FnP Sales Analysis Dashboard: Complete Analysis of Key Processes and Methods

Based on my analysis of the YouTube video tutorial and your GitHub repository, here's a comprehensive breakdown of all the key processes and methods used in your Excel project:

Repository Structure Overview

Your GitHub repository contains the following files:

- **FnP Dashboard Project.xlsx** - The main Excel dashboard file
- **customers.csv, orders.csv, products.csv** - The three source datasets
- **Ferns and Petals Sales Analysis Problem Statement.pdf** - Project requirements document
- **Ferns and Petals Sales Analysis Dashboard Screenshot.png** - Visual preview of the dashboard
- **README.md** - Executive summary with key insights and recommendations

Core Data Processing Methods

1. Power Query for Data Extraction and Transformation

Data Extraction:

- **Folder-based data loading**: Used Power Query's "Get Data > From Folder" feature to extract data from multiple CSV files simultaneously.
- **Transform approach**: Selected "Transform" instead of "Combine" to maintain separate table structures before processing.
- **Query creation**: Right-clicked on each binary file to create separate queries for customers, orders, and products tables.

Data Cleaning and Transformation:

- **Column removal**: Eliminated unnecessary description column from products table.
- **Data type conversion**: Changed contact numbers to text format to preserve special characters like '+' symbols.
- **Column profiling**: Utilized Power Query's data profiling features to check for distinct/unique values, errors, and empty values.
- **Date/time extraction**:
    - Extracted month names from order dates using "Add Column > Month > Name of Month".
    - Extracted hours from order time and delivery time using "Add Column > Time > Hour".

- **Custom calculations**: Created delivery difference column by calculating "Delivery Date - Order Date" and converting duration to days format.

Data Integration:

- **Merge Queries (Joins)**: Performed left outer join between orders and products tables using Product ID as the common key.
- **Selective column expansion**: Expanded only the price column from the merged products table to avoid data redundancy.

2. Power Pivot for Data Modeling

Setup and Configuration:

- **Add-in activation**: Enabled Power Pivot through File > Options > Customize Ribbon > Developer > COM Add-ins.
- **Data model creation**: Used "Close and Load To" option to load data as tables and add to data model.

Relationship Management:

- **Star schema implementation**: Created a star schema with orders as the fact table and customers/products as dimension tables.
- **Relationship establishment**:
    - One-to-many relationship between customers and orders via Customer ID.
    - One-to-many relationship between products and orders via Product ID.

Advanced Calculations:

- **Revenue calculation**: Created new column in Power Pivot Data View: Revenue = [Price] * [Quantity].
- **DAX functions implementation**: Used FORMAT([Order Date], "DDDD") to extract day names from order dates.

3. Pivot Tables for Data Analysis

Core Analysis Functions:

- **Multi-table data access**: Created pivot tables from data model to combine information from multiple tables.
- **Aggregation methods**: Used sum, average, and count functions for different metrics.
- **Custom sorting**: Implemented chronological month sorting instead of alphabetical ordering.
- **Top N filtering**: Applied top 5 filters for product revenue analysis using "Value Filters > Top 10".

Business Intelligence Measures:

- **Total Revenue**: Sum of revenue across all transactions (₹35,02,984).
- **Average Order Value**: Average customer spending (₹3,520).

- **Average Delivery Time**: Mean days between order and delivery (5.5 days).
- **Monthly Sales Performance**: Revenue breakdown by month with November showing highest sales.
- **Top Products Analysis**: Identification of highest revenue-generating products.
- **Geographic Analysis**: Top 10 cities by order volume.
- **Occasion-based Revenue**: Revenue comparison across different occasions (Valentine's Day, Diwali, etc.).

4. Statistical Analysis Methods

Correlation Analysis:

- **Excel CORREL function**: Used to analyze relationship between order quantity and delivery time.
- **Data interpretation**: Identified that larger orders tend to have slightly longer delivery times.

5. Dashboard Creation and Visualization

Chart Development:

- **Multiple chart types**: Created bar charts for categorical data and line charts for trend analysis.
- **Chart formatting**:
    - Removed field buttons and legends for cleaner appearance.
    - Added meaningful titles like "Revenue by Occasions".
    - Adjusted X-axis labels to prevent overcrowding.

Interactive Elements:

- **Slicers**: Added occasion-based slicers for dynamic filtering across multiple charts.
- **Timeline controls**: Implemented date range filters for order and delivery dates.
- **Report connections**: Linked slicers to relevant pivot tables for synchronized filtering.

Dashboard Design:

- **KPI cards**: Created visual measures displaying total orders, total revenue, average delivery time, and average customer spending.
- **Theme application**: Used Excel's Page Layout themes for consistent color schemes.
- **Layout optimization**: Arranged charts and measures for optimal visual impact.

Technical Skills Demonstrated

Power Query Expertise:

- ETL (Extract, Transform, Load) processes.

- Data profiling and quality assessment.
- Advanced transformations and custom column creation.
- Query merging and relationship building.

Power Pivot Mastery:

- Data modeling and schema design.
- DAX function implementation.
- Relationship management.
- Advanced calculated columns.

Pivot Table Proficiency:

- Multi-dimensional analysis.
- Custom aggregations and filtering.
- Dynamic reporting capabilities.
- Business intelligence metrics creation.

Dashboard Development:

- Interactive visualization design.
- User experience optimization.
- Professional presentation formatting.
- Integration of multiple data visualization techniques.