



PIZZA COMPANY



The Pizza Company: Business Process & Database Design



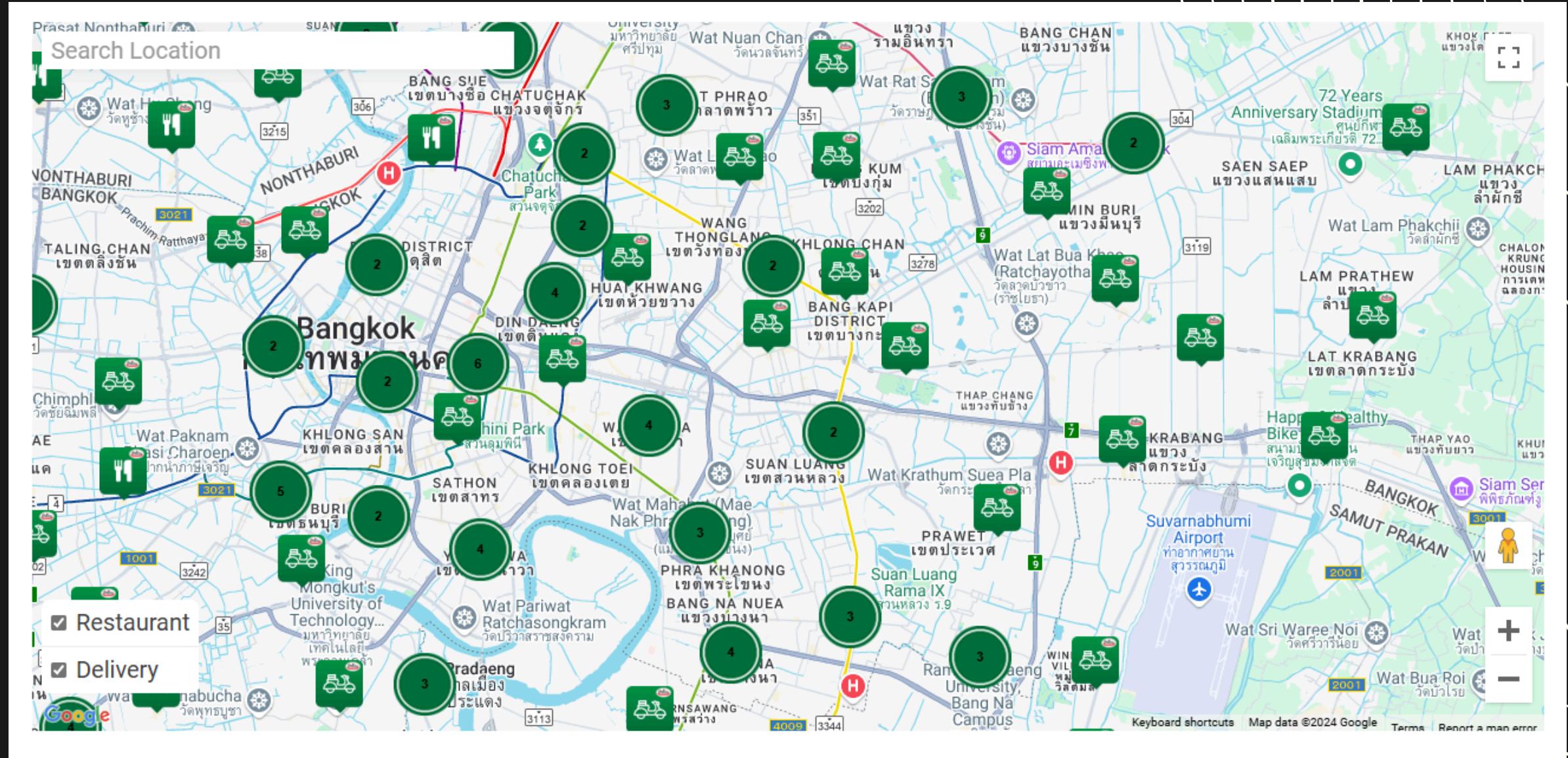
Introduction

- The Pizza Company is a top fast-food chain, known for unique pizzas and quick service.
- This presentation covers six key business processes and how the database supports them.



1 - Branch Management

- Over 400 branches handle food preparation, delivery, and staff management.
 - Franchises and company-owned branches ensure fast growth and quality control.



2 - User Registration and Membership

- Customers create accounts to place orders and earn points.
- Membership tiers—Green, Silver, and Gold—offer increasing rewards, such as discounts and free items.

< Back Don't have an account ? [Sign up](#)

Welcome!
To continue, please sign in.

Email *

Password *

[Forgot Password?](#)

[Sign in](#)

OR

[Sign in with facebook](#)



Green Card

Your current tier



Silver Card

[Unlock at 50 points](#)

You haven't unlocked this tier yet.



Gold Card

[Unlock at 300 points](#)

You haven't unlocked this tier yet.

3 - Ordering Food

- Customers can order multiple items, customize their meals, and adjust quantities.
- Orders are sent to the nearest branch for preparation.

ORDER REVIEW			
Extreme Cheese Medium		x 1	฿419
Double Cheese (฿419)			
<hr/>			
Pan Large		x 1	Free
Double Cheese (฿399)			
<hr/>			

4 - Payments

- Payments are made via credit cards or other secure methods.
- The system ensures payment is processed before confirming orders.

Payment Method

Cash

Select Payment Method

Cash

Credit Card   

TrueMoney Wallet 

Mobile Banking    

Confirm

5 - Promotions and Discounts

- Customers earn points with purchases, which can be redeemed for rewards.
- Coupons and special offers provide additional savings.

Discounts



Promo Code

[FILL IN PROMO CODE HERE](#)

...

Order Summary

6 - Delivery

- Delivery options include 'Now' (within 30 minutes) and 'Later' (scheduled).
- Pick-up from branches is also available, free of charge.

Delivery Types

30 Minutes Delivery Pick Up 100.- Off

Pick Up Store

Select Store

DELIVERY ADDRESS

 12251 Khlong Nueng Khlong Luang Pathum Thani 12120

Phone: 0879715009



Later

2024-09-28 16:30:00

Delivery Types

30 Minutes Delivery Pick Up 100.- Off

Address

+ Select Delivery Address

Delivery Options

Delivery Now Schedule Delivery

Today

28 Fri Sat Sun Mon Tue Wed

Please select delivery time

13:30	14:00	14:30	15:00	15:30	16:00
16:30	17:00	17:30	18:00	18:30	19:00
19:30	20:00	20:30	21:00		

Confirm



SELECTED BUSSINESS PROCESSES INFORMATION

Ordering food

CHATDANAI WONGSUWAN 6522781747

ORDERING FOOD

Rules

- 1.FORWARD:** A USER CAN PLACE MANY ORDERS.
BACKWARD: AN ORDER CAN BE PLACED BY ONLY ONE USER.
CONCLUSION: A USER CAN PLACE MANY ORDERS.

- 2.FORWARD:** AN ORDER CONSISTS OF MANY ORDER ITEMS.
BACKWARD: AN ORDER ITEM BELONGS TO AN ORDER.
CONCLUSION: AN ORDER HAS MANY ORDER ITEMS.

(1:M)

(1:1)

(1:M)

(1:M)

(1:1)

(1:M)

ORDERING FOOD

Rules

3.FORWARD: AN ORDER ITEM REFERENCES A PRODUCT.

BACKWARD: A PRODUCT CAN BE REFERENCED BY MANY ORDER ITEMS.

CONCLUSION: A PRODUCT CAN BE REFERENCED BY MANY ORDER ITEMS.

(1:1)

(1:M)

(1:M)

4.FORWARD: A BRANCH CAN PROCESS MANY ORDERS.

BACKWARD: AN ORDER IS PROCESSED BY A BRANCH.

CONCLUSION: A BRANCH CAN PROCESS MANY ORDERS.

(1:M)

(1:1)

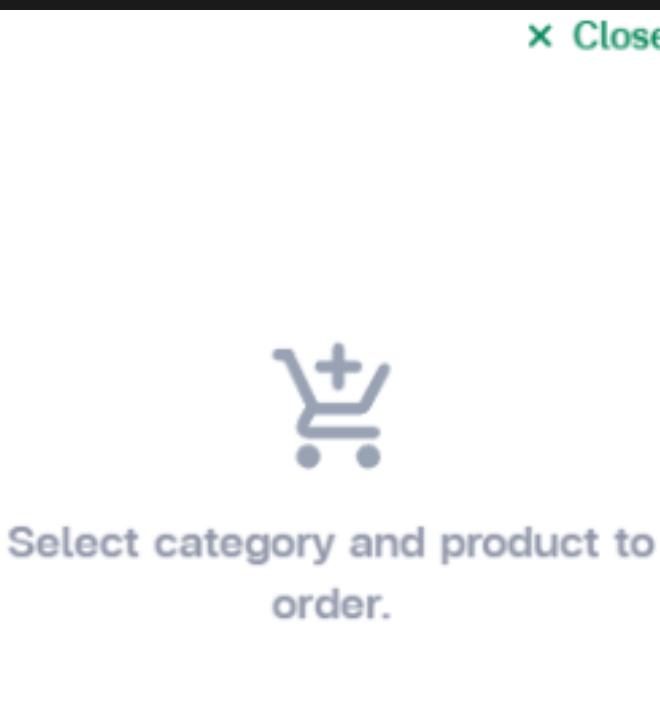
(1:M)

