COURSE TITLE: DATABASE SYSTEMS
Course code: CSE 211

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Topic name: E-commerce management system

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E-commerce Management System

Description:

We developed an e commerce database management system,Our company name is Sunshine Company is designed to streamline and optimize the entire e-commerce process. In our Database we have 7 Tables - Employees, Customers, Products, Orders, Order items, payment, shipment.In our database the main idea is to create a structure that can efficiently store all information related to consumers, sellers, products and orders. Through this database we can manage browsing products, placing orders, processing payments and tracking product delivery can be done faster and easy. This not only enhances user experience but also improves operational efficiency, reducing errors and speeding up order fulfillment. With this database in place, Sunshine Company can ensure a smooth and fast e-commerce operation for both customers and internal teams. The main objective of this system is Customers can easily browse available products, view details, and make informed purchasing decisions. The system allows customers to place orders seamlessly, track them in real-time, and receive updates. Payments are securely processed through integrated payment gateways, making transactions faster and easier.

Entities:

1.Employees: Stores information about company staff such as their names, roles, and contact details. Managing employee details and tracking who is responsible for certain actions, like handling shipments.

2.Customers: Stores customer details like name, address, and contact information. Identifying who placed the orders and managing customer interactions.

3.Products: Stores details about products, including their name, price, and available stock. Managing the product catalog and inventory.

4.Orders: Tracks customer orders, including the order ID, customer, and order status (e.g., pending, completed). Keeping track of customer orders and linking them to customers.

5.Order Items: Keeps a record of individual products within an order, including quantity and price. Breaking down the contents of an order to understand which products were ordered in what quantities.

6.Payments: Records payment details such as payment method, amount, and payment status. Tracking payments and confirming which orders have been paid for.

7.Shipments: Tracks product deliveries, including shipping method, tracking number, and delivery status. Tracking the delivery process and linking shipments to orders and employees handling the shipment.

Attributes:

- **Employees_Table:** emp_ID, first_name, last_name, email , phone , address, salary.
- **Customers_Table:** emp_ID, first_name, last_name, email, phone , address ,salary .
- **Products_Table:** pro_ID, name, description, price, stock_quantity . • **Orders_Table:** order_ID, customer_ID, order_date, total_amount .
- **Orders_Items_Table:** orderItems_ID, order_ID,pro_ID, quantity, price .
- **Payments_Table:** pay_ID, order_ID, pay_date, amount, pay_method .
- **Shipmenta_Table:** ship_ID, order_ID, emp_ID, customer_ID, ship_date, tracking_num, status .

Relationships:

○ **EMPLOYEES with SHIPMENTS:** (One-to-Many) ○

CUSTOMERS with ORDERS: (One-to-Many) ○

ORDERS with ORDER_ITEMS: (One-to-Many) ○

ORDER_ITEMS with PRODUCTS: (Many-to-One) ○

ORDERS with PRODUCTS: (Many-to-Many) ○

ORDERS with PAYMENTS: (One-to-Many) ○

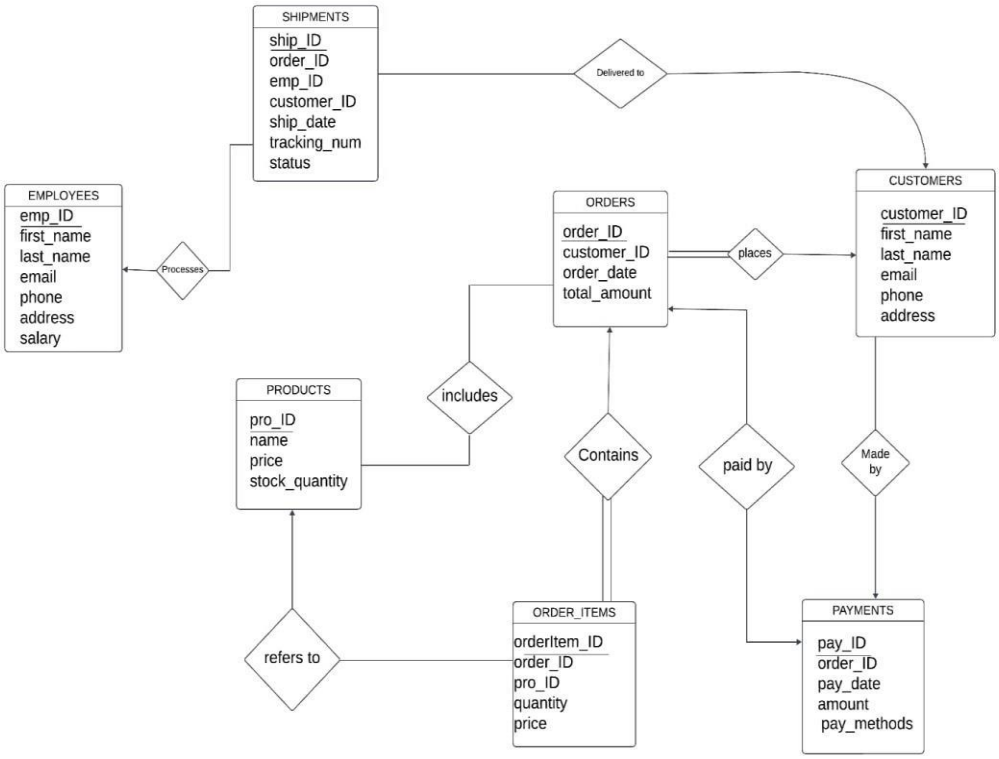
SHIPMENTS with EMPLOYEES: (Many-to-One) ○

