# User Requirements Document:

# Prices for Fruits (2022-2024) in Vaslui Dashboard

## Objective:

To empower investors with integrated, data-driven insights on agricultural commodity prices by combining historical pricing with external factors, like weather conditions and inflation rates. This dashboard will help investors assess risk, identify stable investment opportunities and forecast future price trends.

## Problems identified:

* **Fragmented data:**

Investors often must piece together data from different sources (prices, weather, economic indicators), making it hard to gain a unified view.

* **Inconsistent insights:**

Existing market reports may be outdated or inconsistent, leading to conflicting signals regarding commodity trends.

* **High costs & limited resources:**

Third-part data solutions are expensive, and internal data teams may have limited bandwidth to produce tailored investment insights.

* **Lack of predictive capabilities:**

Investors need to understand not only historical trends but also how external factors influence price volatility to inform future investment decisions.

## Target Audience:

* **Primary audience:**

Institutional investors, portfolio managers, and individual investors focusing on agricultural commodities

* **Secondary audience:**

Financial analysts, risk management teams, and investment advisors who support investor decision-making.

### Use cases:

1. **Identify stable investment opportunities**

### User story:

“As an investor, I want to identify which agricultural commodities exhibit stable price trends with lower volatility over time so that I can allocate capital to investments with lower risk.”

### Acceptance criteria:

* The dashboard displays key risk metrics such as average price and price volatility (standard deviation) by product and region.
* Investors can sort and filter products based on stability metrics
* Visualizations highlight commodity groups with low volatility

1. **Analyze the impact of external factors**

### User story:

“As an investor, I want to analyze how external conditions, weather and inflation rates, affect commodity prices so that I can better assess market risks and opportunities.”

### Acceptance criteria:

* The dashboard merges and displays historical price data with weather and inflation data.
* Interactive charts show correlations between price changes and external factors.
* The system provides drill-down capability to review periods with extreme weather events or spikes in inflation.

## Information needed:

* Period, Locality, Product, Price, County, Unit, AvgTemperature, MinTemperature, MaxTemperature, Inflation percent information.
* Derived metrics such as Price volatility and correlations between price changes, weather extremes and inflation.

## Data needed:

* **Tables**
  + Data complete periods
  + IPC per month
  + Weather Data
* **Common key (Period)**

## Data quality checks:

* **Completeness:**
  + Row count checks
  + Verification that external data is present for all periods covered by data complete periods table
* **Consistency:**
  + Validate data types
  + Check for duplicates and anomalies on each table
  + Ensure that the Period field is the same format across all three tables for accurate joining
* **Accuracy:**
  + Compare summary statistics against known benchmarks
  + Identify outliners that might indicate data entry errors

## Additional requirements:

* Provide full documentation of data sources, processes and SQL queries used to merge and analyze data
* Source code and documentation should be version-controlled and easy to reproduce.
* Develop the dashboard using Power BI that connects directly to the SSMS database.
* Ensure the dashboard is user-friendly with clear filters, interactive visualizations and responsive design.
* The solution must be reproducible and maintainable allowing for regular updates as new data becomes available.
* Include error-handling and data quality alerts in the dashboard to notify investors of potential data issues.

## Success Criteria:

* Investors can quickly identify commodities with lower price volatility
* Investors can clearly see how weather extremes and inflation correlate with price changes.
* The dashboard provides reliable forecasts and scenario analysis to inform investment decisions.
* The dashboard is intuitive with interactive filters that allow investors to drill down into the data, leading to informed investment decisions and improved ROI