ORDER REVIEW			
Extreme Cheeese Medium Double Cheese	(฿419)	x 1	฿419
Pan Large Double Cheese	(฿399)	x 1	Free

ORDERING FOOD

Constraints

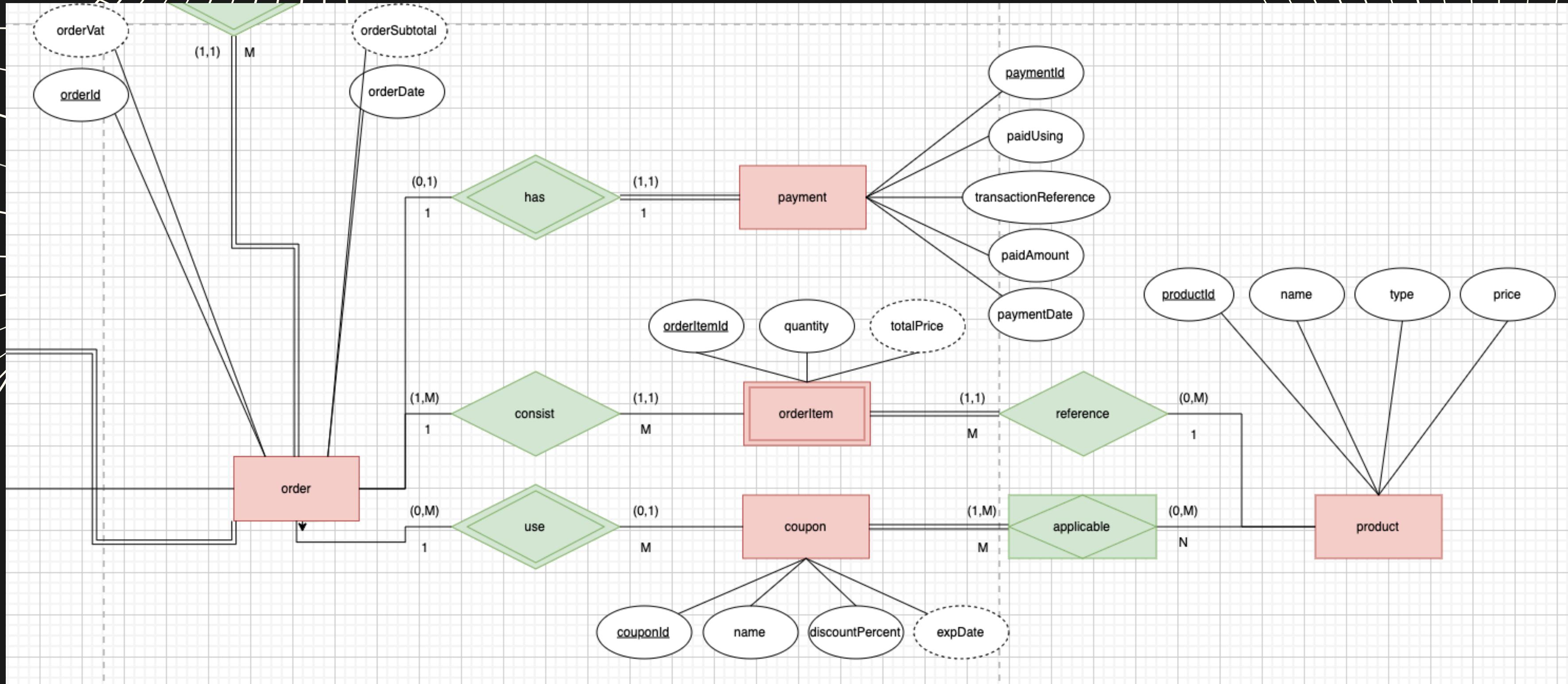
- 1. ORDER MUST HAVE AT LEAST ONE ORDER ITEM.**
- 2. AN ORDER ITEM MUST REFERENCE ONE AND ONLY ONE PRODUCT.**

