

# Physical Model Implementation

## Table Customer

### Table Creation

```
CREATE TABLE Customer (  
  ID INT IDENTITY(1, 1) NOT NULL,  
  Name VARCHAR(100) NOT NULL,  
  Phone VARCHAR(100) NOT NULL,  
  Gender BIT NOT NULL,  
  Address VARCHAR(100) NOT NULL,  
  
  PRIMARY KEY (ID)  
);
```

### Data Insertion

```
INSERT INTO Customer (Name, Phone, Gender, Address)  
VALUES  
(  
  ('Nguyen Ha Linh', '0901234567', 1, '123 Tran Hung Dao street, Hoan Kiem district, Hanoi'),  
  ('Nguyen Ngoc Lan', '0902345678', 1, '456 Le Loi street, Hai Bà Trung district, Hanoi'),  
  ('Nguyen Anh Tuan', '0943758491', 0, 'Thai Binh'),  
  ('Phan Nam Khanh', '0954375891', 0, 'Ba Dinh district, Hanoi'),  
  ('Le Manh Quang', '0924377245', 0, 'unknown'),  
  ('Bui Phuong Linh', '0985378953', 1, '1010 Vo Thi Sau street, Thanh Khe district, Da Nang'),  
  ('Tran Hoai An', '0982458392', 1, 'Ba Dinh district, Hanoi'),  
  ('Đo Trung Tuan', '0981245689', 0, 'Ha Noi'),  
  ('Bin Viet Anh', '0987234561', 0, 'Ha Tinh'),  
  ('Trinh Van Bach', '0981234788', 1, 'Hai Ba Trung district, Hnoi'),  
  ('Bui Thi Hai Linh', '0912348822', 1, '456 Le Loi street, Hai Ba Trung district, Hanoi'),  
  ('Nguyen Bich Ngoc', '0988823569', 1, '321 Tran Hung Dao street, Thanh Khe, Da Nang'),  
  ('Nguyen Van Dao', '099290121', 0, 'unknown'),  
  ('Nguyen Thuy Linh', '0912354891', 1, '69 Tran Hung Dao street, Hoan Kiem district, Hanoi'),  
  ('Nguyen Lan Tuong', '0912488129', 1, 'Hoan Kiem district, Hanoi'),  
  ('Tran Anh Phuong', '0900129154', 1, '99 Le Loi street, Hai Ba Trung, Hanoi'),  
  ('Pham Ngoc Anh', '0912354488', 1, 'Hanoi'),  
  ('Bui Thanh Dat', '0931916683', 0, 'Go Vap district, Ho Chi Minh city'),  
  ('Mai Thanh Toan', '0912354448', 0, '42 Mai Hac De street, Hai Ba Trung, Hanoi'),  
  ('Vu Minh Quan', '0935119034', 0, 'Gia Lam district, Hanoi');
```

### All Data Rows

Results		Messages			
	ID	Name	Phone	Gender	Address
1	1	Nguyen Ha Linh	0901234567	1	123 Tran Hung Dao street, Hoan Kiem district, Ha...
2	2	Nguyen Ngoc Lan	0902345678	1	456 Le Loi street, Hai Bà Trung district, Hanoi
3	3	Nguyen Anh Tuan	0943758491	0	Thai Binh
4	4	Phan Nam Khanh	0954375891	0	Ba Dinh district, Hanoi
5	5	Le Manh Quang	0924377245	0	unknown
6	6	Bui Phuong Linh	0985378953	1	1010 Vo Thi Sau street, Thanh Khe district, Da Na...
7	7	Tran Hoai An	0982458392	1	Ba Dinh district, Hanoi
8	8	Đo Trung Tuan	0981245689	0	Ha Noi
9	9	Bin Viet Anh	0987234561	0	Ha Tinh
10	10	Trinh Van Bach	0981234788	1	Hai Ba Trung district, Hnoi
11	11	Bui Thi Hai Linh	0912348822	1	456 Le Loi street, Hai Ba Trung district, Hanoi
12	12	Nguyen Bich Ngoc	0988823569	1	321 Tran Hung Dao street, Thanh Khe, Da Nang
13	13	Nguyen Van Dao	099290121	0	unknown
14	14	Nguyen Thuy Linh	0912354891	1	69 Tran Hung Dao street, Hoan Kiem district, Hanoi
15	15	Nguyen Lan Tuong	0912488129	1	Hoan Kiem district, Hanoi
16	16	Tran Anh Phuong	0900129154	1	99 Le Loi street, Hai Ba Trung, Hanoi
17	17	Pham Ngoc Anh	0912354488	1	Hanoi
18	18	Bui Thanh Dat	0931916683	0	Go Vap district, Ho Chi Minh city
19	19	Mai Thanh Toan	0912354448	0	42 Mai Hac De street, Hai Ba Trung, Hanoi
20	20	Vu Minh Quan	0935119034	0	Gia Lam district, Hanoi

# Table Products

## Table Creation

```
CREATE TABLE Products (  
    Product_ID INT NOT NULL,  
    Product_Name VARCHAR(100) NOT NULL,  
    Price INT NOT NULL,  
    Quantity INT NOT NULL,  
    Size VARCHAR(20) NOT NULL,  
  
    CHECK (Quantity between 0 and 999999999),  
    PRIMARY KEY (Product_ID)  
);
```

