DBS211 – FINAL PROJECT
[MILESTONE 1&2]

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Outlines

Introduction

The chosen topic for the group is the industry surrounding pet stores. Pet stores are specialized retail shops that offer pet products and services, including pet food, accessories, grooming services, and veterinary care. The group decided to focus on the pet store industry due to its vibrant and flourishing nature, driven by people's love and concern for pets. The members of the group have a strong interest in pets and the pet store industry, making it a compelling choice. Additionally, the industry presents complex data management needs, offering the group an opportunity to learn and tackle challenges in a real-world business setting.

Problem Statement

In the pet industry, a database is required for the pet smart application to efficiently manage and organize a large amount of pet-related data, pet products, customer information, food, treats to deliver personalized recommendations for satisfying user experience. A well-structured database is essential for data administration, real-time updates, and data-driven insights to improve the pet smart app.

Solution

The team will follow a systematic approach to build a database that supports the proposed software application for Petsmart. Firstly, the team will thoroughly analyze Petsmart's operations to identify the critical data entities and their relationships. This will involve understanding the different aspects, such as product inventory, customer information, pet grooming schedules, veterinary records, and sales data. Once the data entities are identified, the team will design the database schema focusing on efficiency and scalability, keeping in mind the expected small scale of 6-10 tables. The team will ensure proper normalization to eliminate redundancy and maintain data integrity. The chosen database management system will be based on the application's requirements, ease of use, and compatibility. Data security and access controls will be paramount to safeguard sensitive information. Regular backups and data maintenance procedures will be established to ensure data reliability. Finally, the team will work on integrating the database with the software application, enabling seamless data retrieval, manipulation, and updates to provide a comprehensive and user-friendly solution for Petsmart's diverse operations.

Requirements

Inventory management: The database should store real-time information about the available pet products, their quantities, and stock levels. This data is crucial for maintaining sufficient stock and ensuring timely reordering to avoid stockouts.

Sales and revenue tracking: The software should record and store data on daily sales, including the total revenue generated by Petsmart. This information will provide insights into the business's financial performance and help in making informed decisions about sales strategies and pricing.

Customer analytics: The database should capture and store customer data, including demographics, purchase history, and preferences. This data will be used to create customer profiles and analyze customer behavior, enabling personalized marketing efforts and improving customer retention.

Employee records and scheduling: The software should store data on employee information, work schedules, and performance evaluations. This data will assist in managing staff resources efficiently and evaluating employee performance.

Order processing and tracking: The database should handle order details, including order status, payment information, and delivery tracking. This data will help in monitoring order fulfillment and ensuring timely deliveries to customers.

Grooming schedules and appointments: The software should support the storage of pet grooming schedules and appointments. This data is essential for managing grooming services efficiently and ensuring a smooth customer experience.

Product ratings and reviews: The database should collect and manage product ratings and reviews from customers. This data will help in understanding product satisfaction levels, identifying popular products, and making improvements based on customer feedback.

Customer feedback and support: The software should have a mechanism to store and manage customer feedback and support requests. This information will aid in addressing customer concerns and improving overall customer satisfaction.

Sales and marketing analytics: The database should support the storage of data related to marketing campaigns, promotional activities, and their impact on sales. This data will provide valuable insights into the effectiveness of marketing efforts and help in optimizing future campaigns.

Loyalty program tracking: If Petsmart has a loyalty program, the software should store data related to customer participation, rewards earned, and redemption history. This data will assist in evaluating the loyalty program's success and identifying loyal customers for targeted promotions.

ERD

1. Entities
    - Pets
    - Customers
    - Employees
    - orders
    - order_item
    - sales
    - products
    - customer_reviews
2. Attributes
    - Pets: pet_id(PK), name, breeds, species, customer_id(FK)
    - Customers: customer_id(PK), name, email, address, phone
    - Employees: employee_id(PK), first_name, last_name, phone, salary
    - Orders: order_id (PK), customer_id (FK), order_date, amount
    - Order_item: order_item_id(PK), order_id(FK), product_id(FK), quantity
    - Sale: sale_id (PK), sale_date, amount, customer_id (FK), employee_id (FK)
    - Products: product_id (PK), product_name, price, description,
    - Customer_reviews: review_id(PK). product_id (FK), customer_id (FK), review_text, rating.
3. Relationships