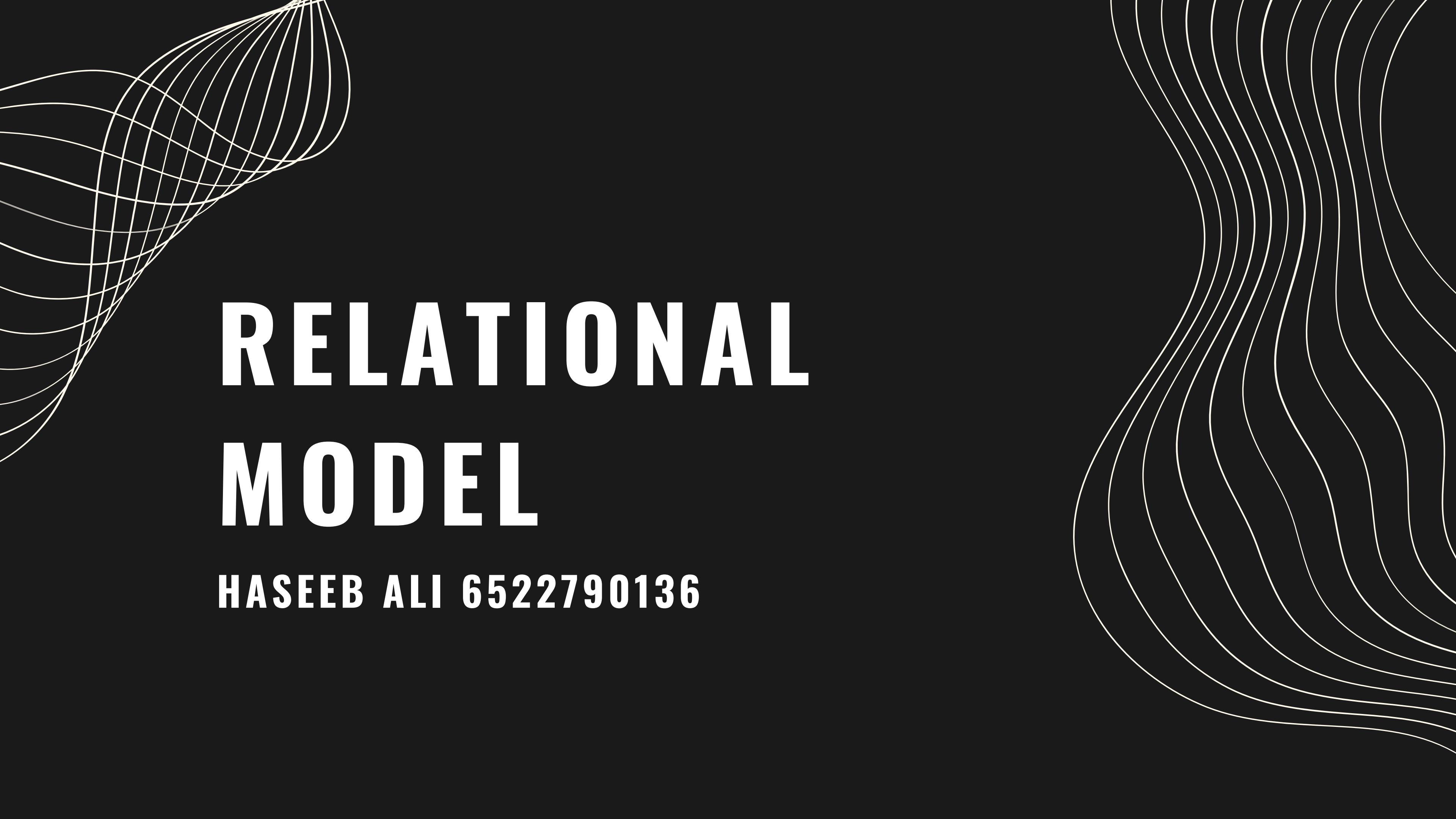




ERD

Napat Decha 6522770880

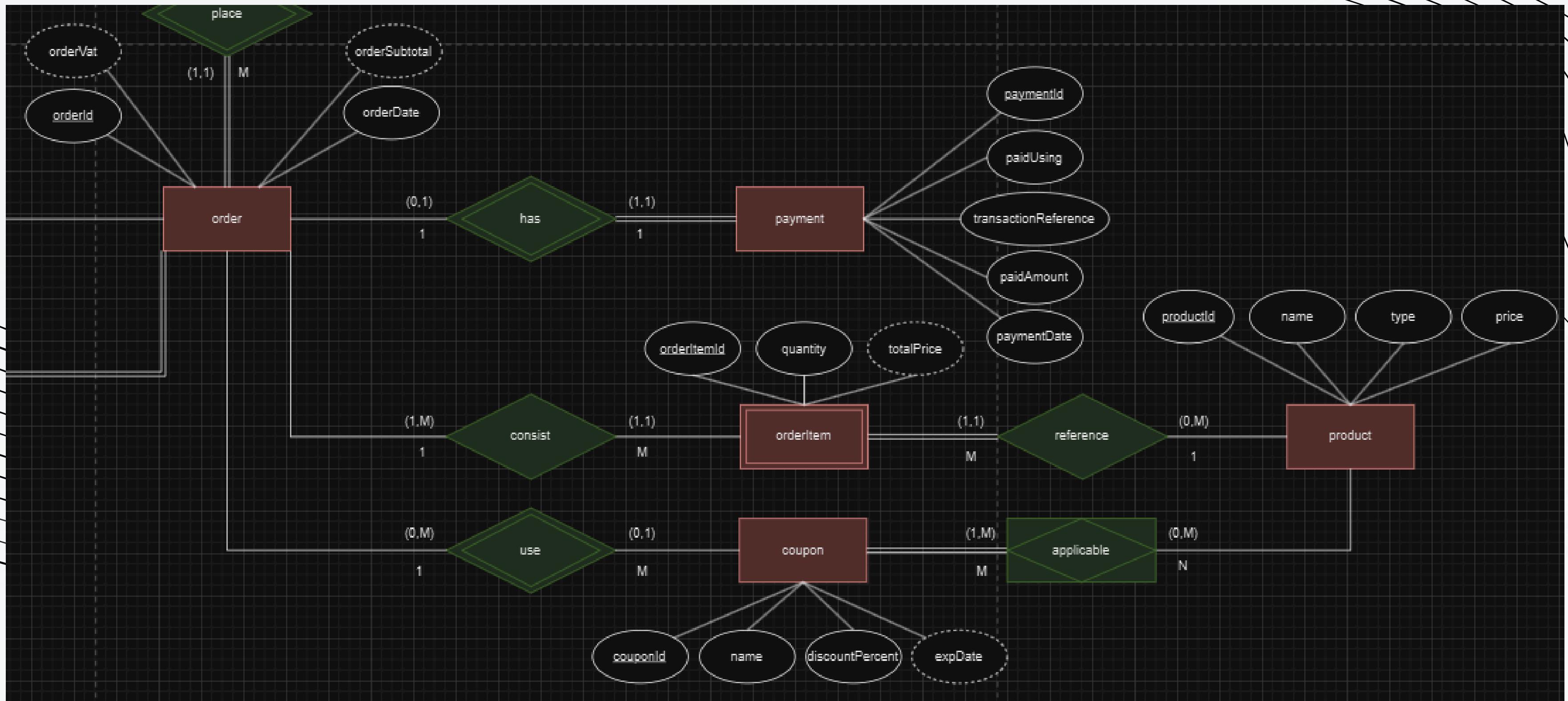




RELATIONAL MODEL

HASEEB ALI 6522790136

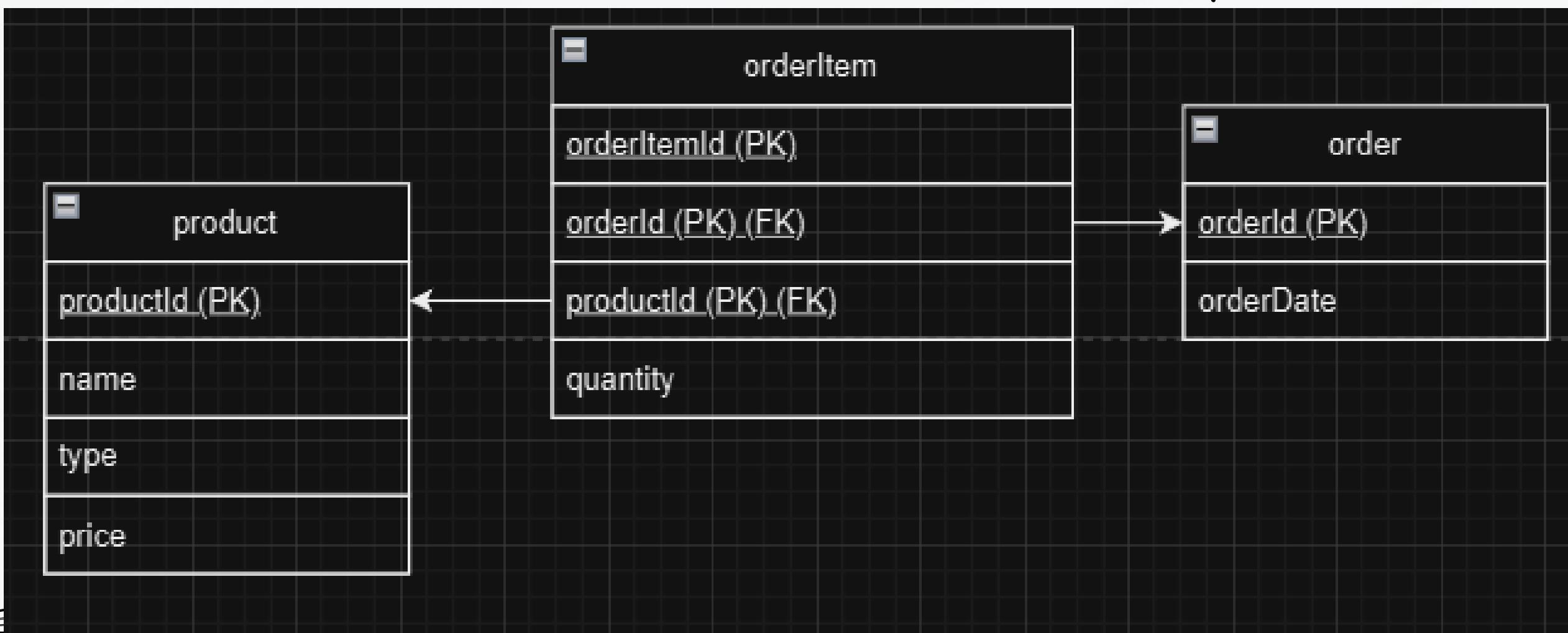
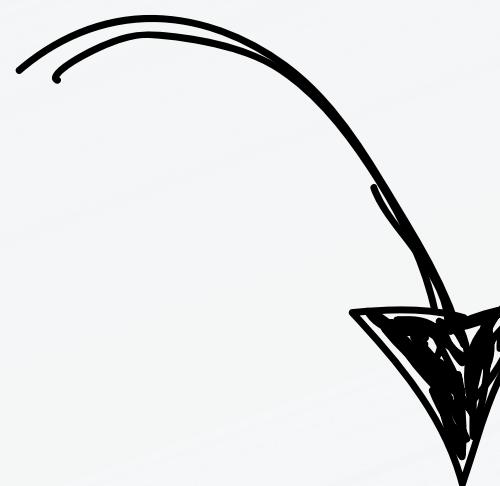
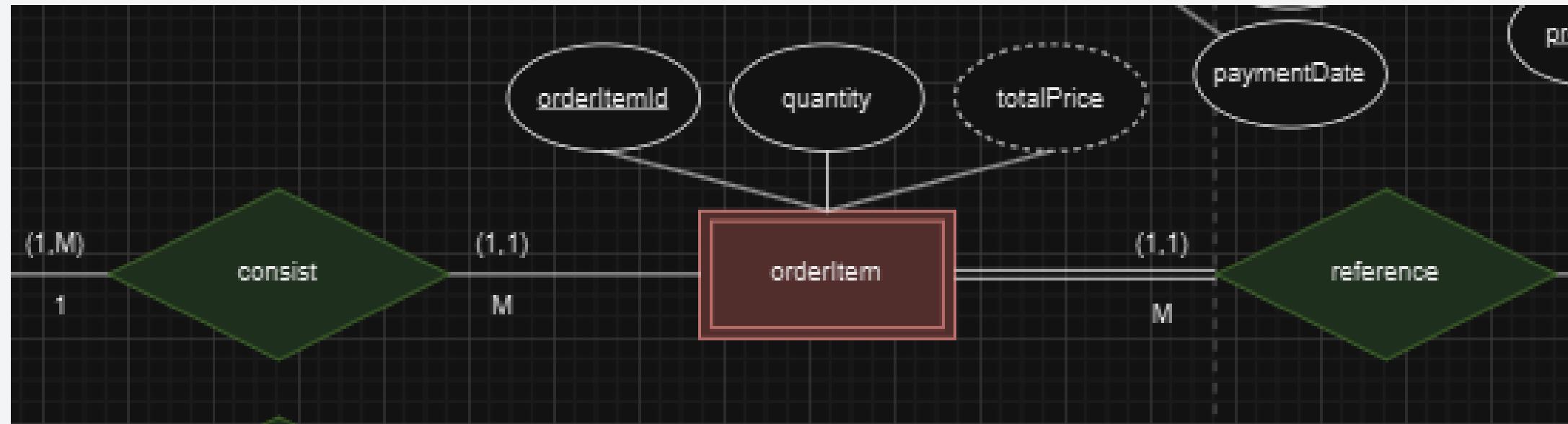
EERD DIAGRAM