SHIPMENTS with CUSTOMERS: (Many-to-One)

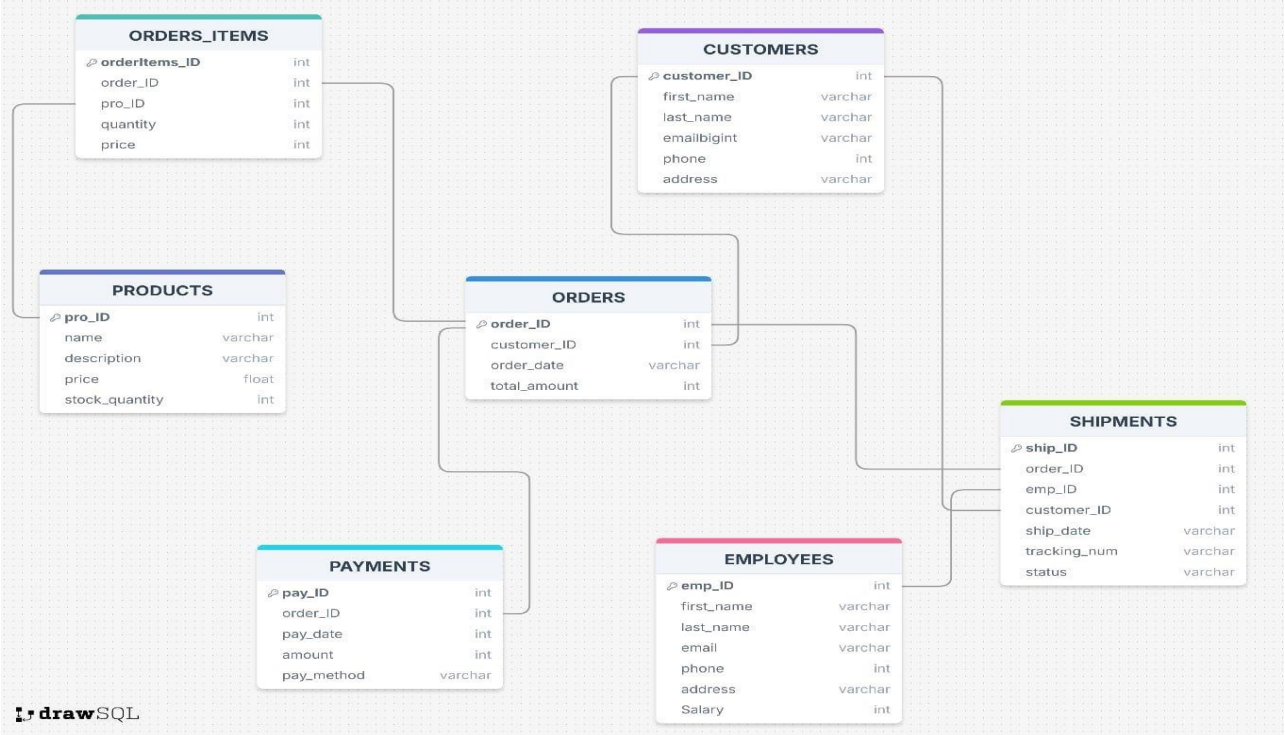
RELATIONSHIPS:

- One-to-Many Relationship -----**(EMPLOYEES to SHIPMENTS):**
  - ❼One employee can handle many shipments.
- Many-to-Many Relationship ------ (**ORDERS to PRODUCTS) :**
  - ❾ An order includes many products, and a product can appear in many orders.
- Many-to-One Relationship ----- **(SHIPMENTS to CUSTOMERS) :** ❼A shipment is delivered to one customer, but a customer can receive many shipments

ER Diagram:



Schema Diagram:



Queries:

1. Calculate the total orders ? [EASY]

SELECT count(order_ID) as total_orders FROM ORDERS;

```
+--------------+
| total_orders |
+--------------+
|           31 |
+--------------+
```

2 . Calculate the total amount for payment table ? [EASY]

SELECT sum(amount) as total_payments from PAYMENTS;

```
+----------------+
| total_payments |
+----------------+
|     1307000.00 |
+----------------+
```

3. Calculate all shipment ID where products are shipped ? [EASY]

SELECT ship_ID,ship_date,tracking_num,count(ship_ID) as Total_shipped where status = 'Shipped'
group by ship_ID,ship_date,tracking_num order by Total_shipped desc;

ship_ID	ship_date	tracking_num	Total_shipped
1	2024-11-05	TRACK12345	1
4	2024-11-08	TRACK44556	1
7	2024-11-11	TRACK22334	1
10	2024-11-08	TRACK44556	1
13	2024-12-04	TRACK44556D	1
15	2024-12-01	TRACK12345A	1
17	2024-12-07	TRACK22334G	1
20	2024-12-10	TRACK12345J	1

