

OPTICS RETAIL COMPANY

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We own a physical store which is focused on selling eyewear products. As the owners of this business, I want a dependable and streamlined database management system (DBMS) that can help me make precise business decisions. This database must be adept at managing customer data, tracking sales, understanding customer buying behavior, and evaluating staff performance.

Through the maintenance of structured and easily available data, I want to obtain valuable insights into the performance of the business, recognize trends and patterns, and make well-informed choices to improve the store's profitability and efficiency.

Below mentioned are some categories of eyewear which will be our focus area:

- Prescription Glasses (Frames + Lenses)
- Sunglasses
- Contact Lenses
- Accessories (Cases, Cleaners etc)

For each of the above categories, we will consider different models, designs, and brands.

DATA REQUIREMENT

PERSON

- Any individual associated with the store, including customer and employees.
- Data captured:
 - PersonID
 - Name – FName, LName
 - DOB3
 - Contact – phone, email (can have multiple contact details)
 - Address – street, city, state, zip
 - Age
 - Gender

CUSTOMER

- A customer is a person who visits the store and/or purchases eyewear products.
- Data captured:
 - CustomerID
- A person visiting the store but not making a purchase is still considered a customer.
- A customer can purchase multiple products.

EMPLOYEE

- Employees are persons who assist the customers at the store.
- They are the primary point of interaction for customers.
- Data captured:
 - Emp_ID
 - Salary
 - Hire Date – Date of joining
 - Position – Supervisor, Subordinate or Optometrist
 - Sales Target – Target assigned (in products sold/quarter)
- A supervisor manages the store, while subordinates report to one supervisor. An optometrist examines eyes and prescribes corrective lenses.
- The sales (in quantity) made by employees will be recorded for performance metrics.

OPTOMETRIST

- An optometrist examines eyes and prescribes corrective lenses for the customer.
- An optometrist is an employee of the store.
- Data captured:
 - License_no
 - Opt_ID

PRODUCT

- Products are eyewear items available in the store for display or sale.
- Data captured:
 - Product ID
 - Model
 - Category – Glasses, Sunglasses, Contact Lenses, Accessories
 - Brand – Brand or manufacturer
 - Lens Type (if applicable) – Single vision, bifocal, progressive
 - Material (if applicable) – stainless steel, acetate, titanium, TR90
 - Color – Color of the product
 - Size – Product size (frame width, lens diameter, lens shape)
 - Price – Selling price of the product
- Products may or may not be purchased by customers.
- The quantity and date_sold will be recorded for each sale by the employee.

BUYS (relationship)

- Billing information of each transaction will be captured.
- Each transaction has different quantity of products purchased.
- The Customer, Product, and Warranty is linked with purchase. Every time a customer purchases a Product, it is associated with a Warranty.
- Data Captured:

- buy-date
- quantity
- payment-method (cash, credit card, debit card, googlepay, applepay, paypal)
- total-sale-value
- Warranty is optional (and not every purchase must have a warranty).

SUPPLIER

- Supplier will be provided the products to sell in the shop.
- One supplier can provide multiple product types.
- Data captured:
 - SupplierID,
 - Supplier name,
 - contact (email, phone, address)
- The quantity, supplydate and unitcost will be recorded for each stock supplied.

WARRANTY

- A warranty is a service agreement provided for products sold for a specified period after purchase.
- Every product has different warranty period.
- Warranty is associated with a specific purchase event.
- Data captured:
 - Warranty_no
 - Status (active, expired, claimed)
 - Expiry (6, 12, 24 months)
 - CoverageDetails (Full coverage with accidental damage or Full coverage with accidental damage and replacement)
 - RefundAmount (\$49.99, \$79.99, \$199.99)
- When the status is set to 'claimed', the RefundAmount stores the money returned to the customer for that purchase

PRESCRIPTION

- Customer can have his/her own prescription or can get one at the store from the optometrist.
- Prescription is dependent on customer.
- Data captured:
 - Prescription ID
 - Issue Date
 - Lens Power (Left, right)
 - Lens Type

BUSINESS GOALS

1. **Figure out the top 3 brands of eyewear that produces the greater profits**, as focusing on these would improve profitability.
2. **Find the top 3 eyewear models (glasses, sunglasses, or contact lenses) purchased by customers in 30-40 age groups**.
3. **Identify the top 3 staff members who achieved the most sales in quantity and value for each quarter**, to measure staff performance and provide rewards accordingly.
4. **Identify 5 underperforming products in the last quarter of the year**, based on total purchase quantity.
5. **Generate a report of the months with maximum sunglasses sales**, to identify peak demand periods and align marketing campaigns.
6. **Identify products that were completely sold out during a particular season(summer, winter, fall, spring)**, to highlight high-demand items that should be prioritized for restocking.
7. **Find the maximum used payment method** to explore future partnerships with payment providers.
8. Report **the number of prescriptions** issued by each optometrist, and the **average number of prescriptions** per optometrist, to assess service utilization.
9. **Find top 3 suppliers contributing the highest revenue share** by analyzing sales linked to their products.
10. **Report: Number of active, expired, and void warranties, and average warranty period for products sold-quarterly**, for monitoring the lifecycle and effectiveness of product warranties, helping the business manage customer service, control costs, and make informed decisions on product quality and warranty policies.