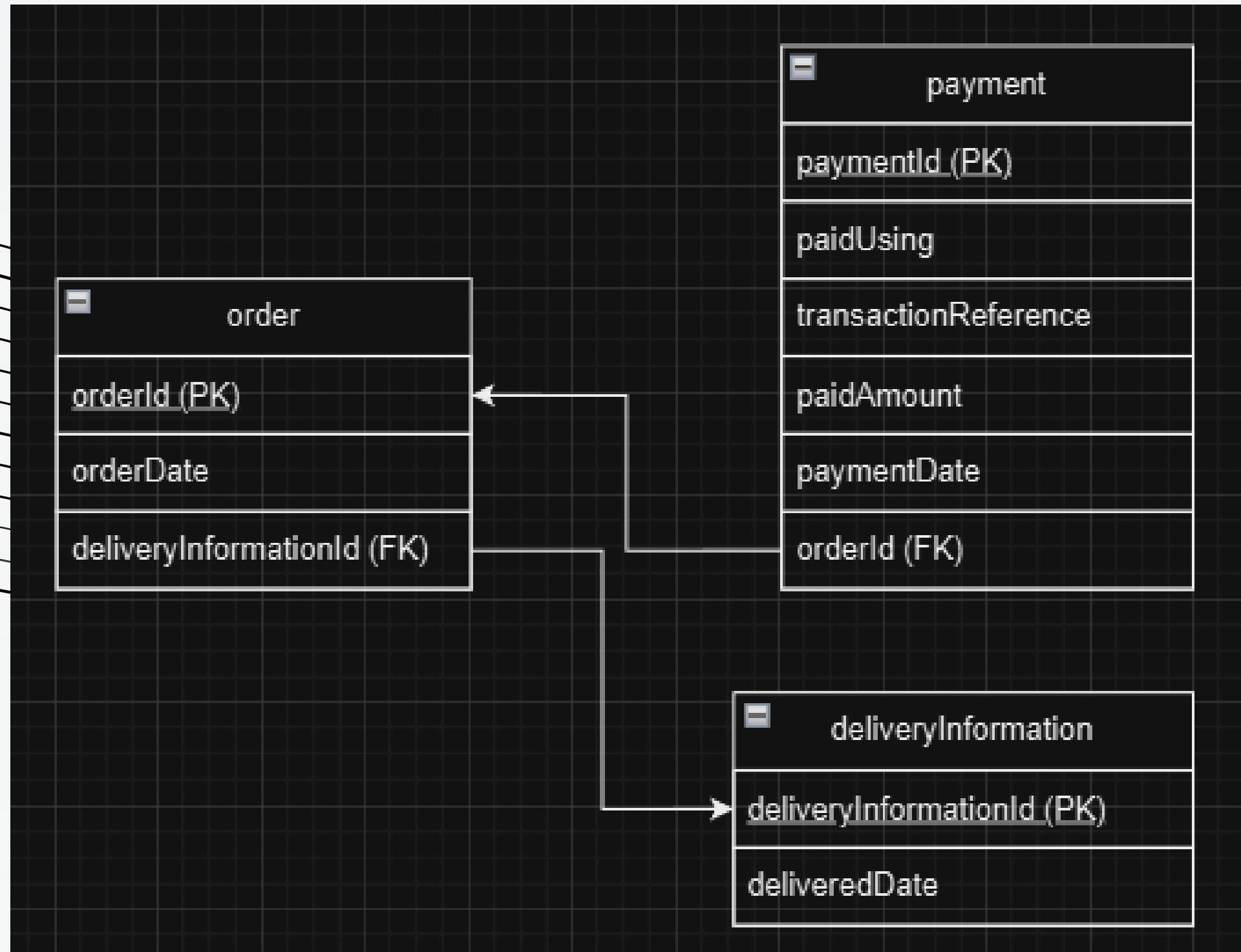
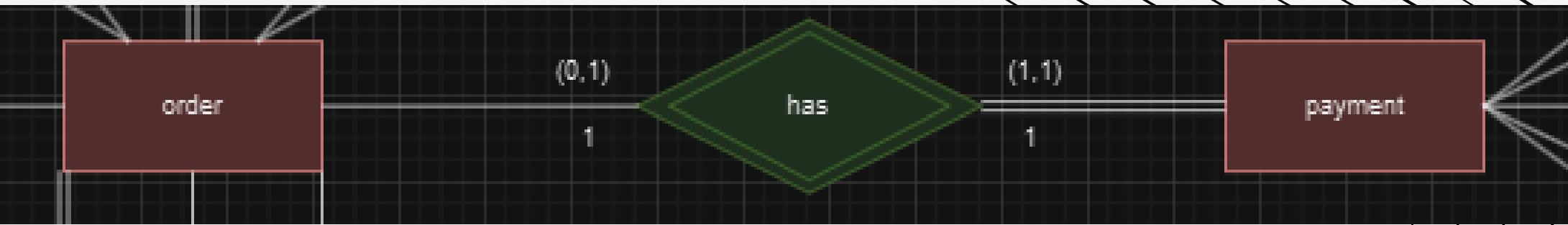
STEP 1: TRANSFORM REGULAR ENTITIES INCLUDING SIMPLE AND COMPOSITE ATTRIBUTES

product	coupon	order
productId (PK)	couponId (PK)	orderId (PK)
name	name	orderDate
type	discountPercent	
price		
user	branch	payment
userId (PK)	branchId (PK)	paymentId (PK)
firstName	name	paidUsing
lastName	phoneNumber	transactionReference
gender	houseNumber	paidAmount
dateOfBirth	subDistrict	paymentDate
phoneNumber	district	
email	province	
passwordHash	openingTime	
taxId	closingTime	
company		
taxInformationAddress		
postalCode		

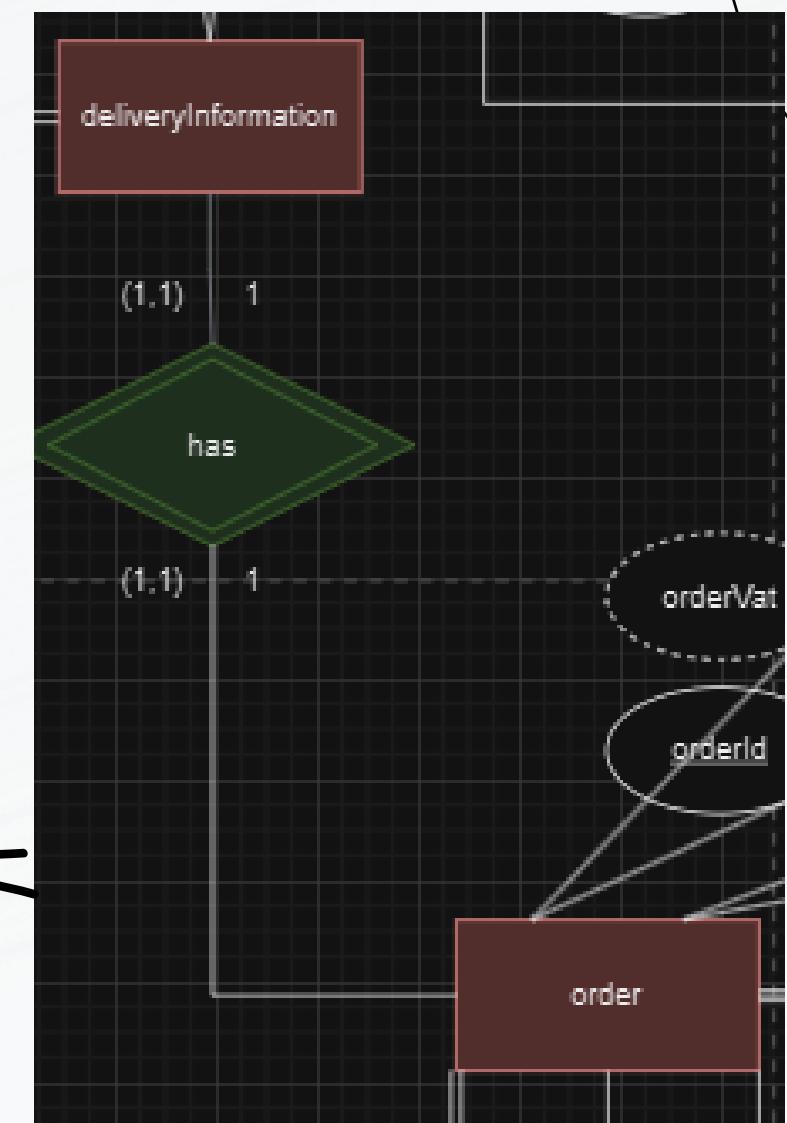
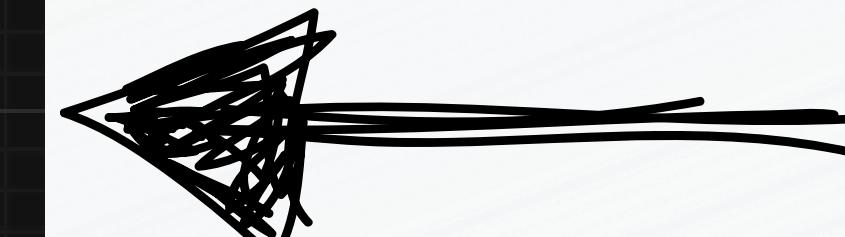
STEP 2: TRANSFORM WEAK ENTITIES



