iPhone Commerce DBMS

Apple is one of the largest competitors in the field of electronics and software services. With about 40 million units sold each quarter, Apple has a very well managed DBMS which helps them increase the revenue and stay in the competition. The project aims to build a DBMS for an iPhone manufacturing and trading company having multiple stores or warehouses serving the customers by keeping track of the customers, products, store outlets, warehouses, and transactions in order to understand and grow the business.

The fully functioning system is very complex hence this project will be having limitations.

- We are assuming that limited number of iPhones are purchased by a customer.
- We are assuming that there is a unique order for each unique iPhone.
- We are considering only the following specifications of the phone.
  - Camera
  - RAM
  - Memory
  - Processor
  - Battery
- The price of the iPhone is assumed to decrease by 10 percent every quarter up to 50 percent.
- No pre-booking of the iPhones is allowed.
- We are assuming the customer complaints are classified into categories of specification (for e.g., Camera, Processor etc.) and stored in the database. We are also assuming bad reviews and complaints to be the same.
- We are assuming that iPhones which are ordered or purchased are present at either a store or warehouse.
- Each store or warehouse will be having a minimum of 50 iPhones.
- An employee of the company is assigned to only one department.
- Only the following departments are assumed for the employees working at the company.
  - Sales
  - R&D
  - Marketing
  - Finance
- We are assuming that each department has at least 25 employees.
- We are not considering tax in order total.
- Each store will be having at least 5 employees.

- We are assuming that each employee has a manager who evaluates their performance for a quarter and gives them a performance rating.
- Every employee working at the stores belongs to the sales department.
- Employee rating will be given on a scale of 5.

Data requirements:

iPhone:

- Each iPhone will have a unique iPhone id.
- Each iPhone will have a model name.
- Each unique model will have same specifications only the memory or storage space will vary.
- The model description will contain camera specification, RAM, storage, processor, and battery.
- Manufacturing price unique to each model.
- Different models will have different initial release date.
- Each model will have initial value.
- Each model will have a current value.

Here the initial price is the price during the initial release and current price is calculated based on the current date and initial price. The price of the iPhone is assumed to decrease by 10 percent every four months up to 50 percent.

iPhone model name will also comprise of the RAM and storage variant.

Customer:

- Each customer has a unique customer ID, Date of Birth, Age.
- The location or city and state of the customer.

Orders:

- Online orders are for the iPhones present at the warehouse. Orders given by customers visiting the store will be for the iPhones present at the store.
- We want to capture the type of the order, whether online or from store.
- The timestamp of each order will be captured.
- The price for which the customer bought the product.
- We want to know which employee has made the sale at a store and the feedback rating of that employee given by the customer for that particular order.

- Customer complaints of attributes needs to be captured for each iPhone model and should be stored with that particular order. The attributes such as (RAM, Processor or Battery) with significant complaint count will be considered for generating report.
- Source through which the customer came to know about the product needs to be captured with each order (Source of information).
- For each order the store or the warehouse (depending on the order type) where the order is placed or directed to needs to be known.

Store:

- Each store will have a unique store id.
- Location of the store.

Warehouse:

- Each warehouse will have a unique id.
- Warehouse location.

Employee:

- Employee's unique id
- Employee's performance rating
- Employee's average customer rating will be the average of all customers ratings.
- Employee's salary determined from the department and incentives.

Department:

- Department name
- Unique department id
- Salary

The average customer rating which is same as their performance rating. Employees belonging to other department will be assessed based on the performance rating given by their managers.

Each department will be having a fixed salary for each employee assigned to that particular department.

Business Goals:

1. The company will get information regarding the quantity of each model sold and profit generated by all the models. The profit is defined as (selling price of each iPhone of that particular model – total manufacturing price of that particular model). (This will help in determining the demand and amount of production to increase the profit margin).

    a) This will determine the highest profit generating models, and
    b) The least profit generating model.
2. We will figure out the well performing outlets. This is determined by considering the highest number of iPhones sold by an outlet. (This will help in understanding the production requirement and also the need to offer discounts to the customers)
    a) Best performing store.
    b) Best performing warehouse.
3. Reports will be generated showing the total number of iPhones sold, quantity of iPhones sold of each model, the city wise sale (the number of iPhones sold) record and what quantity of each model is sold at each location will be determined. This will help in determining the production rate or need to target potential customers and attract them with lucrative offers to increase sales and revenue.
4. The number of complaints of each specification of the highest selling model will be produced so as to determine the specification with most flaw and what improvements can be made for the upcoming models.
5. Reports can be generated about the model with highest purchase count and the average age of the customers buying that model of iPhone, to determine the approximate age group of the potential customers.
6. We will determine the most effective source of advertisement from customers for top 5 locations where the sales are highest. This will help serve the marketing purpose of the company to target potential customers.
7. The company will evaluate each department's overall performance. This will be the average performance of all employees working for that department. Each employee's performance is rated on a scale of 5.
8. Reports will be generated of the count of customers who used a certain method of advertisement as source of info for each particular model. This will help in determining, which marketing method to invest more in and which methods are outdated and should be discontinued.
9. Reports will be generated of the count of customers who complained about the specifications of each iPhone model that they purchased. This will help in understanding which aspects of the iPhone are sought after and in which aspects the company can invest more towards and thereby improve.