

## Data & Applications

# Project Phase 3 : Relational Model and Normal Forms

### Team 25

Amol Vijayachandran - 2023101093

Ananth Rajesh - 2023101030

Atharv Sanjaykumar Bhatt - 2023101089

Siddharth Mago - 2023101088

### Explanations:

#### **Changes made from ERD > Relational Model:**

- \* Composite attributes as represented using there Umbrella term (eg: street etc are clubbed under address).
- \* 1-1 and 1-N relationships are indicated by including the 1 sided relation's primary key in the other sided relation and the relationship is indicated using an arrow in the RM.
- \* Subclasses, Multivalued attributes, M-N relationships and Weak entities are represented via another relation which has the the primary key of its owner relation as its Primary/Foreign key.

#### **Changes made from Relational Model > Normal Forms:**

- \* The Relational Model was made in accordance with the formal definition and is therefore inclusive of the First Normal Form.
- \* The Second Normal Form is formed after 1 change to the Relational Model — Review date and comments given only depend on the review id and the review id is dependent on the product id and customer id. The reason this is not included in the conversion to 3NF is because the X attribute in  $X > Y$ , i.e review\_id is a prime attribute.
- \* The Third Normal Form is included in the Second Normal Form as there are no Transitive Dependencies.

Below are the images for the relational model / 1NF and 2NF / 3NF.

## Relational Model / 1NF

## Order

order_id	transaction_id	status	rating	order_date	ordered_by
----------	----------------	--------	--------	------------	------------

## Customer

customer_id	email	name	join_date	address
-------------	-------	------	-----------	---------

**Seller**

seller_id	name	rating	join_date	address	Referred by
-----------	------	--------	-----------	---------	-------------

### Premium Seller

seller_id	commission_rate	premium_since	Tier
-----------	-----------------	---------------	------

## Promotion

<u>promotion_id</u>	type	discount_amount	start_date	end_date	provided_by
---------------------	------	-----------------	------------	----------	-------------

**Product**

product_id	SKU	name	price	stock	sold_by
------------	-----	------	-------	-------	---------

## Category

<u>category_id</u>	name
--------------------	------

## Order\_item

<u>order_id</u>	<u>transaction_id</u>	<u>item_number</u>	unit_price	quantity
-----------------	-----------------------	--------------------	------------	----------

## Product\_Review

<u>customer_id</u>	<u>product_id</u>	<u>review_id</u>	review_date	comment
--------------------	-------------------	------------------	-------------	---------

## Discount\_Code

<u>promotion_id</u>	<u>code</u>	value	type	expiry
---------------------	-------------	-------	------	--------

## Belongs\_To

category_id	product_id
-------------	------------

## Product\_Images

product_id	images
------------	--------

# 2NF / 3NF

Order

order_id	transaction_id	status	rating	order_date	ordered_by
----------	----------------	--------	--------	------------	------------

Customer

customer_id	email	name	join_date	address
-------------	-------	------	-----------	---------

Seller

seller_id	name	rating	join_date	address	Referred by
-----------	------	--------	-----------	---------	-------------

Premium Seller

seller_id	commission_rate	premium_since	Tier
-----------	-----------------	---------------	------

Promotion

promotion_id	type	discount_amount	start_date	end_date	provided_by
--------------	------	-----------------	------------	----------	-------------

Product

product_id	SKU	name	price	stock	sold_by
------------	-----	------	-------	-------	---------

Category

category_id	name
-------------	------

Order\_item

order_id	transaction_id	item_number	unit_price	quantity
----------	----------------	-------------	------------	----------

Product\_Review

review_id	review_date	comment
-----------	-------------	---------

customer_id	product_id	review_id
-------------	------------	-----------

Discount\_Code

promotion_id	code	value	type	expiry
--------------	------	-------	------	--------

Belongs\_To

category_id	product_id
-------------	------------

Product\_Images

product_id	images
------------	--------