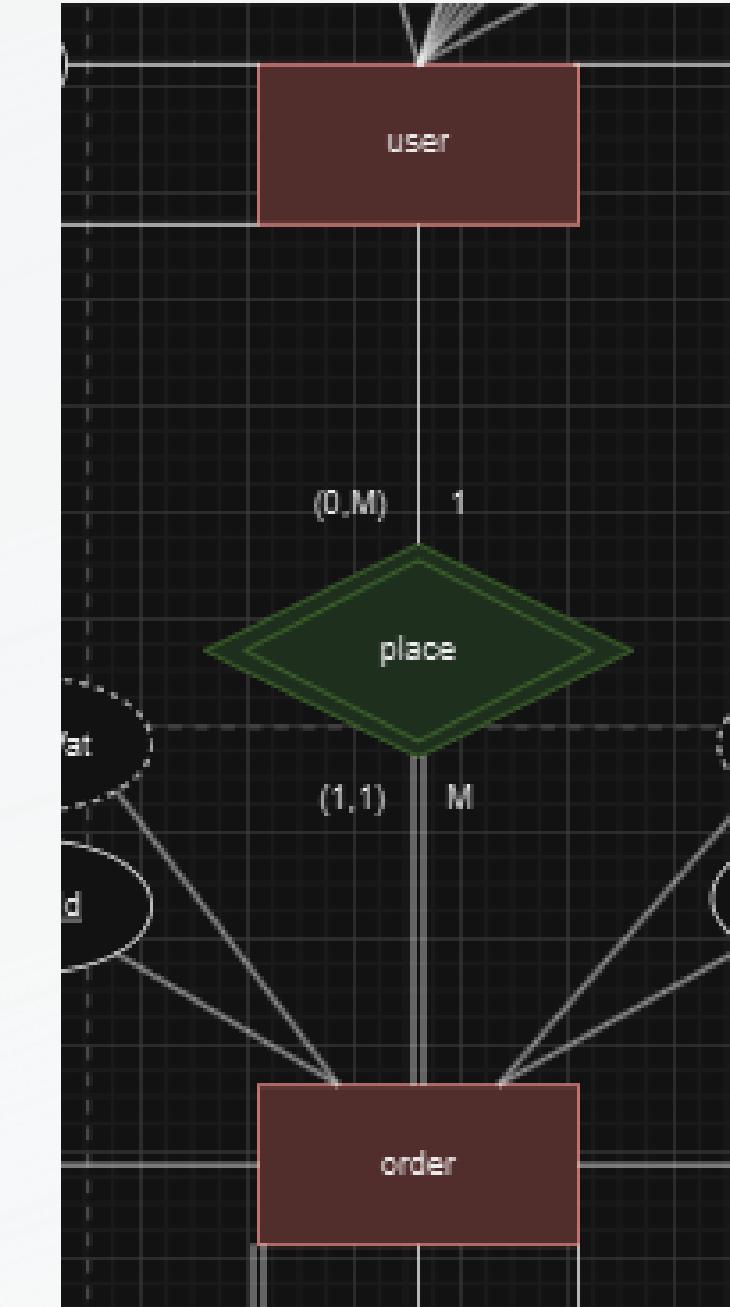
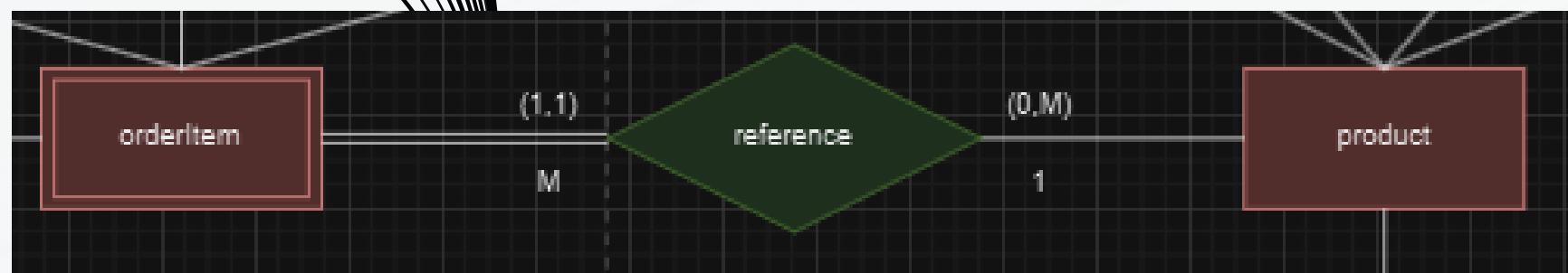
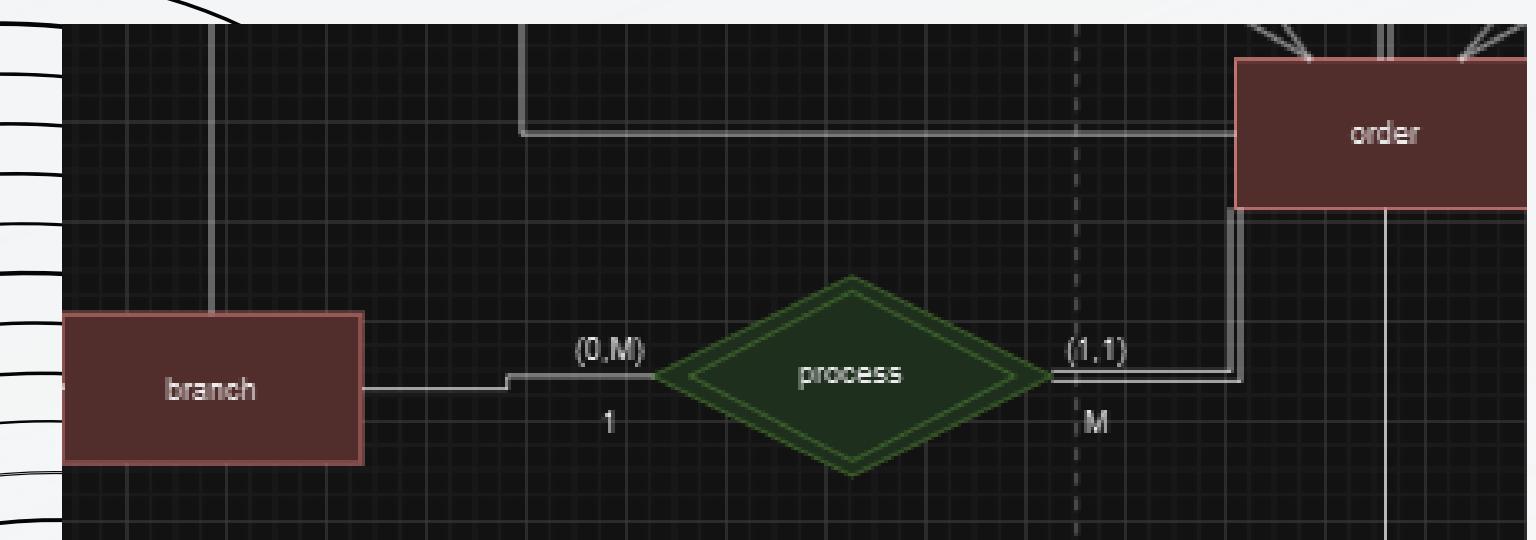
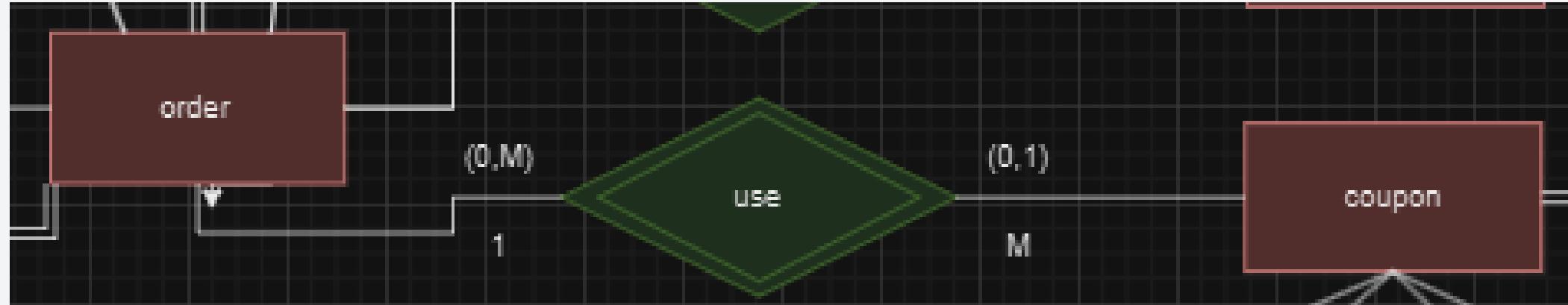
STEP 3: TRANSFORM BINARY 1:1 RELATIONSHIP