4. Identify products that have available less than 20 in stock ? [EASY]

SELECT pro_ID,name,stock_quantity
FROM PRODUCTS where
stock_quantity < 20;

pro_ID	name	stock_quantity
1	Rice	9
2	Milk	19
4	Sugar	12
12	Meat	15
22	Cheese	15
24	Fish	10
26	Mutton	8

5. list all products that have not been ordered ? [MEDIUM]

SELECT name, price
FROM PRODUCTS
WHERE pro_ID NOT IN (SELECT pro_ID
FROM ORDERS_ITEMS);

name	price
Bread	150.00
Butter	250.00
Eggs	100.00
Tea	500.00
Meat	650.00
Juice	300.00
Spices	350.00
Flour	455.00
Soap	250.00
Shampoo	150.00
Detergent	200.00
Honey	550.00
Fish	800.00
Mutton	120.00
Pasta	350.00
Noodles	150.00
Ice Cream	300.00
Ketchup	250.00

6.Find employee with the highest salary ? [MEDIUM]

```
SELECT emp_ID,first_name,phone, salary
FROM EMPLOYEES
WHERE salary = (SELECT MAX(salary)
                FROM EMPLOYEES);
```

emp_ID	first_name	phone	salary
101	kohinur	01735755374	100000

7. list all order without any payment ? [MEDIUM]

```
SELECT * FROM ORDERS
WHERE order_ID NOT IN (SELECT order_ID
                       FROM PAYMENTS );
```

order_ID	customer_ID	order_date	total_amount	order_location
30	210	18-12-24	42000.00	dhaka
31	210	25-11-24	450.00	munshiganj
32	201	20-12-24	7500.00	dhaka
33	202	05-12-24	6800.00	dhaka
34	203	24-12-24	4600.00	NULL
35	204	26-12-24	3000.00	NULL
36	205	28-12-24	5400.00	dhaka
37	206	30-12-24	11000.00	dhaka
38	207	02-01-25	6000.00	dhaka
39	208	05-01-24	8200.00	dhaka
40	209	08-01-25	4900.00	NULL
41	210	10-01-25	7800.00	dhaka

8. How many orders are placed in Dhaka withing one month ? [MEDIUM]

```
SELECT COUNT(*) as total_order_in_dhaka_within_one_month
FROM ORDERS
WHERE order_location= 'dhaka'
AND order_date BETWEEN '01-11-2024' AND '31-12-2024';
```

total_order_in_dhaka_within_one_month
20

9. Best selling products(identify which product are order most) ? [MEDIUM]

```
SELECT p.pro_ID , p.name , sum(ORDERS_ITEMS.quantity) as Total_Quantity
FROM PRODUCTS as p
join ORDERS_ITEMS ON (p.pro_ID = ORDERS_ITEMS.pro_ID)
group by p.pro_ID,p.name order by Total_Quantity desc;
```

pro_ID	name	Total_Quantity
22	Cheese	144
1	Rice	60
2	Milk	57
5	soft drink	57
3	Salt	50
4	Sugar	46
15	Chocolates	34
25	Chicken	30
14	Biscuits	22
10	Coffee	18
11	Oil	12
23	Yogurt	12

10. Which customer place more than 50000 tk order give them 20% discount ? [HARD]

```
SELECT c.customer_ID, c.first_name, c.phone,c.address,SUM(o.total_amount)
AS Total_Amount,
SUM(o.total_amount) * 0.80 AS Discounted_Amount
FROM CUSTOMERS c
JOIN ORDERS o ON ( c.customer_ID = o.customer_ID )
GROUP BY c.customer_ID, c.first_name, c.phone,c.address
HAVING total_amount > 50000;
```

customer_ID	first_name	phone	address	Total_Amount	Discounted_Amount
206	aisha	01734567890	dhaka	104400.00	83520.0000
207	tanveer	01876543210	chittagong	131600.00	105280.0000
208	mehzabin	01765432123	khulna	93920.00	75136.0000
209	rahim	01912345678	sylhet	61400.00	49120.0000
210	sabina	01798765432	barisal	95250.00	76200.0000

11. list the customers who made payments but have not yet received their shipment ? [HARD]

```
SELECT first_name,phone, address
FROM CUSTOMERS
WHERE customer_ID IN(SELECT customer_ID
                     FROM PAYMENTS
                     WHERE customer_ID NOT IN (SELECT DISTINCT
                                                 O.customer_I D
FROM ORDERS as  O
```

first_name	phone	address
farhan	01713456789	rangpur
amna	01856473829	mymensingh
saif	01799445566	cox's bazar
misha	01911122334	tangail
adil	01733221144	dinajpur
tasnim	01877665544	jessore
nashit	01755334422	feni
sadia	01966554433	noakhali
zubair	01811223344	savar
aiman	01788776655	narayanganj

```
                                                 JOIN  SHIPMENTS S ON
                                                O.order_ID = S.order_ID));
```

