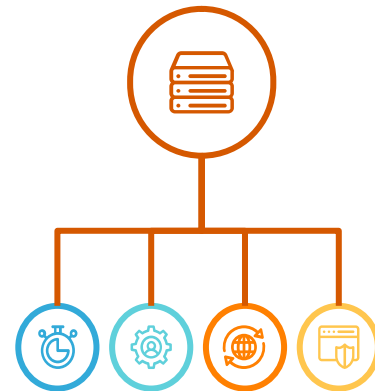


Group 2: Management of Organizational Data

Creating a database for the Lucky Store.

Soham Agarwal
Varun Annapareddy
Yukti Sanjay Jain
Timothy Samuel
Akshita Sharma
Abithaa Shree Venkatesh



Our Team



Akshita Sharma



Soham Agarwal



Timothy Samuel



Yukti Sanjay Jain



Abithaa Shree Venkatesh



Varun Annapareddy

Background

Objectives



- Transition to a secure and structured database system.
- Integrate Key Performance Indicators (KPIs) for performance monitoring.
- Extract actionable insights to boost revenues and plan expansion.

Location

Located at 117 Northwestern Ave, West Lafayette, Indiana.

Industry

Retail Industry

Owner

Mr. Manpreet Singh

Target Audience

Local students and residents in West Lafayette

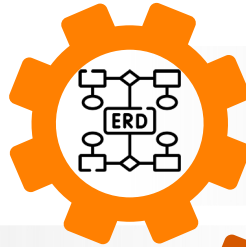
Proposed Structure



Proposed Data Structure:

- Items: Product details and pricing.
- Category: Product categories and promotions.
- Customer: Customer information.
- Transactions: Sales transaction records.
- PaymentMethod: Available payment options.
- Supplier: Supplier details and associated categories.
- ItemSales: Links transactions to sold items.

Database design process

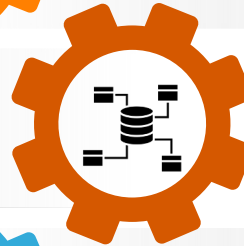


Creating the ERD

Creating a high level design of the database

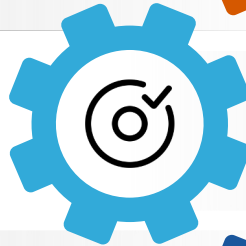
Generating a Relational Schema

Converting the ERD into a relational schema.



