

**Group No :- 18**  
**Vaghasiya Nikhil (i.d. :- 202003042)**  
**Hardikkumar jani (i.d. :- 202003041)**  
**Lab No.:- 2**  
**Dairy product management system**

**Scope of Database :-**

- For the dairy owner it is very tough to control all dairy work like building reports of purchased products, sold products, distributing products with companies and analyzing profit.
- The dairy owner also has to control different outlets of dairy.
- So our task is to reduce this complexity for dairy owners.
- So we have to maintain all information about sold products (store information about customers), purchased products(store information about sellers), store information about products(company name, quantity and price), for milk we have to store it's fat and milk type.
- For customers we have to provide a bill of their purchased product.
- After storing all this information, the owner has to analyze all transactions so our task is to provide reports to the owner.
- So our task is to give all the answers to the given queries.

**Description/Requirements:-**

1. Dairy owner has a name, w\_id(unique), username, password and other details(same as workers). And they control all the dairies.
2. Dairy has many different outlets, so that different outlets are controlled by the dairy members. Managers have the same attributes as the dairy owner.
3. Dairy has workers to interact with customers and give them desirable products. Our database stores details of dairy workers, and workers have w\_id(unique), personal details, salary, joining date, address etc.
4. For every customer who visits a dairy, they have a name, their mobile number, address. So we save customer details and give them products which they want.
5. Here the product entity has the product name, company, G.S.T. tax, total quantity(stoke), price and profit.

6. After selling products we have to change some parameters of products in our stock which customers bought(decrease quantity).
7. Here we have to give a bill to the customer. Bill includes bill\_id(unique), customer details, total amount to pay, name, payment mode, date.
8. Here one customer has many bills(possible that one customer comes many times at the dairy) but one bill has only one customer.(many to one cardinality constraints) every customer has not a bill and every bill is not for the customer.
9. Here bill has relation with product(which customer buys). Between bill and product has many to many cardinality constraints. And both sides have partial participation.
10. After selling the product we have to store that selling details in our selling report. Selling report has the total amount sold on a particular date, total quantity, date, total profit.
11. Here the selling report has a relationship with product and outlet. Here one outlet or product has many selling reports so one to many cardinalities. Here every report includes products and reports made in some outlet so total participation.
12. Dairy needs customer feedback for improvement so we have to take customer feedback and feedback has attributes like title(partial key) rating, comments. One customer can give only one feedback and the one feedback can be given by only one customer.(so one to one cardinality constraints)
13. Here it is also acceptable if customers don't want to give feedback. So the relationship between customer and feedback is partial but every feedback must be given by the customer only.
14. When we purchase products by the seller then the seller has information like seller\_id(unique), name, company name, Mo no etc.
15. Here it is possible that one seller can sell different products but one product can be sold by only one seller. (many to one cardinality constraints for product to seller relationship) here every seller has not a product and purchase report and every product is not purchased by the seller(some product made by dairy).
16. After purchasing products we have to store information about the product in the purchase report and update our stock. Means increasing quantity and if price changes then the manager also updates the price.

17. Purchase report has date, payment mode, total amount. Here it is possible that one seller sold many times to us so it has different purchase reports but one purchase report relates to only one seller.
18. By one seller we get many purchase reports because it is possible we purchase many times by one seller but one report has only one seller so one to many cardinality constraints relationship between seller and purchase report. Here every purchase report relates with some seller but it is possible that we don't buy products from some seller.
19. Dairy also transport products from main(our) dairy to other dairies. So we have to store transport details like transport\_id, address, driver details, other merchant details and date. Transport has a relationship with a bill. Here one bill has only one transport and one transport has only one bill. (one to one cardinality constraints relationship) every transport has a bill but every bill is not for transport.
20. Dairy has some outlets. So the dairy owner has to manage all dairy products. So here the dairy outlet has attributes like code, name, Mo no., address and starting date. Dairy outlets relate with workers. There are some workers who work in more than one outlet and outlet has more than one worker.(many to many cardinality constraints) and both sides have a partial relationship.
21. Here the customer relates with the bill(after purchasing), worker(interact) and feedback(can give).
22. Product has relationship with customer(purchase), seller(sell), bill(include), purchase report(purchased product) and selling report(sold product).
23. Here only the dairy owner and members have authority to change price rate, change workers salary, add or remove workers and change dairy details.
24. Dairy reports(selling and purchase) relate with product and seller etc. workers maintain different reports.
25. The dairy owner and members can check purchase and selling reports any time and between any dates.
26. So by these reports the dairy owner can analyze how much products are needed for next month, demand of which product is high. By feedback the owner can analyze what improvements needed for the dairy.

**Queries :-**

1. Which product sold much on a given day, month or year.
2. Give selling reports for given dates.
3. Give a customer list of today.
4. Give total profit for a given month.
5. Give a purchase report for given dates.
6. List down all transportation for a given date.
7. List out products bought by a given customer for a given date.
8. Find average online payment of customers for a given date.
9. Find a customer who visits a dairy more than 4 times on a given day.
10. Find feedback of products which have ratings greater than 3.
11. Find details of customers who give us bad (less than 3) ratings. And work on their comments.