SAMPLE CODE:

```
CREATE TABLE EMPLOYEES (
emp_ID INT PRIMARY KEY,
first_name VARCHAR(20),
last_name VARCHAR(20),
email VARCHAR(50) UNIQUE,
phone VARCHAR(11),
address VARCHAR(20),     salary
integer
);
INSERT INTO EMPLOYEES VALUES (101, 'kohinur',
'mim','kohi466@gmail.com','01735755374','natore', 100000);
INSERT INTO EMPLOYEES VALUES (102, 'sadia',
'mohona','moho876@gmail.com','01762955374','monshiganj',25000);
INSERT INTO EMPLOYEES VALUES (103, 'sorna',
'rani','sor648@gmail.com','01794642673','norshindi',55000);
INSERT INTO EMPLOYEES VALUES (104, 'jerin',
'ferdosh','jerry654@gmail.com','01796354697','savar',12000);
INSERT INTO EMPLOYEES VALUES (105, 'mashrur',
'menon','menon391gmail.com','01737465097','rajshahi',40000);
INSERT INTO EMPLOYEES VALUES (106, 'tanvir', 'ahmed', 'tanvir123@gmail.com', '01876543210',
'dhaka', 45000);
INSERT INTO EMPLOYEES VALUES (107, 'nazmul', 'hassan', 'nazmul321@gmail.com', '01987654321',
'chittagong', 50000);
INSERT INTO EMPLOYEES VALUES (108, 'farzana', 'rahman', 'farzana789@gmail.com', '01712345678',
'khulna', 60000);
INSERT INTO EMPLOYEES VALUES (109, 'rahim', 'uddin', 'rahim567@gmail.com', '01798765432',
'sylhet', 35000);
INSERT INTO EMPLOYEES VALUES (110, 'tahmina', 'sultana', 'tahmina456@gmail.com',
'01812398765', 'barisal', 30000);
SELECT * FROM EMPLOYEES;

CREATE TABLE CUSTOMERS (
customer_ID INT PRIMARY KEY,
```

```
first_name VARCHAR(20),
last_name VARCHAR(20),    email
VARCHAR(50) UNIQUE,    phone
VARCHAR(11),    address
VARCHAR(20)
);
INSERT INTO CUSTOMERS VALUES (201, 'mustasin',
'mahin','mahin766@gmail.com','01734635374','pabna');
INSERT INTO CUSTOMERS VALUES (202, 'bilal',
'abbas','bilal555@gmail.com','01758389646','natore');
INSERT INTO CUSTOMERS VALUES (203, 'yumna',
'jayed','yumna888@gmail.com','01799673573','kusthia');
INSERT INTO CUSTOMERS VALUES (204, 'rezwanul',
'islam','rez500@gmail.com','01786241267','kurigram');
INSERT INTO CUSTOMERS VALUES (205, 'abida',
'sultana','abida111gmail.com','01946263636','rajshahi');
INSERT INTO CUSTOMERS VALUES (206, 'aisha', 'khan', 'aisha123@gmail.com', '01734567890',
'dhaka');
INSERT INTO CUSTOMERS VALUES (207, 'tanveer', 'hossain', 'tanveer555@gmail.com',
'01876543210', 'chittagong');
INSERT INTO CUSTOMERS VALUES (208, 'mehzabin', 'akter', 'mehzabin890@gmail.com',
'01765432123', 'khulna');
INSERT INTO CUSTOMERS VALUES (209, 'rahim', 'ahmed', 'rahim333@gmail.com', '01912345678',
'sylhet');
INSERT INTO CUSTOMERS VALUES (210, 'sabina', 'yasmin', 'sabina567@gmail.com', '01798765432',
'barisal');
INSERT INTO CUSTOMERS VALUES (211, 'farhan', 'ahmed', 'farhan112@gmail.com', '01713456789',
'rangpur');
INSERT INTO CUSTOMERS VALUES (212, 'amna', 'haque', 'amna890@gmail.com', '01856473829',
'mymensingh');
INSERT INTO CUSTOMERS VALUES (213, 'saif', 'hossain', 'saif222@gmail.com', '01799445566', 'cox\'s
bazar');
INSERT INTO CUSTOMERS VALUES (214, 'misha', 'rahat', 'misha777@gmail.com', '01911122334',
'tangail');
INSERT INTO CUSTOMERS VALUES (215, 'adil', 'khan', 'adil999@gmail.com', '01733221144', 'dinajpur');
INSERT INTO CUSTOMERS VALUES (216, 'tasnim', 'akter', 'tasnim234@gmail.com', '01877665544',
'jessore');
```

```
INSERT INTO CUSTOMERS VALUES (217, 'nashit', 'ali', 'nashit678@gmail.com', '01755334422', 'feni');
INSERT INTO CUSTOMERS VALUES (218, 'sadia', 'rahman', 'sadia123@gmail.com', '01966554433',
'noakhali');
INSERT INTO CUSTOMERS VALUES (219, 'zubair', 'faruq', 'zubair444@gmail.com', '01811223344',
'savar');
INSERT INTO CUSTOMERS VALUES (220, 'aiman', 'hussain', 'aiman678@gmail.com', '01788776655',
'narayanganj'); select*
from CUSTOMERS;

CREATE TABLE PRODUCTS (
pro_ID INT PRIMARY KEY,
name VARCHAR(20),
 price float(5,2),
stock_quantity INT
);
INSERT INTO PRODUCTS VALUES (1, 'Rice',200.00,9);
INSERT INTO PRODUCTS VALUES (2, 'Milk',100.00,19);
INSERT INTO PRODUCTS VALUES (3, 'Salt',112.00,55);
