconciliation

- REQ-5.1: Compare extracted rebates with general ledger data using Azure SQL queries.
- REQ-5.2: Handle lumped or multi-contract payments via Azure Functions logic.
- REQ-5.3: Flag discrepancies for manual review.

3.2.6 AI-Driven Features

- REQ-6.1: Azure OpenAI shall support prompt-based queries for contract details.
- REQ-6.2: Generate or recommend SQL logic for codification using Azure OpenAI.
- REQ-6.3: Identify patterns in contract data to propose standardized architecture, stored in Azure SQL.

3.2.7 Reporting and Dashboards

- REQ-7.1: Power BI shall provide dashboards for tracking, forecasting, and compliance.
- REQ-7.2: Automate generation of compliance forms and reports.
- REQ-7.3: Support export to PDF/Excel via Power BI service.

3.2.8 Scalability and Automation

- REQ-8.1: Azure Functions shall automate workflows (e.g., ETL, extraction).
- REQ-8.2: System shall scale to handle multiple contracts via Azure's auto-scaling features.

3.3 Non-Functional Requirements

3.3.1 Performance

- Response time for queries/extractions: < 5 seconds for standard operations.
- Handle up to 100 concurrent users.
- Process 500 contracts per day.

3.3.2 Reliability

- Uptime: 99.9% using Azure's high-availability features.
- Data backup via Azure Backup.

3.3.3 Security

- Encrypt data at rest/transit using Azure services.
- Role-based access control via Azure AD.
- Compliance with HIPAA using Azure's compliant configurations.

3.3.4 Usability

- Intuitive UI with training materials.
- Accessible via WCAG standards.

3.3.5 Maintainability

- Modular design for easy updates.
- Logging via Azure Monitor.

3.3.6 Scalability

- Auto-scale resources based on load.

4. Supporting Information

- **Traceability Matrix**: Map requirements to use case pain points (e.g., REQ-2.1 addresses manual extraction).
- **Risks**: Potential AI inaccuracies requiring human oversight.
- **Next Steps**: Design phase, prototyping in Azure.