Fall 2025

Ryan Farrukh  
Kencho Lodhen  
Anand Krishna Anil Kumar

GitHub: <https://github.com/rfarrukh0/Sentra>

Sentra

Software Requirements Specification

<Group Name> | Group #

Executive Summary

# Background

The proposal introduces a centralized fraud detection platform designed to empower smaller fintech firms and startups to collectively combat rising fraud and scams in the digital finance sector, with features for collaborative intelligence-sharing, machine learning-based detection, and secure integration. Fraud losses in the U.S. financial sector reach as much as $200-500 billion annually, with smaller fintech firms and startups disproportionately affected due to lack of advanced tools. Isolated systems allow fraudsters to repeat their methods across companies, making collaboration essential.

# Description

## Company Value Add

Participating companies gain enhanced fraud detection capabilities without the need to individually invest in advanced infrastructure. The system also reduces operational and reputational risk by blocking fraudsters more quickly and efficiently.

## End-User Value Add

Customers experience a reduced risk of financial loss and identity theft, as well as higher overall confidence in digital banking platforms, thanks to enhanced fraud prevention and industry-wide protections.

# Scope

## What is Included

* Collaborative fraud intelligence sharing
* Real-time monitoring and alerting
* Machine learning-powered anomaly detection
* Secure APIs for onboarding fintech partners
* Web dashboard for reporting and visualization

## What is Not Included

* Direct access to raw customer data between firms
* Out-of-industry use cases (e.g., non-financial industries)
* Legacy integration with non-digital banking tools
* On-premises deployment (cloud-based only)

# Justification

The two-semester scope is justified by the project’s complexity: integrating diverse data sources, designing robust ML and API solutions, ensuring security and privacy compliance, and creating operational front/back-end components. The platform delivers significant value by reducing fraud, safeguarding customers, and elevating industry standards for trust and security.

Table of Contents

[Executive Summary 1](#_Toc209381867)

[Background 1](#_Toc209381868)

[Description 1](#_Toc209381869)

[Company Value Add 1](#_Toc209381870)

[End-User Value Add 1](#_Toc209381871)

[Scope 1](#_Toc209381872)

[What is Included 1](#_Toc209381873)

[What is Not Included 1](#_Toc209381874)

[Justification 2](#_Toc209381875)

[Section 1 5](#_Toc209381876)

[1.1 Document Authors 5](#_Toc209381877)

[1.2 Document Revision History 5](#_Toc209381878)

[1.3 Document Purpose 6](#_Toc209381879)

[1.4 Audience 6](#_Toc209381880)

[1.5 Group Agreement 6](#_Toc209381881)

[Team # 6](#_Toc209381882)

[Project Title 6](#_Toc209381883)

[Project Time Frame 6](#_Toc209381884)

[Team Members 6](#_Toc209381885)

[Team Leadership 6](#_Toc209381886)

[Team Functions/Roles 6](#_Toc209381887)

[Team Meetings 6](#_Toc209381888)

[Team Problems 6](#_Toc209381889)

[Team Commitment 6](#_Toc209381890)

[Section 2 7](#_Toc209381891)

[2.1 Project Proposal 7](#_Toc209381892)

[2.1.1 Project Background 7](#_Toc209381893)

[2.1.2 Problem Statement 7](#_Toc209381894)

[2.1.3 Product Vision 7](#_Toc209381895)

[2.2 Stakeholders and Users 7](#_Toc209381896)

[2.3 Project Scope 7](#_Toc209381897)

[2.4 System Rosks 7](#_Toc209381898)

[2.5 Operating Environment 7](#_Toc209381899)

[2.6 Functional Requirements 7](#_Toc209381900)

[2.7 Nonfunctional Requirements 7](#_Toc209381901)

[2.8 UI/UX Interface Mock-ups 7](#_Toc209381902)

[Section 3 8](#_Toc209381903)

[3.1 Data Flow Diagrams 8](#_Toc209381904)

[3.2 Iser Stories and related Use Case Scenarios 8](#_Toc209381905)

[3.3 Activity Diagrams 8](#_Toc209381906)

[3.4 Business Rules 8](#_Toc209381907)

[Section 4 – Domain Class 8](#_Toc209381908)

[Section 5 – Database 9](#_Toc209381909)

[Section 6 – Project Management 9](#_Toc209381910)

[6.1 Work Breakdown Structure 9](#_Toc209381911)

[6.2 Milestones & Acceptance Criteria 9](#_Toc209381912)

[Section 7 – Product Backlog & Implementation Schedule 9](#_Toc209381913)

[Section 8 – Client/Faculty Sign-off 9](#_Toc209381914)

Section 1

# Document Authors

Ryan Farrukh  
Kencho Lodhen  
Anand Krishna Anil Kumar

# 1.2 Document Revision History

|  |  |  |
| --- | --- | --- |
| **WEEK** | **DATE** | **Revisions** |
| 1 | September 10 - 11, 2025 | * Made the business proposal |
| 2 | September 17 – 18, 2025 | * Entire SRS section 1 and section 2.1 |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 |  |  |