INSERT INTO PRODUCTS VALUES (4, 'Sugar',250.11,12);
INSERT INTO PRODUCTS VALUES (5, 'soft drink',445.00,22);
INSERT INTO PRODUCTS VALUES (6, 'Bread', 150.00, 50);
INSERT INTO PRODUCTS VALUES (7, 'Butter', 250.00, 30);
INSERT INTO PRODUCTS VALUES (8, 'Eggs', 100.00, 200);
INSERT INTO PRODUCTS VALUES (9, 'Tea', 500.00, 40);
INSERT INTO PRODUCTS VALUES (10, 'Coffee', 600.00, 25);
INSERT INTO PRODUCTS VALUES (11, 'Oil', 700.00, 35);
INSERT INTO PRODUCTS VALUES (12, 'Meat', 650.00, 15);
INSERT INTO PRODUCTS VALUES (13, 'Juice', 300.00, 60);
INSERT INTO PRODUCTS VALUES (14, 'Biscuits', 100.00, 80);
INSERT INTO PRODUCTS VALUES (15, 'Chocolates', 150.00, 45);
INSERT INTO PRODUCTS VALUES (16, 'Spices', 350.00, 70);
INSERT INTO PRODUCTS VALUES (17, 'Flour', 455.00, 100);
INSERT INTO PRODUCTS VALUES (18, 'Soap', 250.00, 150);
INSERT INTO PRODUCTS VALUES (19, 'Shampoo', 150.00, 60);
INSERT INTO PRODUCTS VALUES (20, 'Detergent', 200.00, 90);
INSERT INTO PRODUCTS VALUES (21, 'Honey', 550.00, 20);
INSERT INTO PRODUCTS VALUES (22, 'Cheese', 400.00, 15);
```

```
INSERT INTO PRODUCTS VALUES (23, 'Yogurt', 200.00, 50);
INSERT INTO PRODUCTS VALUES (24, 'Fish', 800.00, 10);
INSERT INTO PRODUCTS VALUES (25, 'Chicken', 700.00, 25);
INSERT INTO PRODUCTS VALUES (26, 'Mutton', 120.00, 8);
INSERT INTO PRODUCTS VALUES (27, 'Pasta', 350.00, 60);
INSERT INTO PRODUCTS VALUES (28, 'Noodles', 150.00, 100);
INSERT INTO PRODUCTS VALUES (29, 'Ice Cream', 300.00, 30);
INSERT INTO PRODUCTS VALUES (30, 'Ketchup', 250.00, 40);
SELECT*FROM PRODUCTS;

CREATE TABLE ORDERS (
order_ID INT PRIMARY KEY ,
customer_ID INT,
order_date VARCHAR(50),
total_amount DECIMAL(10, 2),
   FOREIGN KEY (customer_ID) REFERENCES CUSTOMERS (customer_ID)
);
INSERT INTO ORDERS VALUES (11, 201, '10-02-24',6777);
INSERT INTO ORDERS VALUES (12, 202, '22-03-24',9000);
INSERT INTO ORDERS VALUES (13,203, '25-07-24',8790);
INSERT INTO ORDERS VALUES (14,204, '27-10-24',10068);
INSERT INTO ORDERS VALUES (15,205,'01-11-24',4500);
INSERT INTO ORDERS VALUES (16, 206, '05-11-24', 3400);
INSERT INTO ORDERS VALUES (17, 207, '10-11-24', 5600);
INSERT INTO ORDERS VALUES (18, 208, '15-11-24', 720);
INSERT INTO ORDERS VALUES (19, 209, '20-11-24', 1500);
INSERT INTO ORDERS VALUES (20, 210, '25-11-24', 45000);
INSERT INTO ORDERS VALUES (31, 210, '25-11-24', 450);
INSERT INTO ORDERS VALUES (21, 201, '28-11-24', 8800);
INSERT INTO ORDERS VALUES (22, 202, '05-11-24', 15000);
INSERT INTO ORDERS VALUES (23, 203, '02-12-24', 6700);
INSERT INTO ORDERS VALUES (24, 204, '05-11-24', 320);
INSERT INTO ORDERS VALUES (25, 205, '07-12-24', 4800);
INSERT INTO ORDERS VALUES (26, 206, '10-12-24', 90000);
INSERT INTO ORDERS VALUES (27, 207, '05-11-24', 120000);
INSERT INTO ORDERS VALUES (28, 208, '14-12-24', 85000);
INSERT INTO ORDERS VALUES (29, 209, '16-12-24', 55000);
```

```
INSERT INTO ORDERS VALUES (30, 210, '18-12-24', 42000);
INSERT INTO ORDERS VALUES (32, 201, '20-12-24', 7500);
INSERT INTO ORDERS VALUES (33, 202, '05-12-24', 6800);
INSERT INTO ORDERS VALUES (34, 203, '24-12-24', 4600);
INSERT INTO ORDERS VALUES (35, 204, '26-12-24', 3000);
INSERT INTO ORDERS VALUES (36, 205, '28-12-24', 5400);
INSERT INTO ORDERS VALUES (37, 206, '30-12-24', 11000);
INSERT INTO ORDERS VALUES (38, 207, '02-01-25', 6000);
INSERT INTO ORDERS VALUES (39, 208, '05-01-24', 8200);
INSERT INTO ORDERS VALUES (40, 209, '08-01-25', 4900); INSERT
INTO ORDERS VALUES (41, 210, '10-01-25', 7800);
SELECT * FROM ORDERS; -- new column insert in
ORDERS TABLE  alter TABLE ORDERS add column
order_location VARCHAR(20); SELECT*FROM
ORDERS; update ORDERS SET order_location =
case when total_amount > 5000.00 then 'dhaka'
when total_amount < 2000.00 then 'munshiganj'
else order_location end;
SELECT*FROM ORDERS;
CREATE TABLE ORDERS_ITEMS (
orderItems_ID INT PRIMARY KEY ,
order_ID INT,     pro_ID INT,
quantity INT,     price DECIMAL(10,
2),
