System Requirements Document (SRD)

Project Name: Cornflow

Client: Sai-Krupa Trending Pvt Ltd

Freelance Vendor: Mr. Sainath Chikane

Date: July 09, 2025

# 1. Introduction

## 1.1 Purpose

This System Requirements Document (SRD) outlines the complete system-level requirements for the Cornflow analytics platform, covering both functional and non-functional specifications required to support operational, strategic, and business expansion decisions for Sai-Krupa Trending Pvt Ltd.

## 1.2 Intended Audience

* Project Sponsor (Sai-Krupa Pvt Ltd)
* Business & IT Stakeholders
* Development and QA Teams
* Freelance Consultant (Sainath Chikane)

## 1.3 System Overview

Cornflow is a BI solution designed to ingest, clean, analyze, and visualize corn production data across regions. It supports dashboards, SQL-based insights, and territory-based planning to increase ROI and reduce costs.

# 2. System Scope

## 2.1 In-Scope Features

* Data ingestion from CSV/Excel
* MySQL-based backend architecture
* Role-based Power BI dashboards
* Data validation, cleansing, and transformation
* Export options: Excel, PDF
* Manual upload pipeline (Phase 1)

## 2.2 Out-of-Scope Features

* Real-time data ingestion via APIs
* Mobile app access (Phase 2)
* Predictive modeling using ML (Phase 2)
* IoT integration

# 3. Functional Requirements

## 3.X Data Input & Validation

* SRD-FR1: System must accept Excel and CSV input formats
* SRD-FR2: Automatically validate schema and field-level consistency
* SRD-FR3: Flag or remove duplicate and null records
* SRD-FR4: Detect and convert incorrect data types

## 3.X Data Storage

* SRD-FR5: Data must be stored in MySQL with defined relational schema
* SRD-FR6: Support backup strategy (daily incremental, weekly full)

## 3.X Dashboards & Reporting

* SRD-FR7: Provide year-wise, state-wise, and district-wise trends
* SRD-FR8: Enable filters on state, year, production level, rate
* SRD-FR9: Display heatmaps for pricing vs production
* SRD-FR10: Export reports to Excel or PDF

## 3.X SQL Insights

* SRD-FR11: Support advanced queries on cost, pricing, and ROI
* SRD-FR12: Identify low ROI districts based on historical data
* SRD-FR13: Highlight expansion-ready zones based on price-performance

## 3.X Access Management

* SRD-FR14: Admins can upload/delete/modify data
* SRD-FR15: Analysts can query dashboards and export
* SRD-FR16: Viewers have read-only access

# 4. Non-Functional Requirements

|  |  |
| --- | --- |
| Category | Requirement |
| Performance | Dashboards must load under 5 seconds for datasets up to 1 million records |
| Security | TLS 1.2 encryption, GitHub version control, access logs |
| Availability | System uptime must be ≥ 99.5% |
| Scalability | Support for future weather & pricing API integration |
| Compatibility | Compatible with Power BI (primary) and optionally Tableau |
| Mobile Access | Mobile-friendly dashboards (Phase 2) |

# 5. System Architecture

- Frontend: Power BI Dashboards  
- Backend: MySQL  
- ETL Layer: Python (Manual Upload)  
- Hosting: Hybrid (On-Premise DB, Cloud Dashboard access)  
- Version Control: GitHub Integration

# 6. User Roles and Permissions

|  |  |  |
| --- | --- | --- |
| Role | Description | Permissions |
| Admin | Full system control | CRUD access, dashboard management |
| Analyst | Data analysis & report generation | Read/export, filter, view trends |
| Viewer | Restricted to read-only access | Read dashboards only |

# 7. Assumptions & Constraints

## 7.1 Assumptions

* Client will provide structured historical data in Excel/CSV format
* Client team will participate in UAT and feedback
* Internet access is available for cloud dashboard hosting

## 7.2 Constraints

* No real-time ingestion in Phase 1
* External APIs (weather, market) not yet integrated
* Budget capped at ₹1,20,000

# 8. Future Enhancements

* API-based weather & price data integration
* AI/ML forecasting modules
* Mobile App for dashboard access
* Automated data alerts and notifications

# 9. Approval & Sign-Off

This SRD is subject to approval by both parties and will serve as a baseline for development, testing, and rollout phases.