# ABC Food Mart Scenario:

***Designing and implementing a relational database system***

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We want to build a

# Comprehensive and Efficient Relational Database

## Busy Urban Grocer

- Design a more efficient database system for ABC Foodmart
- Establish real-time dashboards for actionable business insights

## Optimized Management

- Streamline inventory management, improving inventory turnover
- Centralize employee management, improving staff efficiency

## Grocery Services

- Enhance customer engagement through comprehensive data tracking
- Promote targeted deals and discounts

# Data procurement

1. Data extraction:
    a. CSV Data
2. Database and relationships:
    a. Establishing a PostgreSQL database and establish relationships
3. Integration for better functionality:
    a. Use APIs
4. Data presentation:
    a. Display the data and show table

# Database Design

Designed in 3NF, leverages core entities to establish strong foundation upon with complex relationships

Include core entities, product management & sale  and employee shift & salary

- **Core entities**: store; employee; customer; product; address information
- **product management & sale**: vendor order (tracking orders placed to vendors); sale and receipt (manages transactions between products and customers); store inventory (maintains a dynamic relation between store and product); import (manages relation between vendor and product)
- **employee shift & salary:** staff shift (manages shift details for employees); salary (tracks salary for employee)

Database is structured to support facilitating efficient management of inventory, human resources, customer relations, vendor interactions and further financial insights.

# ETL

- Random generated integers including IDs and phone numbers
- Concat first name and last name
- Random assigned values to gender, educational level, marital status, occupations
- Stimulate dates & time: birthday, shifting time, pay date, discount period
    - End date later than start date
- Group by store name and product name and aggregate quantity to calculate quantity from vendor orders and quantity being selled
    - Subtract to insert stock inventory

# Analytical Procedures — Internal Analysis

- Sales Data Viewing: View sales data by time, region, and product category on the sales panel.
- Inventory Optimization: Adjust inventory based on sales trends to reduce surplus and shortages.
- Maximize Profits: Determine profit-maximizing strategies through in-depth analysis of sales data and costs.
- Employee Motivation: Design reward and penalty mechanisms based on employees' sales performance and work hour data.

Tables: address_info, store_info, sale, receipt, product_lookup, employee_contact

# Analytical Procedures — External Analysis

- Market Positioning: Design targeted marketing campaigns to increase market penetration by analyzing customer data.
- Formulate sales strategies by analyzing sales data for each time period (schedule more staff shifts and conduct promotional activities).
- Strategic analysis: Check which store has the best sales, and then analyze the reasons for high sales to increase the sales of other stores

Tables: Sales, customer_info, address_info, store_info

# Thanks for listening!