DATABASE LAB PROJECT

E-Commerce store

* Tables which are required along with attribute

1. site\_user – user accounts
2. id,
3. email\_address
4. password,
5. phone\_number
6. product – product info
7. id,
8. name,
9. description,
10. category\_id
11. product\_item – specific items/SKUs of a product
12. id,
13. product\_id,
14. SKU,
15. qty\_in\_stock,
16. price
17. product\_category – product grouping
18. id,
19. category\_name
20. shopping\_cart – user’s cart
21. id,
22. user\_id
23. shopping\_cart\_item – items in the cart
24. id,
25. cart\_id,
26. product\_item\_,
27. Qty
28. shop\_order – the order placed
29. id,
30. user\_id
31. order\_date
32. order\_total
33. shipping\_address
34. shipping\_method,
35. order\_status
36. order\_line – each product in the order
37. id,
38. order\_id,
39. product\_item\_id
40. Qty
41. price
42. shipping\_method – delivery method
43. id,
44. name,
45. price
46. order\_status – to track order state
47. id,
48. status

* **Relationships Between Entities**
* site\_user 1 --- N shopping\_cart
* shopping\_cart 1 --- N shopping\_cart\_item
* product\_category 1 --- N product
* product 1 --- N product\_item
* product\_item 1 --- N shopping\_cart\_item
* site\_user 1 --- N shop\_order
* shop\_order 1 --- N order\_line
* product\_item 1 --- N order\_line
* shipping\_method 1 --- N shop\_order
* order\_status 1 --- N shop\_order

Normalization of E-commerce

As the attribute for entities are not manageable in table format so,I am using name of entities in replace of that.

* We normalize the table in order to remove the dependencies and anomalies.
* Insertion anomaly
* Deletion anomaly
* Updation anomaly

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Site\_user | product | Product\_item | Prod\_catetgory | User’s cart | Items  cart | Shop  order | Order line |  |  |
|  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Shopping method | Order status |  |  |
|  |  |  |  |

1. 1NF normalization

The table is said to be in 1NF if it does not contain repeated values.

There must be unique record.the table is in 1NF an it does not contain repeated values.

1. 2NF normalization.

for 2NF form the table must me in 1NF also for 2NF form remove the partial dependencies.

* Let suppose site user and product as the composite key , but there exist a partial dependencies as some of the attribute does not depend on the composite keys . the attribute are mentioned above.
* So I order to make the table in 2NF removed the partial dependecies and break table into different table.
* Breaking tables into user and product etc.

1. 3NF normalization

For 3NF the tabvles must be in 2NF form.

* In 3NF form we remove trasitive dependenices (non key attribute depend on other non key attribute).
* So after removing all kind of dependencies we have the following tables.

|  |  |
| --- | --- |
| Site\_user |  |
| Id | Name etc |

|  |  |
| --- | --- |
| product |  |
| id | Name etc |

|  |  |
| --- | --- |
| Product\_items |  |
| id | Prices,qty etc |

|  |  |
| --- | --- |
| Product\_category |  |
| id | Category\_name |

|  |  |
| --- | --- |
| Shopping\_cart | User’s |
| id | User\_id etc |

|  |  |
| --- | --- |
| Shopping cart items |  |
| id | Cart\_id ,qty etc |

|  |  |
| --- | --- |
| Shop orders |  |
| Id,user\_id etc | Order\_status,qty etc |

|  |  |
| --- | --- |
| Order line |  |
| id | Order id,qty etc |

|  |  |
| --- | --- |
| Shipping method |  |
| id | Prices,name etc |

|  |  |
| --- | --- |
| Order\_status |  |
| id | status etc |

* All attribute of respective tables are mentioned already.

Entity Relation Diagram

site\_user

---------

id (PK)

email\_address

password

phone\_number

|

| 1

|

| N

shopping\_cart

-------------

id (PK)

user\_id (FK)

|

| 1

|

| N

shopping\_cart\_item

------------------

id (PK)

cart\_id (FK)

product\_item\_id (FK)

qty

product\_category

----------------

id (PK)

category\_name

|

| 1

|

| N

product

-------

id (PK)

name

description

category\_id (FK)

|

| 1

|

| N

product\_item

------------

id (PK)

product\_id (FK)

SKU

qty\_in\_stock

price

shop\_order

----------

id (PK)

user\_id (FK)

order\_date

shipping\_address

shipping\_method\_id (FK)

order\_status\_id (FK)

|

| 1

|

| N

order\_line

----------

id (PK)

order\_id (FK)

product\_item\_id (FK)

qty

price

shipping\_method

---------------

id (PK)

name

price

order\_status

------------

id (PK)

Status

