



# Grocery Pricing & Inventory Dashboard

Exploratory Data Analysis on grocery inventory using Python, SQL, and Power BI to uncover pricing insights and support data-driven retail decisions.

## DATASET OVERVIEW

# Understanding the Data

## Product Details

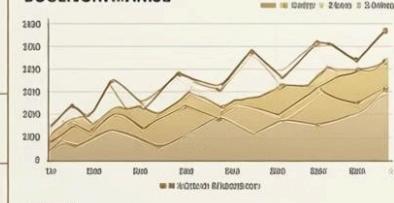
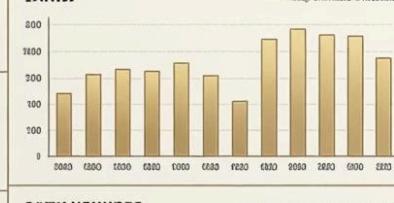
Category, name, weight, and quantity data for quick-commerce platforms

## Pricing Structure

MRP, discount percentage,  
and discounted selling price

## Inventory Status

## Stock availability tracking with boolean out-of-stock indicators

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VARIATIONE					DISSEGUO
AST LCR	 Canditare (Honey) con Boronias (Borax) fortificatum	 Rutabae (Oil) con Boronias (Borax) fortificatum	 Baltimoro (Pickle) con Boronias (Borax) fortificatum	 Moorae (Pickle) con Boronias (Borax) fortificatum	COTS
WONING LARVAT					NEISA
GORINS FLUCH	 Jhey (Leeks)	 Scilicet (Vegetables)	CAVE INJURIES		
SOMMERLICER					MILLINGS
DAEACOS					MUSCLE DYSTOIA
YOBILER ISLAUNON	 Benton (Root)	 Piondora			
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18% SOMMERLICL	 Dentifloras	 Genit (Honey)	DOCLIONTHIANIS		
Comal. B. G. C.					
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	 Siliques (Vegetables)	 Siliques (Vegetables) con Boronias (Borax)	TANER		
Melissin	 Omo (Potato) con Boronias (Borax)	 Omo (Oil) con Boronias (Borax)			
OCHRE	 Ochre (Oil) con Boronias (Borax)	 Ochre (Oil) con Boronias (Borax)	DATU NEINIECS		