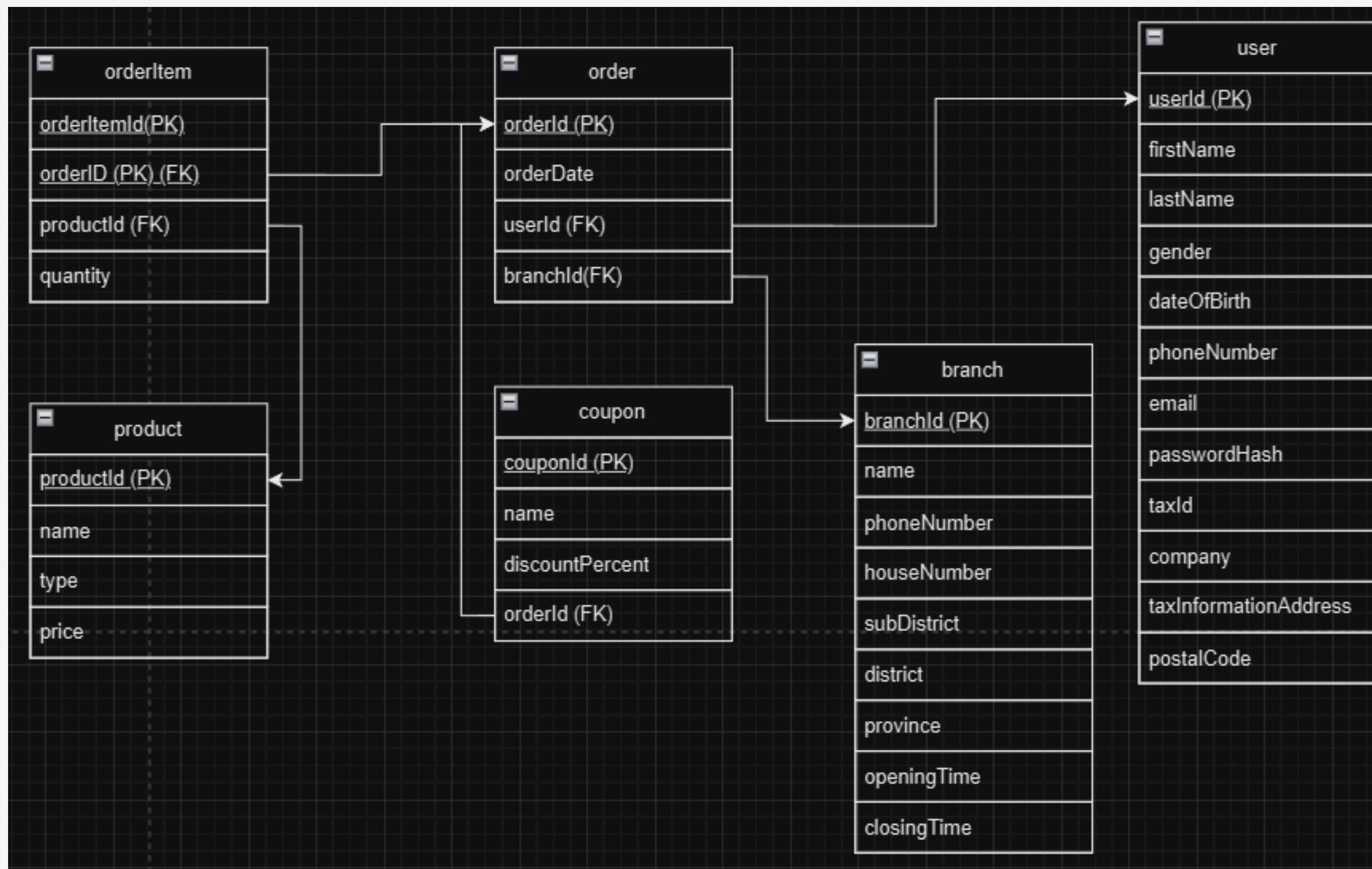
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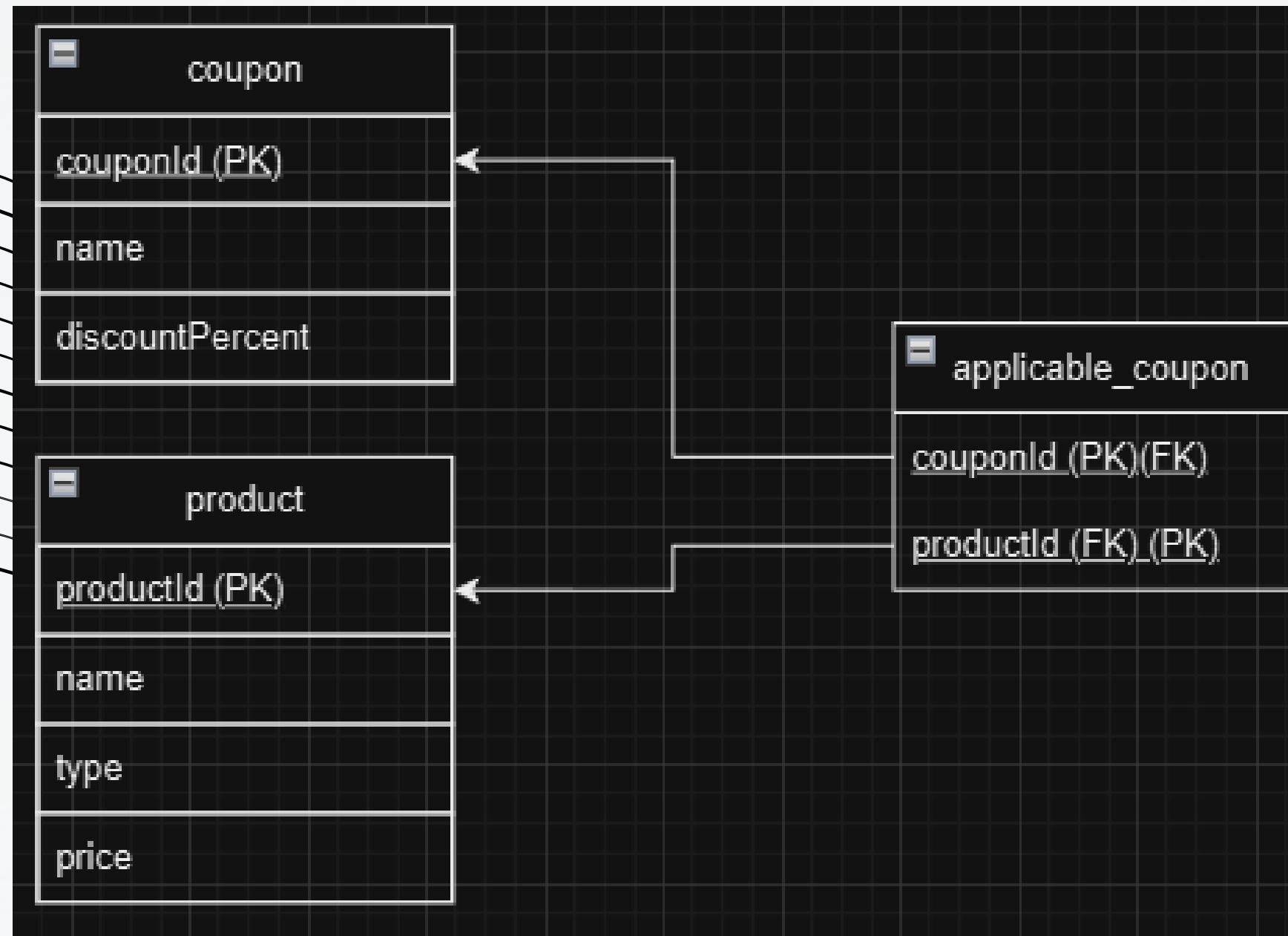
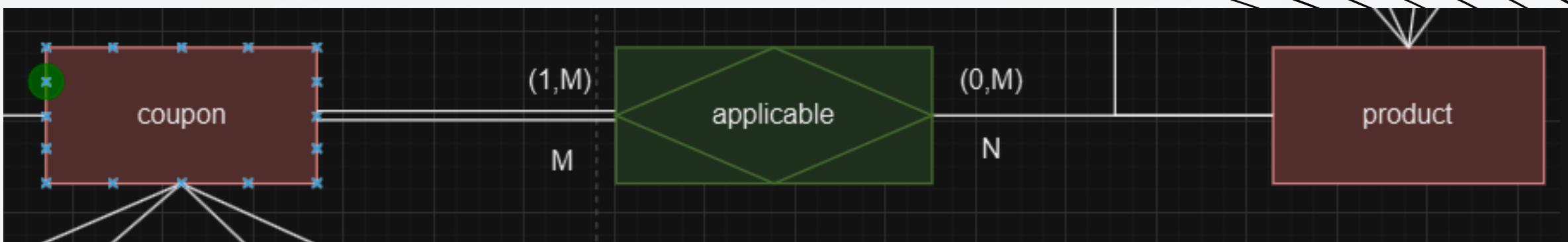
STEP 4: TRANSFORM BINARY 1:M RELATIONSHIP



STEP 4: TRANSFORM BINARY 1:M RELATIONSHIP



STEP 5: TRANSFORM BINARY M:N RELATIONSHIP



2

STEP 6: TRANSFORM MULTIVALUED ATTRIBUTES

**NOT APPLICABLE
FOR THIS PROCESS**

STEP 7: TRANSFORM N-ARY RELATIONSHIPS

**NOT APPLICABLE
FOR OUR DESIGN**

STEP 8(A): TRANSFORM SPECIALIZATION OR GENERALIZATION

**NOT APPLICABLE
FOR THIS PROCESS**



DDL/DML

NATCHAPOL LEBKRUT 6522781622



DDL

DATA DEFINITION LANGUAGE

CREATE PRODUCT TABLE

```
-- Table: product
CREATE TABLE product (
    productId    INT PRIMARY KEY AUTO_INCREMENT,
    name         VARCHAR(50) NOT NULL,
    type         VARCHAR(50) NOT NULL,
    price        DECIMAL(12, 2) NOT NULL
);
```

CREATE USER TABLE

```
-- Table: user
CREATE TABLE `user` (
    userId           INT PRIMARY KEY AUTO_INCREMENT,
    firstName        VARCHAR(50) NOT NULL,
    lastName         VARCHAR(50) NOT NULL,
    gender           CHAR(1) NOT NULL,
    dateOfBirth      DATE NOT NULL,
    phoneNumber      VARCHAR(20) UNIQUE NOT NULL,
    email            VARCHAR(100) UNIQUE NOT NULL,
    passwordHash     VARCHAR(100) NOT NULL,
    taxId            VARCHAR(10),
    company          VARCHAR(100),
    taxInformationAddress VARCHAR(200),
    postalCode       VARCHAR(10),
    CHECK (gender IN ('M', 'F'))
);
```

