**E-commerce Requirement**

**Introduction**

E-commerce is the buying and selling of goods and services , or the transmitting of funds or data, over an electronic network, primarily the internet.These business transaction occur either as business-to-business(B2B),business-to-consumer(B2C),consumer-to-consumer or consumer to business.

In 2020, retail e-commerce sales worldwide amounted to 4.28 trillion US dollars and e-retail revenues are projected to grow to 5.4 trillion US dollars in 2022. - source(statista).

**Requirement for data models**

Firstly, we will get to know the business model of the e-commerce company by meeting with the business stockholders , managers ,and CEOs.

We will ask them various questions about the business policies and the legal rules and regulations.

We will ask them about their company strategy and what are the features they want to include and also try to suggest to them our best models with the hands- on experience of our senior developers.

As ecommerce is a very trending business , the business model could get complex with the current state of art scenario .

So, being working as a data engineer I will only be focused on designing the database of ecommerce.So to enforce this database design , firstly I will design the conceptual model of it, which includes the listing of the possible entities of our model.

Then we will work with a logical model , which includes further breaking down the entities into its attributes and showing the relationship between the entities.

Below is the list of entities which we will include in the model.

Possible Entities of our model

1. Product
2. Customer
3. Shipping address
4. Payment
5. cart
6. Order
7. OrderDetails
8. Reviews

Finding out the attributes and their relationship of the above entities.

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| --- | --- | --- |
| **Entity** | **Attributes** | **Relationship** |
| Product | Id,name,category,price,brand\_id,stock | categoty\_id,brand\_id |
| Category | name , description,id |  |
| Brand | product\_id,name,description,id |  |
| Customer | id,name,phone\_number,email,address\_id | address\_id |
| address | country,state,city,stree,landmark,id |  |
| Shipping Address | id,country,state,city,street,house\_number,landmark,customer\_id | customer\_id |
| Payment\_method | cash\_on\_delivery,esewa,id | order\_id |
| Cart | product\_id,product\_quantity,cart\_id,customer\_id,date\_of\_addition | product\_id,customer\_id |
| Order | id,customer\_id,order\_date,shipping\_address,total\_amount | customer\_id,shipping\_id |
| Order\_details | Id,product\_id,quantity,order\_id | order\_id |
| Reviews | review\_id,product\_id,customer\_id,review | product\_id,customer\_id |

*Fig: Table listing the entities , attributes and their relationship keys*

**Business rules**

* Product should have its name , category , stock,price and brand.
* Products can only be associated with a single category and brand.While a category and brand can have multiple products .
* Payment can only be done either by ESEWA or the option cash on delivery can be selected.
* Customer should have its id, name, phone number , email address , and his/her possible address and its shipping address.The shipping address can also be provided during the checkout process.
* The customers can have only a single address while they can have multiple shipping addresses.
* Items and their quantity can be added to the cart if the product is in stock.
* Cart can be proceeded to checkouts.
* Customers can add reviews to the product.
* Product can have multiple order\_details.order\_details can have only one Product.
* Order can have multiple order\_details.And order\_details can have only one order.
* Product can have no or multiple reviews by the customers.