5. Data Visualization :

Perfect — data visualization is a great way to uncover patterns in college food data. Below are visualization ideas, tools you can use, and a step-by-step guide to create a dashboard. I'll also show sample charts and the insights they reveal.

🧭 1. Key Visualization Goals

Visualizations can help answer questions like:

What are the most/least popular meals?

How does food preference vary by dorm or time?

Where is food waste highest?

Are students satisfied with the current offerings?

📊 2. Essential Charts & Visuals

Chart Type	Data Source	Purpose
Bar Chart	menu_items + transactions	Show most popular dishes
Heatmap	inventory_waste	Show waste levels by date/item

Line Charttransactions over time Track meal demand daily/weekly

Pie Chart students Diet preference breakdown (e.g., Vegan vs. Vegetarian)

Stacked Bar feedback Compare satisfaction across meals

Box Plot ratings Show rating spread by food category

Word Cloud feedback comments Highlight common feedback terms

🧰 3. Tools You Can Use

Tool Best For Notes

Excel / Google Sheets Quick dashboards Use pivot tables, charts

Power BI / Tableau Interactive dashboards More powerful visuals

Python (Matplotlib / Seaborn / Plotly) Custom and flexible Ideal for data scientists

Looker Studio (Google) Easy integration with Sheets Great for web-based dashboards

🔧 4. Example Dashboard Layout (Sections)

A. Overview KPIs

Total meals served this week

% Vegan/Vegetarian meals

Avg student satisfaction rating

Total food waste (kg)

B. Charts & Visuals

📈 1. Popular Meals

Bar chart:

x-axis: Meal Name | y-axis: # of times served

Data: transactions.csv + menu_items.csv

🌡️ 2. Food Waste Heatmap

Heatmap:

x-axis: Date | y-axis: Meal Name | Color: Waste %

Data: inventory_waste.csv

💬 3. Ratings by Category

Box plot or bar chart:

x-axis: Meal Category | y-axis: Avg rating

Data: feedback.csv + menu_items.csv

🧑‍🎓 4. Student Preferences

Pie chart:

Data: students.csv

Show % of Vegan, Vegetarian, Omnivore, etc.

🔍 5. Word Cloud of Feedback

Extract keywords from feedback.csv > comment

✅ Want a Starting Template?

I can create:

1. ✅ Excel sample with visuals
2. ✅ Python notebook for visualization
3. ✅ Power BI layout plan
4. ✅ Data files to simulate (CSV)