CREATE ORDER TABLE

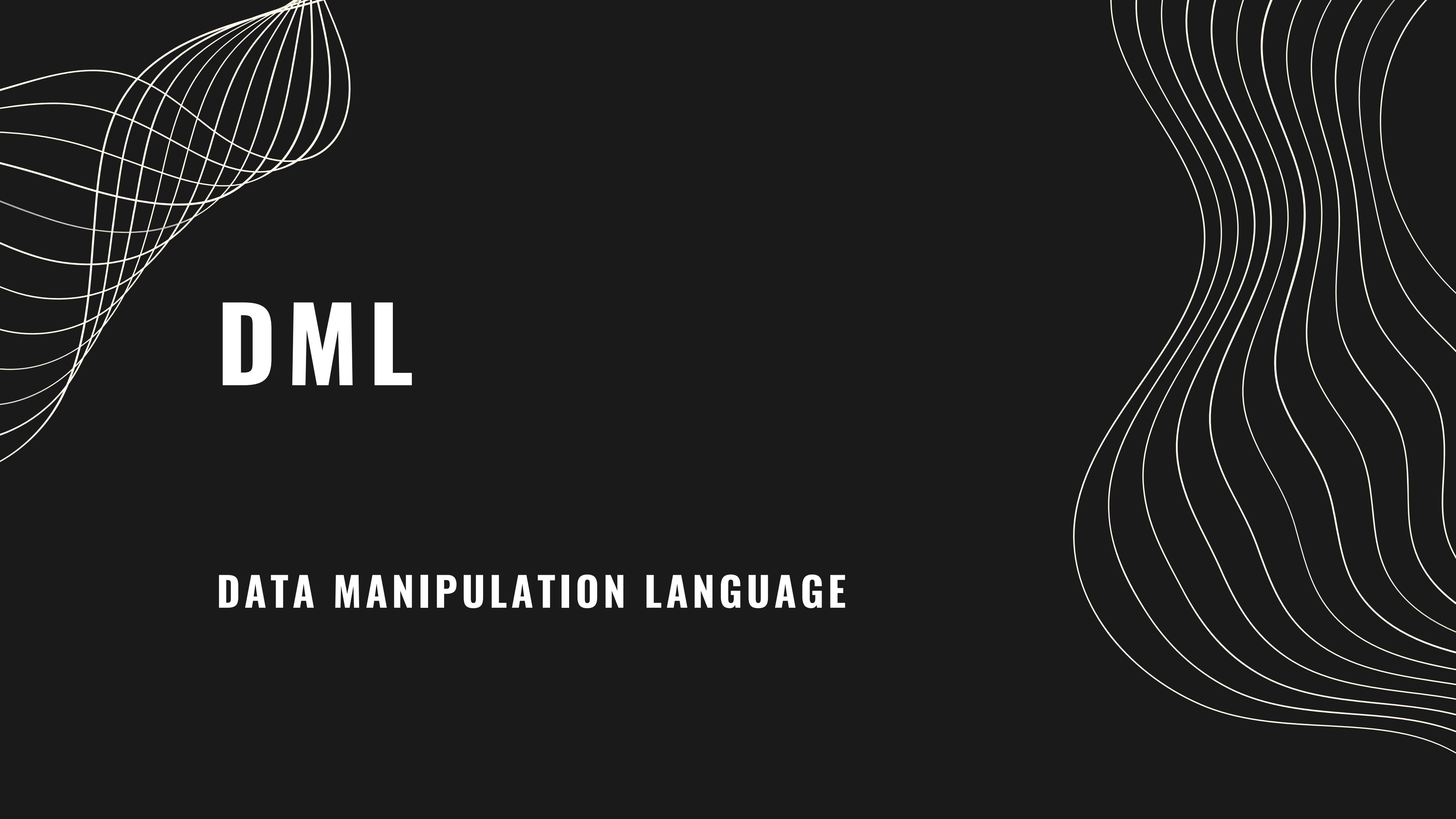
```
-- Table: order (references user, branch, and deliveryInformation tables)
) CREATE TABLE `order` (
    orderId                INT PRIMARY KEY AUTO_INCREMENT,
    orderDate              DATETIME NOT NULL,
    userID                 INT NOT NULL,
    branchID               INT NOT NULL,
    deliveryInformationId  INT UNIQUE NOT NULL,
    FOREIGN KEY (userID) REFERENCES user(userId),
    FOREIGN KEY (branchID) REFERENCES branch(branchId),
    FOREIGN KEY (deliveryInformationId) REFERENCES deliveryInformation(deliveryInformationId)
);
```

CREATE ORDERITEM TABLE

```
-- Table: orderItem (references order and product tables)
CREATE TABLE orderItem (
    orderItemId INT NOT NULL,
    orderId      INT NOT NULL,
    productId    INT NOT NULL,
    quantity     INT NOT NULL,
    PRIMARY KEY (orderItemId, orderId, productId),
    FOREIGN KEY (orderId) REFERENCES `order`(orderId),
    FOREIGN KEY (productId) REFERENCES product(productId)
);
```

CREATE PAYMENT TABLE

```
-- Table: payment (references order and product tables)
CREATE TABLE payment (
    paymentId           INT PRIMARY KEY AUTO_INCREMENT,
    paidUsing            VARCHAR(50) NOT NULL,
    transactionReference VARCHAR(100) NOT NULL,
    paidAmount           DECIMAL(12, 2) NOT NULL,
    paymentDate          DATETIME NOT NULL,
    orderId               INT UNIQUE NOT NULL,
    CHECK (paidUsing IN ('cash', 'credit card')),
    FOREIGN KEY (orderId) REFERENCES `order`(orderId)
);
```



DML

DATA MANIPULATION LANGUAGE

INSERT INTO BRANCH TABLE

```
INSERT INTO branch (name, phoneNumber, houseNumber, subDistrict, district, province, openingTime, closingTime) VALUES
('Pizza Com Lotus Chareonpol Tesco Lotus Rama 1', '026126882', '831', 'Wangmai', 'Pathumwan', 'Bangkok', '09:00:00', '21:00:00'),
('Pizza Com Samyan Mitrtown', '0654541638', '944/1', 'Wangmai', 'Pathumwan', 'Bangkok', '10:00:00', '22:00:00'),
('Pizza Com Meng-Jai', '0614120318', '507-509', 'Sam Sen Nok', 'Huai Khwang', 'Bangkok', '10:00:00', '24:00:00'),
('Pizza Com Ratchabophit', '0655076352', '148', 'Wangburapa', 'PraNaKorn', 'Bangkok', '08:00:00', '24:00:00'),
('Pizza Com Big C Ladprao', '029837398', '669', 'Ladyao', 'Jatujak', 'Bangkok', '10:00:00', '21:00:00'),
('Pizza Com Manor Sanambin-Nam', '0922810673', '102-103', 'Bangkrasor', 'Muang', 'Nonthaburi', '08:00:00', '22:00:00'),
('Pizza Com PTT Sribuathong', '0922810619', '46/21', 'Sono Loy', 'Bang Bua Thong', 'Nonthaburi', '08:00:00', '22:00:00'),
('Pizza Com Thummasart Rangsit', '0922810584', '95', 'Klong 1', 'Klongluang', 'Pathumthani', '09:00:00', '21:50:00'),
('Pizza Com Klongluang', '0922810725', '7/39-40', 'Klongsong', 'Klongluang', 'Pathumthani', '10:00:00', '24:00:00'),
('Pizza Com Rangsit Klong 10', '0922810600', '40/2', 'Buengsanan', 'Thanyaburi', 'Pathumthani', '09:00:00', '22:00:00');
```

INSERT INTO PRODUCT TABLE

```
INSERT INTO product(name,type,price) VALUES
('doble cheese','pizza',419.00),
('doble pepperoni','pizza',419.00),
('crazy cheesy','bite',129.00),
('the bite box setA','set for one',119.00),
('korean style chicken wings','chicken',149.00),
('stir fried macaroni ham and omelet','pasta',129.00),
('french fries','appetizer',69.00),
('caesar salad','salad',99.00),
('pork chop steak with garlic bread','steak',219.00),
('coke','drink',45.00),
('hawaiian delight', 'pizza', 419.00),
('seafood supreme', 'pizza', 459.00),
('mushroom melt', 'pizza', 399.00),
('spicy seafood combo', 'bite', 149.00),
('the bite box set B', 'set for one', 149.00),
('honey bbq chicken wings', 'chicken', 159.00),
('carbonara spaghetti', 'pasta', 149.00),
('crispy chicken strips', 'appetizer', 89.00),
('garden fresh salad', 'salad', 99.00),
('grilled salmon with rice', 'steak', 259.00),
('orange juice', 'drink', 49.00),
('bbq chicken pizza', 'pizza', 429.00),
('bacon explosion', 'pizza', 439.00),
('cheesy bites', 'bite', 139.00),
('the super bite box set A', 'set for one', 169.00),
('spicy korean chicken wings', 'chicken', 169.00),
```