Made with **GAMMA**

# Data Preparation & Cleaning

01

## Data Loading

Imported dataset using pandas

02

## Initial Exploration

Used df.info() and .describe() for structure analysis

03

## Missing Data Handling

Checked null values and imputed missing data

04

## Data Type Correction

Corrected 3 columns to proper data types

05

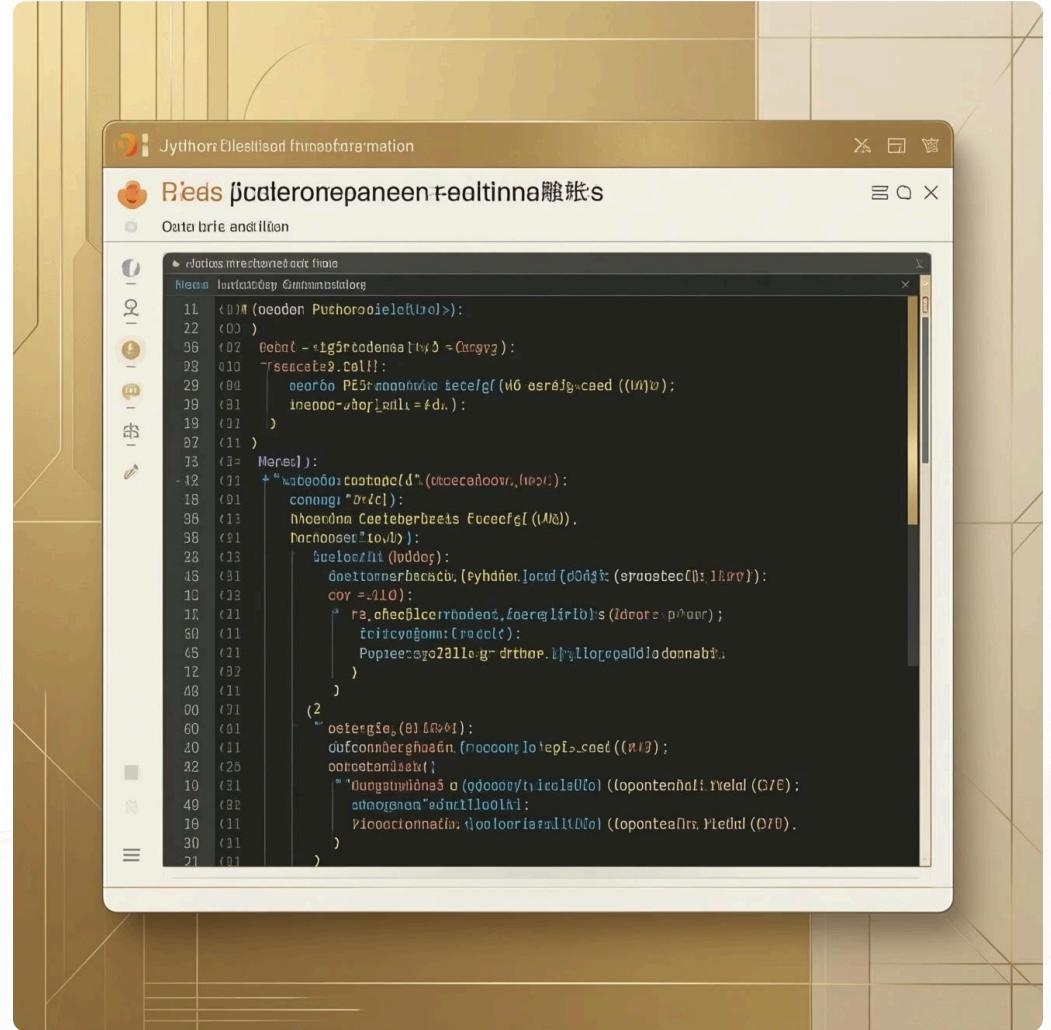
## Column Standardization

Renamed columns to snake\_case for readability

# Feature Engineering

## New Calculated Metrics

- Discount amount
- Price per gram
- Total stock value
- Category-level aggregations



The screenshot shows a Jupyter Notebook interface with a yellow header bar. The main area displays Python code for calculating new metrics. The code includes imports for Pandas, NumPy, and Matplotlib, along with various calculations such as discounts, price per gram, total stock value, and category-level aggregations. The code is annotated with explanatory comments in Korean.

```
Python 3.8.5 | Jupyter Notebook 6.4.0 | Data brief analysis
--> In [1]: # Import necessary libraries
      import pandas as pd
      import numpy as np
      import matplotlib.pyplot as plt
      %matplotlib inline
      # Read the dataset
      df = pd.read_csv('data.csv')
      # Calculate discount amount
      df['discount'] = df['original_price'] - df['current_price']
      # Calculate price per gram
      df['price_per_gram'] = df['current_price'] / df['weight']
      # Calculate total stock value
      df['total_stock_value'] = df['current_price'] * df['quantity']
      # Calculate category-level aggregations
      df['category'] = df['category'].str.lower()
      df['category'].value_counts().sort_index().plot(kind='bar')
      plt.title('Category-wise Stock Value')
      plt.xlabel('Category')
      plt.ylabel('Total Stock Value')
      plt.show()
```

Enhanced dataset with derived metrics to enable deeper pricing and inventory analysis.

↗ KEY INSIGHTS

# Python Analysis Results

## Average Selling Price by Category

Identified pricing patterns across product categories

## Total Quantity Sold by Category

Analyzed sales volume distribution

## Highest Discount Products

Discovered top promotional opportunities

# Critical Inventory Findings

## Top Expensive Products

Identified premium items with highest MRP values for strategic pricing

## Out of Stock Products

Tracked unavailable items to prevent lost sales opportunities

Connected Python to MySQL Database for advanced SQL analysis and querying.



# Key Business Questions Answered

## 1 Top 10 Best-Value Products

Based on discount percentage

## 2 High MRP Out-of-Stock Items

Revenue loss opportunities

## 3 Estimated Revenue by Category

Financial performance analysis

## 4 Premium Low-Discount Products

MRP > ₹500, discount < 10%

# Advanced SQL Insights

## Top 5 Categories

Highest average discount percentage identified

## Price Per Gram Analysis

Best value for products above 100g

## Product Segmentation

Grouped into Low, Medium, Bulk categories

8

## SQL Queries

Comprehensive business analysis performed





# Interactive Power BI Dashboard

Built comprehensive dashboard to present insights visually with real-time monitoring capabilities for pricing and stock levels.



## RECOMMENDATIONS

# Business Recommendations



### Promote Bulk Products

Market as cost-effective options



### Price Per Gram Metric

Use as key pricing decision factor



### Controlled Discounts

Maintain strategies to protect margins



### Monitor Quantity Trends

Optimize inventory planning



### Leverage Dashboards

Real-time pricing and stock monitoring