    1. Customers can have multiple pets, but each pet is associated with only one customer.

2. Each order is placed by one customer, but a customer can place multiple orders.

3. Each order can have multiple order items, but each order item belongs to only one order.

4. Each product can have multiple customer reviews, and each review is associated with one product and one customer.

5. Each product can include multiple order items, and each order item represents one product.

6. Each sale is related to one customer, and each customer can have multiple sales.

7. Each employee in charge of multiple sales, but it sale is charged by only one employee.

8. Each customer can write multiple reviews, and each review can be written by one customer.

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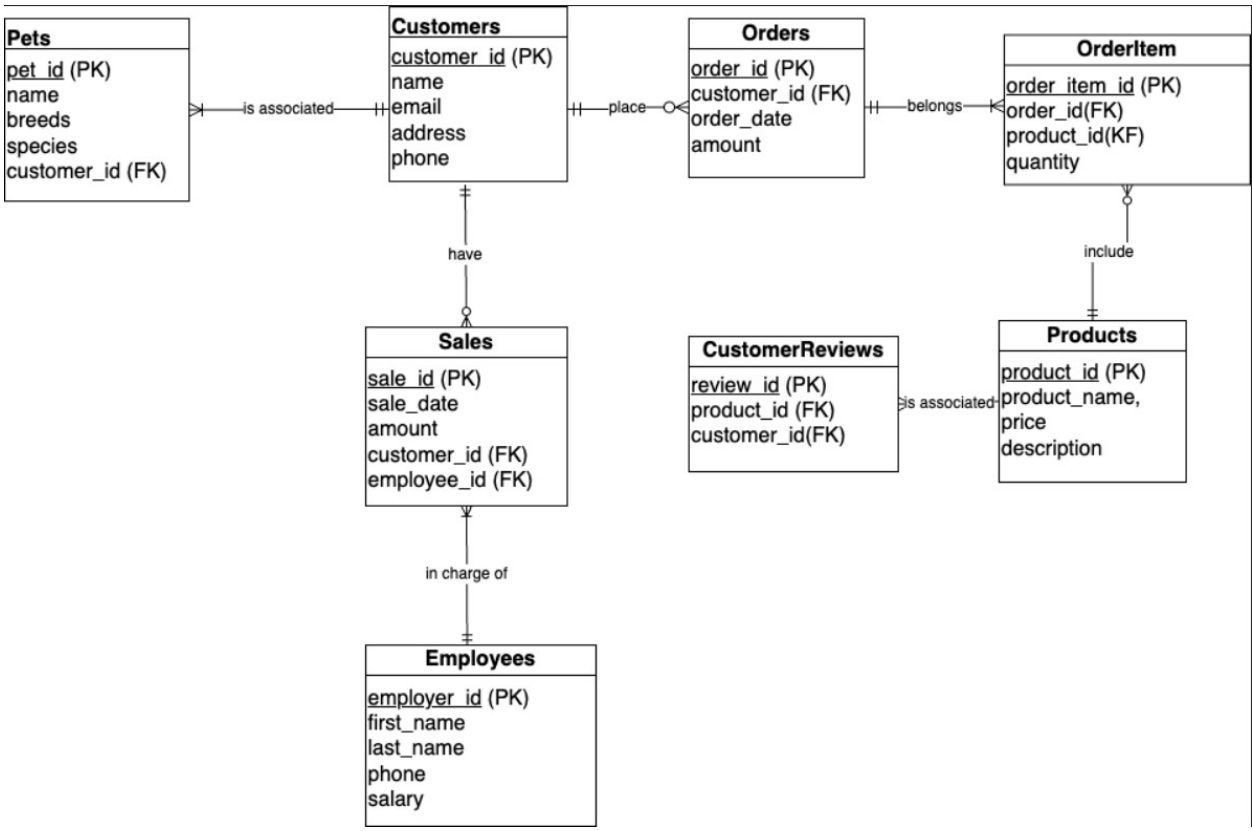

Data Dictionary

Table Name: Pet

Field Name	Data Type	Size	Notes	Example Data
pet_id	integer	3	Primary Key	256
name	varchar	100	name of the pet	Bubble
species	varchar	50	species of the pet	dog
breeds	varchar	50	breeds of the pet	poodle

Table Name: Customers

Field Name	Data Type	Size	Notes	Example Data
customer_id	integer	4	primary key	1234
name	varchar	55	customer's name	John Smith
email	varchar	255	customer's email address	chloe@ex.com
address	varchar	255	customer's address	123 Vin St
phone	varchar	15	customer's phone number	+1 123 321 1111

Table Name: Employees

Field Name	Data Type	Size	Notes	Example Data
employee_id	integer // varchar is correct	6	Primary Key	okld32
first_name	varchar	50	employee's first	John

			name	
last_name	varchar	50	employee's last name	Doe
phone	varchar	15	employee's phone	123-456-7890
salary	varchar	10	employee's salary	$50,000

Table Name: order

Field Name	Data Type	Size	Notes	Example Data
order_id	integer	5	Primary Key	12345
customer_id	integer	4	Foreign Key (Referencing customers table)	5001
order_date	date	4	Date of the order placement	2023-07-28
amount	decimal	10,2	Total order amount	150.50

Table Name: order_item

Field Name	Data Type	Size	Notes	Example Data
order_item_id	integer	6	Primary Key	100237
order_id	integer	5	Foreign Key (Referencing order table)	86394
product_id	varchar	4 // 5 is correct	Foreign Key (Referencing product table)	ab123
quantity	integer	4	Quantity of the product	5

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Table Name: sale

Field Name	Data Type	Size	Notes	Example Data
sale_id	integer	20	Primary Key	1234567
sale_date	date		Foreign Key (Referencing customers table)	2023-07-28
amount	decimal		Date of the order placement	15452.89
customer_id	integer	4	Total order amount	1122
employee_id	varchar	6		dkhf12

Table Name: products

Field Name	Data Type	Size	Notes	Example Data
product_id	varchar	5	Primary Key	ab203
product_name	varchar	100	Product Name	Widget A
price	decimal	10, 2	Price of the Product	25.99
description	varchar	255	Description of the Product	High-quality widget for all ages

Table Name: customer_reviews

Field Name	Data Type	Size	Notes	Example Data
review_id	varchar	7	Primary key	okr3670
product_id	varchar	5	Foreign Key (Referencing products table)	cf204
customer_id	integer	4	Foreign Key	9374

			(Referencing customer table)	
review_text	varchar	200	customer's reviews	very good
rating	integer	1	1-5	1,2,3,4,5