   FOREIGN KEY (order_ID) REFERENCES ORDERS (order_ID),
   FOREIGN KEY (pro_ID) REFERENCES PRODUCTS (pro_ID)
);
INSERT INTO ORDERS_ITEMS VALUES (1, 11, 1, 20, 15.99);
INSERT INTO ORDERS_ITEMS VALUES (2, 13, 3, 15, 25.49);
INSERT INTO ORDERS_ITEMS VALUES (3, 14, 2, 32, 8.99);
INSERT INTO ORDERS_ITEMS VALUES (4, 12, 22, 54, 12.75);
INSERT INTO ORDERS_ITEMS VALUES (5, 11, 5, 10, 45.00);
INSERT INTO ORDERS_ITEMS VALUES (15, 15, 15, 10, 22.50);
INSERT INTO ORDERS_ITEMS VALUES (6, 16, 22, 20, 8.99);
INSERT INTO ORDERS_ITEMS VALUES (7, 17, 1, 15, 15.99);
INSERT INTO ORDERS_ITEMS VALUES (8, 18, 3, 25, 25.49);
INSERT INTO ORDERS_ITEMS VALUES (9, 19, 4, 18, 12.75);
```

```
INSERT INTO ORDERS_ITEMS VALUES (10, 20, 5, 12, 22.50);
INSERT INTO ORDERS_ITEMS VALUES (11, 11, 22, 30, 25.49);
INSERT INTO ORDERS_ITEMS VALUES (12, 13, 22, 40, 8.99);
INSERT INTO ORDERS_ITEMS VALUES (13, 14, 1, 25, 15.99);
INSERT INTO ORDERS_ITEMS VALUES (14, 12, 5, 20, 22.50);
INSERT INTO ORDERS_ITEMS VALUES (16, 21, 11, 12, 15.99);
INSERT INTO ORDERS_ITEMS VALUES (17, 22, 2, 25, 8.99);
INSERT INTO ORDERS_ITEMS VALUES (18, 23, 3, 10, 25.49);
INSERT INTO ORDERS_ITEMS VALUES (19, 24, 14, 22, 12.75);
INSERT INTO ORDERS_ITEMS VALUES (20, 25, 5, 15, 22.50);
INSERT INTO ORDERS_ITEMS VALUES (21, 26, 10, 18, 15.99);
INSERT INTO ORDERS_ITEMS VALUES (22, 27, 25, 30, 8.99);
INSERT INTO ORDERS_ITEMS VALUES (23, 28, 23, 12, 25.49);
INSERT INTO ORDERS_ITEMS VALUES (24, 29, 4, 28, 12.75);
INSERT INTO ORDERS_ITEMS VALUES (25, 30, 15, 24, 22.50); SELECT*from ORDERS_ITEMS;
CREATE TABLE PAYMENTS
(
   pay_ID INT PRIMARY KEY ,
order_ID INT,
 pay_date VARCHAR(50),
amount DECIMAL(10, 2),
pay_method VARCHAR(10),
   FOREIGN KEY (order_ID) REFERENCES ORDERS (order_ID)
);
INSERT INTO PAYMENTS VALUES (1, 11, '01-12-24',50000,'bikash'); INSERT
INTO PAYMENTS VALUES (3, 13, '10-07-24',70000,'visa');
INSERT INTO PAYMENTS VALUES (4, 14, '29-10-24',20000,'rocket');
INSERT INTO PAYMENTS VALUES (5, 15, '30-11-24',90000,'dbbl');
INSERT INTO PAYMENTS VALUES (6, 12, '05-12-24', 120000, 'bikash');
INSERT INTO PAYMENTS VALUES (7, 16, '15-12-24', 34000, 'visa');
INSERT INTO PAYMENTS VALUES (8, 17, '15-12-24', 56000, 'rocket');
INSERT INTO PAYMENTS VALUES (9, 18, '20-12-24', 72000, 'dbbl');
INSERT INTO PAYMENTS VALUES (10, 19, '25-12-24', 15000, 'cash');
INSERT INTO PAYMENTS VALUES (11, 20, '01-12-24', 45000, 'bikash');
INSERT INTO PAYMENTS VALUES (12, 21, '03-12-24', 88000, 'visa');
INSERT INTO PAYMENTS VALUES (13, 22, '05-12-24', 150000, 'rocket');
```

```
INSERT INTO PAYMENTS VALUES (14, 23, '17-12-24', 67000, 'dbbl'); INSERT
INTO PAYMENTS VALUES (15, 24, '09-12-24', 32000, 'cash');
INSERT INTO PAYMENTS VALUES (16, 25, '11-12-24', 48000, 'bikash');
INSERT INTO PAYMENTS VALUES (17, 26, '13-12-24', 90000, 'visa');
INSERT INTO PAYMENTS VALUES (18, 27, '10-07-24', 120000, 'rocket');
INSERT INTO PAYMENTS VALUES (19, 28, '17-12-24', 85000, 'dbbl'); INSERT
INTO PAYMENTS VALUES (20, 29, '03-12-24', 55000, 'cash');
SELECT * FROM PAYMENTS; CREATE
TABLE SHIPMENTS (
 ship_ID INT PRIMARY KEY ,
order_ID INT,
   emp_ID INT,
customer_ID INT,
  ship_date VARCHAR(50),
tracking_num VARCHAR(100),
status VARCHAR(20),
   FOREIGN KEY (order_ID) REFERENCES ORDERS (order_ID),
   FOREIGN KEY (emp_ID) REFERENCES EMPLOYEES (emp_ID),
   FOREIGN KEY (customer_ID) REFERENCES CUSTOMERS (customer_ID)
 );
INSERT INTO SHIPMENTS VALUES (1, 12, 101, 201, '2024-11-05', 'TRACK12345', 'Shipped');
INSERT INTO SHIPMENTS VALUES (2, 12, 103, 202, '2024-11-06', 'TRACK67890', 'In Transit');
INSERT INTO SHIPMENTS VALUES (3, 13, 102, 203, '2024-11-07', 'TRACK11223', 'Delivered');
INSERT INTO SHIPMENTS VALUES (10, 15, 101, 204, '2024-11-08', 'TRACK44556', 'Shipped');
INSERT INTO SHIPMENTS VALUES (4, 14, 104, 204, '2024-11-08', 'TRACK44556', 'Shipped');
INSERT INTO SHIPMENTS VALUES (5, 15, 105, 205, '2024-11-09', 'TRACK77889', 'In Transit');
