SHOPPING MART DATABASE

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Objective:

Design and implement a database for a shopping mart wherein a customer can find groceries of all sorts, households, cloths, etc. This database helps to manage the overall functioning of the mart.

To centralize and organize data related to various aspects of store operations. By having a structured and accessible database, the departmental store aims to achieve several key objectives such as improved data management, efficient inventory management, enhanced sales and customer service

Database overview:

- The database basically contains all the sales information like what the customer buys, the billing details, the item details and payment details and customer details as well.
- Along with that, the database also stores all details about the staff members, various sections and storage status.
- The staff is divided into various sections. To name a few sections in the mart: clothing, groceries, home and furniture, beauty and cosmetics, jewellery, books and stationery, electronics and gadgets, etc.
- We also have the details about various discount offers on certain items and the marketing details, details about the return policy of items and warranty.
- Moreover, the database keeps track of procurement details of shopping equipment required for the infrastructure of the store like carts, billing machines, freezers, and kiosks, alongside stock intake details for every item in the store.

Database users:

- Manager
- Supervisor
- Employees

<u>Use cases:</u>

1. **Sales Manager:**
    - The sales manager uses the database to analyse the sales of the entire mart.
    - The sale details of an item can be extracted from the billing details, which contains *item-code*, the *quantity* sold and the *date.*
    - So, the manager can analyse the sales per day, per item. Analysing sales data to identify trends, popular products, and customer preferences. This information can be used to optimize product placement, pricing strategies, and marketing campaigns to increase sales and customer satisfaction.
    - He also can track how the sales are incremented due to various offers and the marketing strategies.

2. **Marketing manager:**
    - All details regarding marketing such as digital marketing (TV ads) and traditional marketing (newspaper ads and hoardings) are contained in the database.
    - Separate data is stored for all 3 modes of marketing.
    - Data regarding hoardings is: *Hoarding location, date ,removal_date, charge.*
    - Data regarding newspaper ads: *newspaper_name, date of the newspaper, charge.*
    - Data regarding television commercial: *channel_no, contract start and end date.*
    - The marketing manager can coordinate with the sales manager to analyse how these commercials are fuelling the sales, which particular products are sold more due to these advertisements and track certain patterns.

3. **HR (Human Resources) Manager:**

- Our database maintains details of the employees. Following details of every employee is stored in our database: *first_name, last_name, emp_id, gender, Dob, phone_no, email, address, city, state, date_of_joining, salary, section_id, gender, Dob, supervisor_id.*
- An employee can be working under various sections like goods-organisation, cleaning and maintenance, billing/cashier, security, godown/storage keeper, etc. The HR department recruits these employees.
- Data regarding each section is stored as : *section_id, section_name, manager_id.*
- When a new employee is recruited, then that employee needs to be registered in the database and all the above-mentioned details of the employee must be entered in the database.
- And when any employee leaves/resigns from their job, then the entry corresponding to that employee should be removed.

4. **Finance Manager**:
    - Our database contains all the item details and billing details for each customer.
    - Following are the billing details for each customer: *customer_id, bill_id, item_code, item_section, date, qty, price.* Here, *item*_section represents the section to which that item belongs, for example dry-fruits belongs to grocery section.
    - Also, the details related to payment are stored as: *amount, payment_mode.* We also have details of each item as follows: *item_code, selling_price, purchase_price, item_section.*
    - Various financial aspects can be drawn from above details. Like the finance manager draws the profit (selling price-purchase price) for each item and the total profit per day, per month, etc can be extracted for financial analysis.

5. **Supply-chain manager**:

- The database maintains record of the current status of stock of each item. Every item has a specific supplier.
- All details regarding the stock of items are stored as follows: *item_code, current_stock, max_capacity, item_section.* Now further quantities are ordered according to need.
- Details regarding 'stock_intake' is stored in the database as follows: *item_code, supplier_name, quantity_ordered, purchase_price, date.*
- The supply chain manager takes care that every item is in stock and if not, then order the item according to the need as well as the quantity ordered for a particular item should not exceed the *max_capacity* storage for that item.

6. Supervisors:

- In our database, we have a supervisor for each section. There are several sections in the mart, to name a few: *clothing, electronics and gadgets, grocery, home and furniture, beauty and cosmetics, jewellery, books, stationary and gifts,* electronics and gadgets*, etc.*
- Each such section has a supervisor. There are number of employees working under each of these supervisors. So, the supervisor uses the database to manage these employees, their salaries, etc.

7. Employee:

- Employee uses this database to entertain various queries from the customers.
- The details regarding various discount offers are stored as follows: *item_code, discount_percent, offer_name, start_date, end_date.*
- The employees can look up to the database for quesries regarding ongoing discount offers for various items.
- The employees can use it to entertain queries related to the return policy and warranty on certain items.
- Details regarding return policy for selected items like clothes, cosmetics, shoes, home furniture, etc. are as follows: *item_code, days_to_return.*

- Details regarding warranty for electronic gadgets are as follows: *item_code, warranty_period(in months)*.

Queries:

1. Top selling item (in terms of numbers) for a given month.
2. Find the customer who made the largest purchase(in terms of total purchase price).
3. List employees with highest salary in each section.
4. How many products belong to the 'Electronics' section?
5. List of item_code for which sale increased due to offer.
6. Which department has the lowest total sales for a given date?
7. Find the customer who made the largest purchase (in terms of quantity).
8. Identify the products with the highest and lowest prices in each section.
9. Find the newest products in the stock_intake.
10. Identify the department with the highest and lowest average product quantity sold over a period of 1 month.
11. Find the products whose names start with the letter 'A'.
12. List of the dates with the highest total sales for each month in the past year.
13. Retrieve the products that have not been restocked in the last month.
14. List the top 5 sections with the highest total revenue for a given year.
15. Find supervisors_id whose salary is greater than all other supervisors.