Normalization

Normalizing the database to 3NF

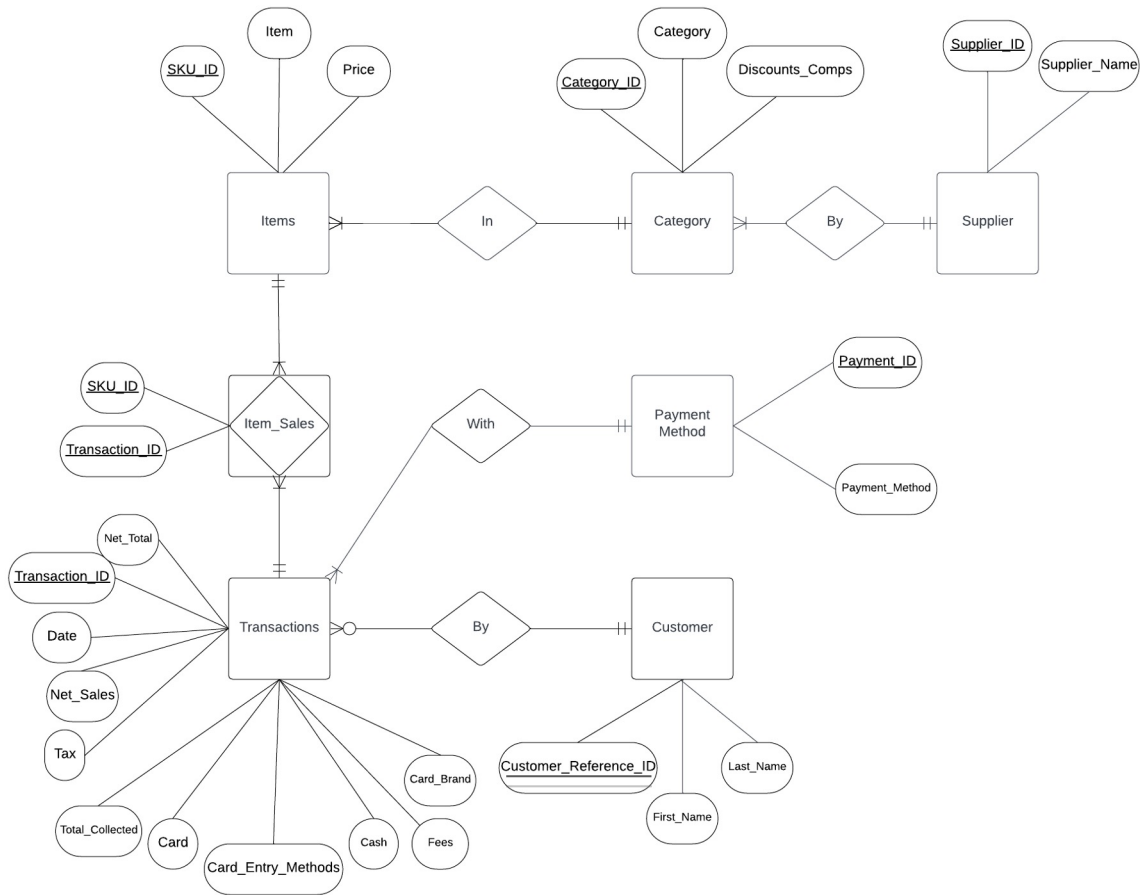


Database implementation

Taking the conceptual and logical design and creating the physical database



Entity Relationship Diagram



Normalization

Before normalization:

Items (SKU_ID, Item , Price , Category_ID , Category , Supplier_Name , Supplier_ID)

Transactions (Date , Net_Sales , Tax , Total_Collected , Card , Card_Entry_Methods , Cash , Fees , Net_Total , Transaction_ID , Discounts_Comps , Payment_Method , First_Name , Last_Name , SKU_ID , Card_Brand , Customer_Reference_ID)

Determinants and dependents:

- 1) SKU_ID → Item , Price , Category_ID
- 2) Category_ID → Category , Discounts_Comps
- 3) Customer_Reference_ID → Last_Name , First_Name
- 4) Transaction_ID → Date , Net_Sales , Tax , Total_Collected , Card , Cash , Fees , Net_Total , Card_Brand , Card_Entry_Methods , Customer_Reference_ID
- 5) Payment_ID → Payment_Method
- 6) Supplier_ID → Category_ID , Supplier_Name

Relational Schema

Table 1: Items (SKU_ID , Item , Price , Category_ID)

Table 2: Category (Category_ID , Category , Discounts_Comps)

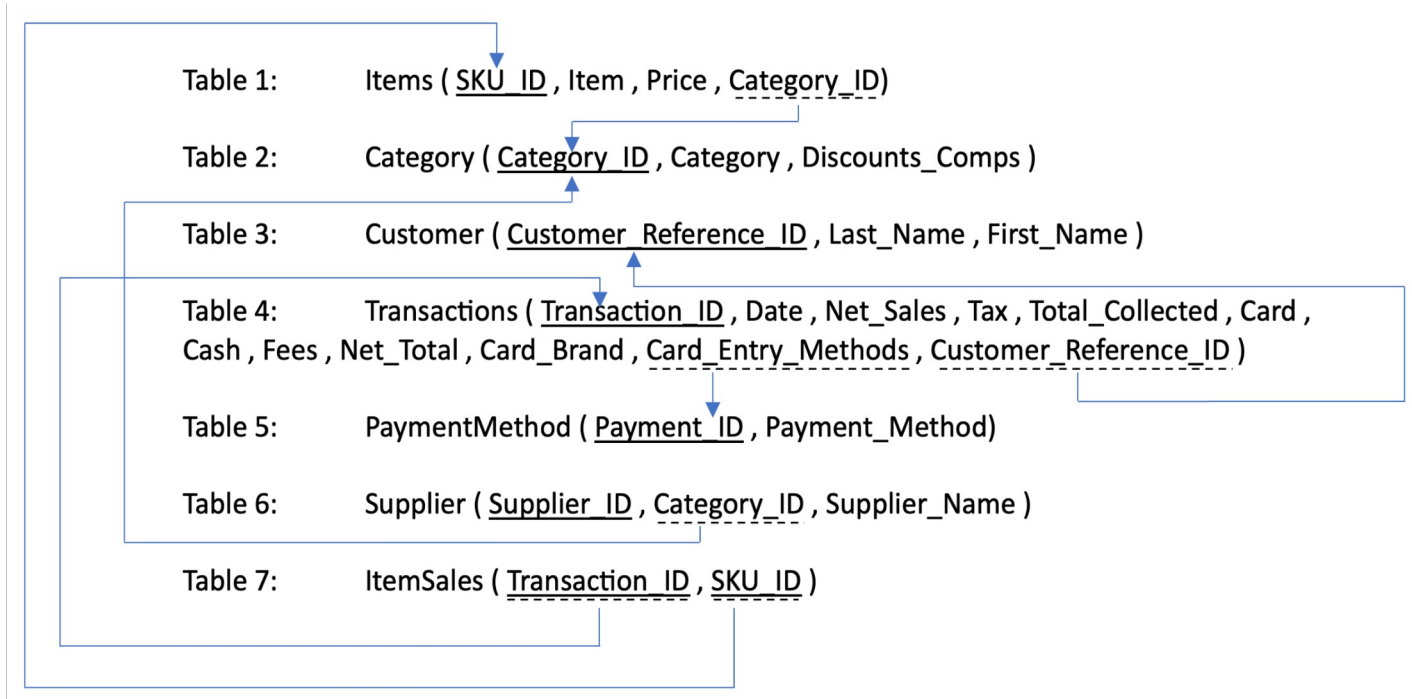
Table 3: Customer (Customer_Reference_ID , Last_Name , First_Name)