INSERT INTO SHIPMENTS VALUES (6, 16, 101, 206, '2024-11-10', 'TRACK99001', 'Delivered');
INSERT INTO SHIPMENTS VALUES (7, 17, 102, 207, '2024-11-11', 'TRACK22334', 'Shipped');
INSERT INTO SHIPMENTS VALUES (8, 18, 103, 208, '2024-11-12', 'TRACK55667', 'In Transit');
INSERT INTO SHIPMENTS VALUES (9, 19, 104, 209, '2024-11-13', 'TRACK88990', 'Delivered');
INSERT INTO SHIPMENTS VALUES (15, 20, 101, 210, '2024-12-01', 'TRACK12345A', 'Shipped');
INSERT INTO SHIPMENTS VALUES (11, 21, 102, 201, '2024-12-02', 'TRACK67890B', 'In Transit');
INSERT INTO SHIPMENTS VALUES (12, 22, 103, 202, '2024-12-03', 'TRACK11223C', 'Delivered');
INSERT INTO SHIPMENTS VALUES (13, 23, 104, 203, '2024-12-04', 'TRACK44556D', 'Shipped');
INSERT INTO SHIPMENTS VALUES (14, 24, 105, 204, '2024-12-05', 'TRACK77889E', 'In Transit');
INSERT INTO SHIPMENTS VALUES (16, 25, 101, 205, '2024-12-06', 'TRACK99001F', 'Delivered');
INSERT INTO SHIPMENTS VALUES (17, 26, 102, 206, '2024-12-07', 'TRACK22334G', 'Shipped');
```

```
INSERT INTO SHIPMENTS VALUES (18, 27, 103, 207, '2024-12-08', 'TRACK55667H', 'In Transit');
INSERT INTO SHIPMENTS VALUES (19, 28, 104, 208, '2024-12-09', 'TRACK88990I', 'Delivered');
INSERT INTO SHIPMENTS VALUES (20, 29, 105, 209, '2024-12-10', 'TRACK12345J', 'Shipped');
SELECT*from SHIPMENTS;
-- count total order ------------------------ query (1) EASY 1
SELECT count(order_ID) as total_orders FROM ORDERS;
-- calculate the total amount for payment table ------ query (2) EASY 2
SELECT sum(amount) as total_payments from PAYMENTS;
-- count all shipment ID where products are shipped includes date ----------- query(3) EASY 3
SELECT ship_ID,ship_date,tracking_num,count(ship_ID) as Total_shipped from SHIPMENTS
where status = 'Shipped'
group by ship_ID,ship_date,tracking_num order
by Total_shipped desc;

-- Identify products that have low stock ------------- query (4) EASY 4
SELECT pro_ID,name,stock_quantity FROM
PRODUCTS
where stock_quantity < 20;

-- list products that have not been ordered ------ query (5) medium (1)
SELECT name, price
FROM PRODUCTS
WHERE pro_ID NOT IN (SELECT pro_ID
                     FROM ORDERS_ITEMS);

-- employee with the highest salary------------ query(6) medium (2)
SELECT emp_ID,first_name,phone, salary
FROM EMPLOYEES
WHERE salary = (SELECT MAX(salary)
                FROM EMPLOYEES);

-- list all order without any payment ----------------- query(7) medium (3)
SELECT * FROM ORDERS
WHERE order_ID NOT IN (SELECT order_ID
                       FROM PAYMENTS );

-- how many orders are placed in Dhaka withing one month ------ query (8) medium (4)
```

```
SELECT COUNT(*) as total_order_in_dhaka_withing_one_month
FROM ORDERS
WHERE order_location= 'dhaka'
AND order_date BETWEEN '01-11-2024' AND '31-12-2024';


-- best selling products(identify which product are order most)-------- query ( 9) medium (5)
SELECT p.pro_ID , p.name , sum(ORDERS_ITEMS.quantity) as Total_Quatity FROM
PRODUCTS as p
join ORDERS_ITEMS ON (p.pro_ID = ORDERS_ITEMS.pro_ID)
group by p.pro_ID,p.name order by Total_Quatity desc;

-- which customer place more than 50000 tk order give them 20% discount ------- query (10) Hard (1)
SELECT c.customer_ID, c.first_name, c.phone,c.address,SUM(o.total_amount) AS Total_Amount,
SUM(o.total_amount) * 0.80 AS Discounted_Amount
FROM CUSTOMERS c
JOIN ORDERS o ON ( c.customer_ID = o.customer_ID )
GROUP BY c.customer_ID, c.first_name, c.phone,c.address
HAVING total_amount > 50000;

-- list the customers who made payments but have not yet received their shipment ---- query (11) Hard
(2)
SELECT first_name,phone, address
FROM CUSTOMERS
WHERE customer_ID IN (SELECT customer_ID
                FROM PAYMENTS
                WHERE customer_ID NOT IN (SELECT DISTINCT O.customer_ID
                                FROM ORDERS as  O
                                JOIN SHIPMENTS S ON  O.order_ID = S.order_ID));
```