INSERT INTO USER TABLE

```
INSERT INTO user (firstName,lastName,gender,dateOfBirth,phoneNumber,email,passwordHash,taxId,company,taxinformationAddress,postalCode)
VALUES
('Natchapol','Lebkrut','M','2003-06-30','0611111111','natchapol.lebkrut@db.com','$2b$12$CjP2UWnaD3s9QvHg/Mh.Bu1DQAi75.pgeu8jXZmoCQqaVRTie0jta',
'1111111111','SIIT','Khlong Luang District, Pathum Thani.','12120'),
('Vayuphak','Saengthong','M','2003-09-15','0622222222','vayuphak.saengthong@db.com','$2b$12$4QXcxxg/Iis0HD9nxMjsy0fuT9KbErEl5ulDlnfgZh9neGu9IwItq',
'2222222222','Thai Japan Company Ltd.','Bangkok, Thailand','10110'),
('Napat','Decha','M','2002-08-22','0633333333','napat.decha@db.com','$2b$12$9MSuJdQ9zRbdrk5Dp9hKT09Dylw69T1Cx/jErQ6.Siw.y4z3HvMte',
'3333333333','False Corp.','Bangkok, Thailand','10500'),
('Napat','Tatiyakaroonwong','M','2002-11-12','0644444444','napat.tatiya@db.com','$2b$12$.Ln77qph1xM9IQEesFHDVeZl0cvVEDvIfBzmf7HVeR9bGsAlZkpxy',
'4444444444','SIA Corp.','Bangkok, Thailand','10600'),
('Chatdanai','Wongsuwan','M','2001-03-29','0655555555','chatdanai.wongsuwan@db.com','$2b$12$e1pL7KtEAvIzqlyjzL7HUuuMLbcbRdPfQNkGDCq3bIRwdPio3Y',
'5555555555','Thai German Company Ltd.','Khlong Luang District, Pathum Thani.','10400'),
('Haseeb','Ali','M','2003-07-04','0666666666','haseeb.ai@db.com','$2b$12$1wLlV5dcGvcWRcAqlRnVee.LKNW3.S23GkHcxybr10tc0GYvED0bu',
NULL,NULL,NULL,NULL),
('Somsri','Hiran','F','1995-05-10','0677777777','somsak.hiran@db.com','$2b$12$Hpu4WjlxyT2lvTb/ceEjceH9Ui h3jxn5Lkge0HGVEDdVbPCDpqH4e',
NULL,NULL,NULL,NULL),
('Yingrat','Rattana','F','1998-02-18','0688888888','yingrat.rattana@db.com','$2b$12$9jsqZ23PIon45zctd0a5m.JY0a4DnEuV5QvHnFrFgKoIuEqGBzn0a',
NULL,NULL,NULL,NULL),
('Itthirath','Jeamanukul','M','2000-12-07','0699999999','itthirath.jeamanukul@db.com','$2b$12$7G20tsQxDCGYYfrqRdo85.fLLri1LsMW7qbfLl2SGjMb98ZF',
NULL,NULL,NULL,NULL),
('Pikul','Watdao','F','1996-08-25','0612222222','pikul.watdao@db.com','$2b$12$CCuI1IxDFT/E6.2Vf2fxzeXS.jh9zEM0/6UM/jR9w9EUZTytfZoFq',
NULL,NULL,NULL,NULL);
```

INSERT INTO ORDERITEM TABLE

```
INSERT INTO orderItem (orderId, orderItemId, productId, quantity) VALUES  
(1, 1, 5, 3),  
(1, 2, 15, 2),  
(1, 3, 22, 1),  
(2, 1, 9, 4),  
(2, 2, 13, 2),  
(2, 3, 27, 3),  
(3, 1, 7, 1),  
(3, 2, 18, 2),  
(3, 3, 3, 5),  
(4, 1, 12, 4),  
(4, 2, 19, 3),  
(4, 3, 25, 2),  
(5, 1, 30, 1),  
(5, 2, 10, 4),  
(5, 3, 6, 5),  
(6, 1, 16, 2),  
(6, 2, 24, 3),  
(6, 3, 1, 4),  
(7, 1, 11, 2),  
(7, 2, 8, 3),  
(7, 3, 20, 1),  
(8, 1, 28, 5),  
(8, 2, 4, 2),  
(8, 3, 2, 4),
```

DQL

DATA QUERY LANGUAGE



SUMMARIZE ORDER

Used to query an order summary
and map the data onto the receipt
as evidence

```
SELECT
    `orderItem`.orderId,
    `orderItem`.orderItemId,
    `orderItem`.quantity,
    `orderItem`.productId,
    `product`.name AS productName,
    `product`.price,
    `coupon`.couponId,
    `coupon`.name AS couponName,
    COALESCE(`coupon`.discountPercent,0) AS discountPercent,
    `product`.price * `orderItem`.quantity AS originalPrice,
    (
        `product`.price * `orderItem`.quantity *
        (COALESCE(`coupon`.discountPercent,0) / 100)
    ) AS discount,
    (
        `product`.price * `orderItem`.quantity *
        (1 - (COALESCE(`coupon`.discountPercent,0) / 100))
    ) AS discountedPrice
FROM `orderItem`
INNER JOIN `product`
ON `orderItem`.productId = `product`.productId
LEFT JOIN `applicable_coupon`
ON `product`.productId = `applicable_coupon`.productId
LEFT JOIN `coupon`
ON
    `orderItem`.orderId = `coupon`.orderId AND
    `applicable_coupon`.couponId = `coupon`.couponId
WHERE
    -- you can put orderId here
    `orderItem`.orderId = 11 AND
    (
        `coupon`.couponId IS NOT NULL OR
        NOT EXISTS (
            SELECT 1
            FROM `orderItem` oi
            INNER JOIN `product` p
            ON oi.productId = p.productId
            INNER JOIN `applicable_coupon` ac
            ON p.productId = ac.productId
            INNER JOIN `coupon` c
            ON
                oi.orderId = c.orderId AND
                ac.couponId = c.couponId
            WHERE
                oi.orderId = `orderItem`.orderId AND
                oi.orderItemId = `orderItem`.orderItemId
        )
    )
ORDER BY `orderItem`.orderItemId ASC;
```

SUMMARIZE ORDER

Used to query an order summary
and map the data onto the receipt
as evidence

orderId	orderItemId	quantity	productId	productName	price	couponId	couponName	discountPercent	originalPrice	discount	discountedPrice
11	1	3	18	crispy chicken strips	89.00	NULL	NULL	0	267.00	0.000000	267.000000
11	2	2	27	spaghetti bolognese	139.00	11	FlashSale30	30	278.00	83.400000	194.600000
11	3	5	13	mushroom melt	399.00	16	SuperSale50	50	1995.00	997.500000	997.500000

TOP 3 MOST FREQUENTLY ORDERED PIZZA

Get top 3 frequently ordered pizza to see which pizza are the most popular so R&D can analyze them and create new products

SELECT

```
p.name AS productName,  
COUNT(oi.orderId) AS orderCount  
FROM `product` p  
INNER JOIN `orderItem` oi  
ON p.productId = oi.productId  
INNER JOIN `order` o  
ON oi.orderId = o.orderId  
WHERE p.type = 'pizza'  
GROUP BY p.name  
ORDER BY orderCount DESC  
LIMIT 3;
```

productName	orderCount
seafood supreme	4
mushroom melt	3
bbq chicken pizza	3

LIST USER ORDER PAYMENT STATUS

To know if an order is paid or not to ensure company's revenue

```
SELECT
    o.orderID,
    u.firstName,
    u.lastName,
    p.paidAmount,
    (
        CASE
            WHEN p.paymentID IS NOT NULL
            THEN 'Paid' ELSE 'Not Paid'
        END
    ) AS paymentStatus
FROM `order` o
INNER JOIN `user` u
ON o.userID = u.userID
LEFT JOIN `payment` p
ON o.orderID = p.orderID
ORDER BY paidAmount;
```

orderID	firstName	lastName	paidAmount	paymentStatus
3	Napat	Decha	865.30	Paid
27	Somsri	Hiran	932.00	Paid
10	Pikul	Watdao	932.00	Paid
15	Chatdanai	Wongsuwan	950.10	Paid
24	Napat	Tatiyakaroonwong	954.00	Paid
14	Napat	Tatiyakaroonwong	1101.00	Paid
5	Chatdanai	Wongsuwan	1109.05	Paid
1	Natchapol	Lebkrut	1129.30	Paid
13	Napat	Decha	1248.10	Paid
7	Somsri	Hiran	1290.40	Paid
9	Itthirath	Jeamanukul	1302.30	Paid
8	Yingrat	Rattana	1371.00	Paid
16	Haseeb	Ali	1380.00	Paid

TOP 3 SPENDING USERS

We can list the top 3 spending users of the company and reward them for their loyalty to the company

SELECT

```
CONCAT(firstname, " ", lastname) AS Fullname,  
SUM(p.paidAmount) AS total_paid  
FROM `user` u  
LEFT JOIN `order` o  
ON u.userId = o.userID  
LEFT JOIN `payment` p  
ON o.orderId = p.orderId  
GROUP BY u.userId  
ORDER BY total_paid DESC  
LIMIT 3;
```

	Fullname	total_paid
▶	Vayuphak Saengthong	6268.20
	Haseeb Ali	5735.60
	Pikul Watdao	5143.00