Table 4: Transactions (Transaction_ID , Date , Net_Sales , Tax , Total_Collected , Card , Cash , Fees , Net_Total , Card_Brand , Card_Entry_Methods , Customer_Reference_ID)

Table 5: PaymentMethod (Payment_ID , Payment_Method)

Table 6: Supplier (Supplier_ID , Category_ID , Supplier_Name)

Table 7: ItemSales (Transaction_ID , SKU_ID)



Database implementation

Customer Table

Name, Ref. ID



Items Table

Item, Price, SKU ID



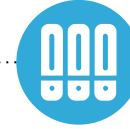
Category Table

Category_ID,
Category, Discounts &
Comps



Item Sales Table

SKU ID,
Transaction_ID



Transaction Table

Sales, Transaction ID,
Date, Tax, Card Entry
Method, Fees, Card
Brand, Cash, Net
Total

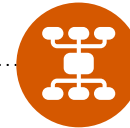
Payment Method Table

Method ID, Payment
Method



Supplier Table

Supplier ID, Supplier
Name



Query examples

Query

Business insights



4 sample queries

01

```
SELECT Category, SUM(Net_Sales) as Total_Sales
FROM Category c
JOIN Items i ON c.Category_ID = i.Category_ID
JOIN ItemSales its ON i.SKU_ID = its.SKU_ID
JOIN Transactions t ON its.Transaction_ID =
t.Transaction_ID
GROUP BY Category;
```

Total Sales Per Category

Determine the revenue generated from each product category to identify top-performing and underperforming categories. The top category with respect to sales is Beverages (\$1496) followed by Cigarettes (\$1405). The store could look into ordering more items in these categories to maximize opportunity cost.

02

```
SELECT COUNT(Card_Brand), Card_Brand
FROM transactions
GROUP BY Card_Brand;
```

Most used Card Brands

Analyze the popularity of different card brands among customers to optimize card payment services.

03

```
SELECT i.Item
FROM Items i
LEFT JOIN ItemSales its ON i.SKU_ID = its.SKU_ID
WHERE its.SKU_ID IS NULL;
```

Identify Items Not Sold

Identify items that have not been sold to reevaluate their placement, pricing, or continued stocking. This is good for identifying products that can be removed from the store and rethinking store supplies. The top 3 items for this query are Tylenol, Durex, and Tums.

04

```
SELECT Item, SUM(Net_Sales) as Total_Sales
FROM Items i
JOIN ItemSales its ON i.SKU_ID = its.SKU_ID
JOIN Transactions t ON its.Transaction_ID =
t.Transaction_ID
GROUP BY Item
ORDER BY Total_Sales DESC
LIMIT 5;
```

Top 5 Items by Sales

Identify the top 5 selling items to focus on inventory stocking and promotional activities. Mr. Singh's top-selling item is Kadobar with 228 qty being sold in a timeframe of 30 days followed by Marlboro Black Menthol Short with 176.41 and Marlboro Gold Short with 175.18

Conclusion

Inventory Optimization & Product Strategy

Beverages & Cigarettes Focus:
Best Selling

Reassess Underperforming Stock: Tylenol, Tums

Customer Engagement & Loyalty

Reward Top Customers:
Personalised Discounts

Engage More Customers in Top Categories: Bundling Discounts with top selling categories

Payment & Transaction Strategy

Negotiate Transaction Fees:
Special promotions or collaborations with Visa can also be explored to drive further sales

Store Layout

Rethink Store Layout:

For impulse buying

Eg: Kadobar can be placed at the checkout counter

Supplier Relations & Inventory Source

Strengthen Ties with Top Suppliers: Negotiate bulk purchase discounts, faster deliveries, or exclusive product lines

Thank You

We will now take any questions!