

## Dataverse Africa July Challenge.

### CHALLENGE: Jumia Jitters

**Theme:** E-Commerce Logistics, Seller Risk Profiling, and Review Fraud Detection

#### Mission Brief

AfriMarket (a fictional Jumia-style platform) has hit **record traffic** but customer satisfaction is plummeting. Complaints, fake reviews, slow deliveries, and sketchy sellers are threatening its market dominance in Nigeria and Ghana.

You are a **Data Intelligence Officer** hired by AfriMarket's executive team to **analyze backend marketplace data**, identify fraudulent patterns, and recommend a seller trust framework that rebuilds customer confidence.

#### Dataset Overview

A 3-month log of marketplace activity:

Column	Description
Order ID	Unique transaction identifier
Order Date, Dispatch Date, Delivery Date	Timestamps to compute delays
Seller ID	Unique seller code
Product Category	e.g., Electronics, Fashion, Groceries
Price, Quantity	Price per unit, quantity ordered
Warehouse Zone	Where the item ships from (e.g., Lagos, Accra)
Customer Rating	1–5 rating
Review Text	Optional — may contain repetitive fake patterns
Return Flag	Yes/No if customer returned the item
Complaint Code	e.g., Late Delivery, Broken Item, Wrong Color
Delivery Method	Express, Standard, Pickup Station
Customer Region	Broad location (e.g., South West, Greater Accra)

### TASK 1: The Seller Maze (Data Cleaning & Engineering)

- Clean inconsistent city, seller, and category entries
- Engineer new features:
  - $\text{Delivery Delay} = \text{Delivery Date} - \text{Dispatch Date}$
  - Return Rate, Average Rating, Complaint Rate per seller
  - Flag suspicious Review Text entries using duplication or keyword count

**Bonus:** Create Seller Risk Score using a weighted formula of delay, return, and complaint patterns

### TASK 2: Pattern Surveillance (Analytics & Visualization)

- Identify:
  - Top & bottom sellers by fulfillment reliability
  - Product categories with highest complaints
  - Regions with the longest average delivery delays
- Spot **review fraud** using:
  - Repetitive text patterns
  - Sellers with 5-star ratings + high return rate
- Create a **Complaint Heatmap** by category and region

**Hypothesis:** Delivery Method affects customer rating

→ Validate this statistically

### TASK 3: Prediction & Risk Modeling

- Handling Data in-balance issue
- Build a classification model:
  - Predict Return Flag
  - Use features like Seller ID, Product Category, Price, Delay, Complaint Type
- Optional: Use NLP to vectorize Review Text and test impact on return predictions (**bonus point if attempted**)
- Identify sellers who are **likely to trigger high returns next month**

**Output:** A dashboard/table of **sellers to suspend or investigate**

#### **TASK 4: Strategy & Resolution**

- Recommend:
  - 5 Sellers to suspend (with metrics)
  - Product categories to blacklist or regulate
  - Actionable strategies to reduce delivery delays
- Write a short **Customer Trust Policy** (3 bullet points)
- Create a one-slide **“Seller Risk Framework”** visual to present to the board

#### **Business Curveballs**

- “The Lagos warehouse was over capacity — delay data from that zone is unreliable. How will you adjust?”
- “One top-rated seller was caught buying fake reviews. What signal should we have caught earlier?”

Category	Description
Data	Cleaned + engineered version, sample suspicious review patterns
Analysis Report	Charts on seller, category, and region performance
Modeling	Model notebook (classification), metrics (AUC, Precision, Recall)
Recommendations	Final strategy report + slides: suspension list, trust policy
Final	Streamlit dashboard or Power BI visual

#### **Note:**

1. **your report should be properly documented**
2. In beginning of the challenge, participants should make a brief introduction on their social media page (linked or twitter) tagging Dataverse Africa, as a participant of the project.  
**Example: Hello every I am so exited to be part of the Dataverse Africa Jumia jitter challenge for this month of July that just kicked off (add the image to your post) also tag Dataverse Africa.**

**Screenshots photos should be attached during submission.**

**Thank you**