CEP Mapping :

- **Here's how the Knowledge Profile (Ks) attributes are addressed through our project:**

K'S	ATTRIBUTE	How Ks is addressed through the project
K3	Engineering Fundamentals	The project requires understanding of database foundational concepts for an Ecommerce system. Structuring customer profiles, product catalogs, orders, and payment details. Managing inventory, user transactions, and sales records using tools online MySQL server .
K4	Specialist knowledge	Focusing on specialized needs for managing an E-commerce platform. Knowledge of product hierarchies, user purchase patterns, and cart management.
K5	Engineering Design	We implement ER diagrams and Schema diagrams to design our project.
K6	Engineering Practice	We used tools like MYSQL server and implemented our project with the help of SQL.
K7	Comprehension	Optimizing search, checkout processes, and recommendation algorithms. Efficiently fetching product availability and order history.

- **Here's how the Engineering Problems (Ps) attributes are addressed through our project:**

P'S	ATTRIBUTE	Breakdown of these p's indicators	C0s	P0s
P1	Depth of Knowledge Required	Cannot be resolved without indepth engineering knowledge at the level of one or more of database fundamental(K3), Health service-related knowledge (K4), ER diagram and schema diagram(K5), Implementation with SQL on Online MySQL.	CO1 CO2 CO3 CO4 CO5	PO1 PO3 PO5 PO6 PO7 PO8
P3	Depth of Analysis Required	In this project, some information has been added that must be searched for some sources from outside the ER model is arranged in such way that its relations are supplemented with one or more tables to quickly find any information from this database system. So analysis for strategic decision-making : tracking purchase patterns and abandoned cart rates and Analyzing product stock levels and predicting demand surges .	CO3 CO4 CO5 CO6	PO6 PO7 P08
P6	Extent of Stakeholders	Ensuring seamless shopping experiences and secure payments. Managing product listings, stock, and order fulfillment . Coordinating shipping, delivery tracking, and returns.	CO6	
P7	Interdependence	Ensuring secure transactions via APIs like Bikash etc. Syncing with delivery partners for real-time	CO7 C08	PO11 PO12
		tracking. Integrating for product promotions and user reviews.		

- **Here's how the Complex Engineering Activities (As) attributes are addressed through our project:**

A'S	ATTRIBUTE	Breakdown of these A's indicators	C0s	POs
A1	Range of Resources	User profiles, product information, sales data, and reviews. Servers or cloud solutions to host the platform. database tools, and customer support systems. Budget for system development, hosting, and marketing.	CO1 CO2 CO3 CO4 CO5 CO8	PO11
A4	Consequences for Society and Environment	Positive impacts include: Enabling users to shop online conveniently. Supporting small businesses to reach global markets. Encouraging paperless transactions and inventory efficiency.	CO1 CO6 CO7	PO6 PO12
A5	Familiarity	The project deals with the E-commerce online management system based on Database for all types of users	CO5 C06	PO1 PO2 PO7 PO12