Product Requirements and Specification Document

Project Name

GreenYield - Agriculture Production Insights

Description

Develop a Tableau dashboard to visualize agricultural data, including crop yields, farm locations, and seasonal trends. The dashboard will feature interactive maps and time-series charts to support research and business analysis.

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1. Objectives

Objective	Description
Data Visualization	Present crop yields, farm locations, and seasonal trends clearly
Interactivity	Enable user-driven exploration of data
Geographic Insights	Display farm locations on a map
Temporal Analysis	Show yield trends over time

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2. Stakeholders

Role	Responsibility
Product Owner	Define requirements, approve delivery
Data Analyst	Prepare and validate data
Developer	Build Tableau dashboard
Business Users	Consume insights for decision-making
Researchers	Analyze trends and patterns

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3. Functional Requirements

ID	Requirement
FR1	Import agricultural data (crop yields, farm locations, dates)
FR2	Display interactive map of farm locations
FR3	Show crop yield data by location and crop type
FR4	Visualize seasonal trends using time-series charts
FR5	Enable filtering by crop type, location, and date range

FR6	Provide tooltips with detailed data on hover
FR7	Allow export of dashboard views as images or PDFs

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4. Non-Functional Requirements

ID	Requirement
NFR1	Dashboard loads within 5 seconds
NFR2	Compatible with Tableau Desktop and Server
NFR3	Responsive layout for desktop and tablet
NFR4	Data privacy: no personal or sensitive data

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5. Data Requirements

Data Element	Description	Example
Farm ID	Unique identifier for each farm	12345
Location	Latitude, Longitude	40.7128, -74.0060
Crop Type	Type of crop produced	Wheat, Corn
Yield	Production quantity (e.g., tons/hectare)	3.5
Date	Harvest or reporting date	2023-09-15

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6. Dashboard Specifications

Layout

- **Header:** Project title, filters (crop type, location, date range)
- **Map View:** Interactive map with farm locations, colored by yield or crop type
- **Time-Series Chart:** Crop yield trends over time, selectable by crop/location
- **Summary KPIs:** Total yield, number of farms, average yield

Interactivity

- Clickable map points to filter time-series
- Dynamic tooltips on hover
- Synchronized filters across all views

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7. User Stories

ID	As a…	I want to…	So that…
US1	Business User	View yield by region and crop	Identify high-performing areas

US2	Researcher	Analyze seasonal trends	Study crop performance over time
US3	Analyst	Export dashboard views	Share insights with stakeholders

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8. Acceptance Criteria

- [ ] Dashboard displays map, time-series, and summary KPIs
- [ ] Filters update all visualizations in real-time
- [ ] Tooltips show relevant data on hover
- [ ] Dashboard loads within 5 seconds
- [ ] Export functionality is available

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9. Technology Stack

Component	Technology
Data Analytics	Tableau Desktop/Server
Data Source	CSV, Excel, or database export
Hosting	Tableau Server or Tableau Public

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10. Milestones & Timeline

Milestone	Target Date
Data Preparation	Week 1
Initial Dashboard Draft	Week 2
Stakeholder Review	Week 3
Final Delivery	Week 4

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11. Risks & Mitigations

Risk	Mitigation
Incomplete data	Validate and clean data upfront
Performance issues	Optimize data extracts, limit scope
User unfamiliarity with Tableau	Provide brief user guide

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12. Appendix

Sample Data Structure

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FarmID,Latitude,Longitude,CropType,Yield,Date
12345,40.7128,-74.0060,Wheat,3.5,2023-09-15
67890,41.2033,-77.1945,Corn,4.2,2023-08-20
```

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