

Project Online Store Startup

Q. 1 Identify the entities

1. Customer: -

The customer entity represents the registered users and/or their user account.

2. Buyer: -

It represents the customers who have made a purchase. Once a customer makes a purchase, he becomes a buyer and will be given a survey to fill out based on the product(s) he bought.

3. Survey: -

It represents a set of questions that a buyer must answer along with whether they are mandatory or optional. For a survey to be reusable, it should be decoupled from ratings, users, and products.

4. Question: -

It represents all the questions in the questions dataset and contains information about their objectivity, that is, whether a question is objective or subjective.

5. Feedback: -

Feedback represents all the answers given by a user. It also contains information about the survey and the product it was about along with the final rating given by the users.

6. Product: -

It represents all the products sold by the store.

7. Order: -

It represents the list of orders customers have made including both delivered and products to be delivered along with target address, date and time of purchase and delivery. The expected date depends on the delivery agency and should be provided by them directly to the application.

Q. 2 Identify the attributes for various entities.

1. Customer (ID, first name, last name, email): -

A customer must have a first and last name, a registered email address and an internal ID so the customers can change their information without causing problems with the database.

2. Buyer (Buyer ID, addresses, phone): -

A buyer must have an ID (customer ID as buyer ID), a registered phone number and a list of saved addresses (optional) as a customer can also buy gifts for loved ones or have more than one home.

Hence, these addresses should also have a name like "home", "office" etc. However, customers should also be given a privacy option so they can opt out of saving their addresses.

3. Survey (survey ID, name, questions, mandatory status): -

A survey must have a survey ID and a corresponding list of questions along with whether they are optional or mandatory. It should also have a name to easily identify various surveys.

4. Question (questions, objectivity): -

It will have all the questions and whether they are objective or not.

5. Feedback (buyer, survey, product, feedback): -

It will have the buyer's ID, product in question and feedback to the survey for said product.

6. Product (product ID, name, seller, manufacturer): -

A product must have a name, an internalized serial number (for performance benefits), seller's and manufacturer's information

7. Order (buyer, address, product, delivery date, purchase date): -

It will contain a list of products delivered or to be delivered, the target address, purchase date, delivery date and the buyer

Q. 3 Identify the relationships with the cardinalities.

1. Buyer **is a** customer (1: 1): -

A buyer is a customer who has purchased *at least one* product.

2. Buyer **places** order (1: N): -

A buyer will order products he wishes to purchase

3. Order **is placed for a** product (1: 1): -

Each order corresponds to a product.

4. Survey **is taken for an** order (1: 1): -

There will be a survey for each order

5. Survey **has** questions (1: N): -

A survey will contain many questions

6. Buyer **takes** survey (1: N): -

A buyer will take a survey for each product he was delivered by the store. A survey before the buyer even had a chance to use a product will not result in the correct information we need.

7. Order **has** feedback (1: N): -

A buyer will give feedback for the orders delivered to him.

Q. 5 Create the relational schema.

1. Customer (**customer_id**, fname, lname, email)
2. Buyer (*buyer_id*, phone)
3. Address (**address_id**, *buyer*, name, locality, city, state)
4. Survey (**survey_id**, name)
5. Question (**question_id**, question, is_objective)
6. Survey_Questions (*survey_id*, *question_id*, is_mandatory)
7. Product (**product_id**, name, seller, manufacturer)
8. Order (**order_id**, *buyer*, *product_id*, target, DOP, DOD)
9. Feedback (*survey_id*, *question_id*, *buyer*, *product*, feedback)

Here, “buyer_id” attribute is a foreign key for the customer_id in “Customer” relation while “buyer” attribute is a foreign key to the “buyer_id” attribute. Primary keys are in bold and foreign keys are in italics.