# 1.3 Document Purpose

# 1.4 Audience

# 1.5 Group Agreement

### Team 7

### Project Title - Sentra

### Project Time Frame – 2 Semesters (8 months)

### Team Members

Ryan Farrukh  
Kencho Lodhen  
Anand Krishna Anil Kumar

### Team Leadership

Ryan Farrukh

### Team Functions/Roles

Leader – Ryan Farrukh

Backend and UI coder – Kencho Lodhen

UI/UX designer – Anand Krishna Anil Kumar

### Team Meetings

Wednesdays and Thursdays

### Team Problems Not enough members to allocate the roles effectively.

### Team Commitment

The undersigned members agree to work together on the project until the end of the PRJ666 next Semester. They recognize that as a team and individually they are equally responsible for the quality of all deliverables.

|  |  |  |
| --- | --- | --- |
| **Name** | **Date** | **Signature** |
| Ryan Farrukh | September 18, 2025 | R.F |
| Kencho Lodhen | September 18, 2025 | K.L |
| Anand Krishna Anil Kumar | September 18, 2025 | A.K |
|  |  |  |
|  |  |  |

Section 2

# 2.1 Project Proposal

## 2.1.1 Project Background

Digital transformation and the surge in online transactions have dramatically expanded the attack surface for fraud in financial services. In 2025, fraudulent activity in fintech is reaching unprecedented levels, with one in twenty verification attempts now flagged as fake and a 21% increase in financial services fraud reported between 2024 and 2025. Smaller fintechs often lack the resources for sophisticated defense, while professional fraud networks employ AI-driven methods to perpetrate attacks ranging from account takeovers and deepfakes to automated credential stuffing. Fragmented fraud defenses and lack of centralized intelligence sharing among firms allow fraudsters to exploit vulnerabilities across organizations.

## 2.1.2 Problem Statement

Despite adopting advanced technologies, fintech firms confront challenges that outpace current solutions. Synthetic identity fraud, real-time payment scams, and organized social engineering schemes are growing prevalent and difficult to detect with siloed systems. Much of this fraud bypasses isolated controls, exploiting gaps in authentication and data analysis. The lack of centralized detection and collective intelligence contributes to high operational losses, eroded customer trust, and regulatory scrutiny. A unified approach is needed to address cross-company threats, spot coordinated attacks and respond quickly—especially for smaller institutions that are disproportionately impacted by these trends.

## 2.1.3 Product Vision

## The envisioned product is a robust, cloud-based centralized fraud detection platform for fintechs that harnesses real-time analytics, machine learning, and inter-company data sharing. By integrating fraud intelligence, behavioral biometrics, and anomaly detection models, the platform delivers early warning of suspicious activity and enables rapid, coordinated response. It aims to transform fragmented defenses into a holistic ecosystem, empowering firms of all sizes to stay ahead of evolving threats, minimize financial losses, and build enduring customer trust. The platform will be scalable, compliant with norms, and adaptable to new fraud tactics, setting a new industry standard for digital security and resilience.

# 2.2 Stakeholders and Users

**Internal:**

* **Role name/Persona** - Description.
* ……..

**External:**

* **Role name/Persona** - Description.
* ……..

# 2.3 Project Scope

# 2.4 System Rosks

# 2.5 Operating Environment

# 2.6 Functional Requirements

# 2.7 Nonfunctional Requirements

# 2.8 UI/UX Interface Mock-ups

Section 3

# 3.1 Data Flow Diagrams

# 3.2 Iser Stories and related Use Case Scenarios

# 3.3 Activity Diagrams

# 3.4 Business Rules

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Business Rule #** | **Description** | **Activity Diagram** | **Related UCS** | **UI  Mock-up** |
| BR1 |  | AD1 | UC1 | UI 2.7.2 |
| BR2 |  | AD2 | UC2 | UI 2.7.3 |
| BR3 |  | AD3 | UC3 | UI 2.7.4 |
| BR4 |  | AD3 | UC3 | UI 2.7.4 |
| BR5 |  | AD5 | UC4 | UI 2.7.6 |
| BR6 |  | AD6 | UC5 | UI 2.7.6 |
| BR7 |  | AD7 | UC6 | UI 2.7.7 |
| BR8 |  | AD8 | UC7 | UI 2.7.8 |
| BR9 |  | AD8 | UC7 | UI 2.7.8 |
| BR10 |  | AD8 | UC7 | UI 2.7.8 |
| BR11 |  | AD8 | UC7 | UI 2.7.8 |
| BR12 |  | AD8 | UC7 | UI 2.7.8 |
| BR13 |  | AD9 | UC8 | UI 2.7.9 |
| BR14 |  | AD9 | UC8 | UI 2.7.9 |
| BR15 |  | AD9 | UC8 | UI 2.7.9 |
| BR16 |  | AD9 | UC8 | UI 2.7.9 |
| BR17 |  | AD10 | AD9 | UI 2.7.9 |
| BR18 |  | AD10 | AD9 | UI 2.7.9 |
| BR19 |  | AD10 | AD9 | UI 2.7.9 |
| BR20 |  | AD11 | UC10 | UI 2.7.10 |
| BR21 |  | AD11 | UC10 | UI 2.7.11 |
| BR22 |  | AD11 | UC10 | UI 2.7.11 |
| BR23 |  | AD12 | UC11 | UI 2.7.10 |
| BR24 |  | AD13 | UC12 | UI 2.7.12 |

Section 4 – Domain Class

Section 5 – Database

Section 6 – Project Management

# 6.1 Work Breakdown Structure

# 6.2 Milestones & Acceptance Criteria

Section 7 – Product Backlog & Implementation Schedule

Section 8 – Client/Faculty Sign-off