## Data Insertion

```
INSERT INTO Products (Product_ID, Product_Name, Price, Quantity, Size)  
VALUES  
(982278, 'LACE BOW COLLAR SHIRT SM00022', 60, 42, 'M'),  
(505608, 'STRAIGHT-LEG PANTS Q40582', 10, 69, 'XL'),  
(890126, '3D FLOWER SLEEVE SHIRT SM01822', 40, 22, 'L'),  
(918160, 'CUT-OUT FLOWER SHIRT SM02052', 30, 31, 'S'),  
(156192, 'BLACK SHORT Q00782', 15, 86, 'XXL'),  
(212517, 'HIGH-WAIST SHORTS Q14062', 8, 19, 'M'),  
(300076, 'PLEATED SKIRT LIZ16382', 20, 17, 'L'),  
(829357, 'DESIGNER SKIRT Z18362', 30, 51, 'S'),  
(498098, 'PENCIL SKIRT Z18366', 28, 22, 'L'),  
(736184, 'CARGO PANT D69696', 12, 42, 'L'),  
(684475, 'PARTY COWL NECK DRESS D20002', 60, 11, 'M'),  
(485324, 'PEPLUM DRESS D01932', 50, 20, 'M'),  
(283222, 'LASER CUT FLOWER DRESS D04012', 66, 17, 'M'),  
(382806, 'DESIGNER EMBELLISHED DRESS D20192', 55, 28, 'S'),  
(934488, 'FLORAL PRINT DRESS D20202', 45, 25, 'M'),  
(412892, 'RUFFLE HEM DRESS D20312', 35, 30, 'S'),  
(602475, 'BUTTON-DOWN SHIRT SM02152', 25, 40, 'L'),  
(969837, 'DENIM JACKET J00182', 70, 15, 'XL'),  
(128121, 'V-NECK SWEATER SW00182', 55, 35, 'M'),  
(676858, 'LEATHER JACKET J00292', 120, 10, 'L');
```

## All Data

Results		Messages			
	Product_ID	Product_Name	Price	Quantity	Size
1	128121	V-NECK SWEATER SW00182	55	35	M
2	156192	BLACK SHORT Q00782	15	86	XXL
3	212517	HIGH-WAIST SHORTS Q14062	8	19	M
4	283222	LASER CUT FLOWER DRESS D04012	66	17	M
5	300076	PLEATED SKIRT LIZ16382	20	17	L
6	382806	DESIGNER EMBELLISHED DRESS D20192	55	28	S
7	412892	RUFFLE HEM DRESS D20312	35	30	S
8	485324	PEPLUM DRESS D01932	50	20	M
9	498098	PENCIL SKIRT Z18366	28	22	L
10	505608	STRAIGHT-LEG PANTS Q40582	10	69	XL
11	602475	BUTTON-DOWN SHIRT SM02152	25	40	L
12	676858	LEATHER JACKET J00292	120	10	L
13	684475	PARTY COWL NECK DRESS D20002	60	11	M
14	736184	CARGO PANT D69696	12	42	L
15	829357	DESIGNER SKIRT Z18362	30	51	S
16	890126	3D FLOWER SLEEVE SHIRT SM01822	40	22	L
17	918160	CUT-OUT FLOWER SHIRT SM02052	30	31	S
18	934488	FLORAL PRINT DRESS D20202	45	25	M
19	969837	DENIM JACKET J00182	70	15	XL
20	982278	LACE BOW COLLAR SHIRT SM00022	60	42	M

# Table Buy

## Table Creation

```
CREATE TABLE Buy (  
    Customer_ID INT NOT NULL,  
    Product_ID INT NOT NULL,  
    ID INT NOT NULL,  
    Purchased_Date DATETIME NOT NULL,  
  
    PRIMARY KEY (Customer_ID, Product_ID),  
    FOREIGN KEY (Customer_ID) REFERENCES Customer(ID),  
    FOREIGN KEY (Product_ID) REFERENCES Products(Product_ID)  
);
```

## Data Insertion

```
INSERT INTO Buy (Customer_ID, Product_ID, ID, Purchased_Date)  
VALUES  
    (1, 982278, 1, '2024-04-15 10:30:00'),  
    (2, 505608, 2, '2024-05-01 14:20:00'),  
    (3, 890126, 3, '2014-01-22 09:45:00'),  
    (4, 918160, 4, '2024-06-10 16:10:00'),  
    (5, 156192, 5, '2010-02-28 11:00:00'),  
    (2, 212517, 6, '2024-04-18 13:40:00'),  
    (6, 300076, 7, '2024-05-05 15:25:00'),  
    (7, 829357, 8, '2021-03-12 08:50:00'),  
    (8, 498098, 9, '2019-06-01 17:15:00'),  
    (9, 736184, 10, '2011-04-20 12:00:00'),  
    (10, 684475, 11, '2022-07-15 10:00:00'),  
    (11, 485324, 12, '2023-08-22 14:30:00'),  
    (12, 283222, 13, '2024-09-10 09:15:00'),  
    (13, 382806, 14, '2024-10-05 16:45:00'),  
    (14, 934488, 15, '2024-11-20 11:50:00'),  
    (15, 412892, 16, '2024-12-01 13:10:00'),  
    (16, 602475, 17, '2024-12-05 15:00:00'),  
    (17, 969837, 18, '2024-12-10 17:30:00'),  
    (18, 128121, 19, '2024-12-15 10:20:00'),  
    (19, 676858, 20, '2024-12-16 12:40:00');
```

## All Data

Results				
	Customer_ID	Product_ID	ID	Purchased_Date
1	1	982278	1	2024-04-15 10:30:00.000
2	2	212517	6	2024-04-18 13:40:00.000
3	2	505608	2	2024-05-01 14:20:00.000
4	3	890126	3	2014-01-22 09:45:00.000
5	4	918160	4	2024-06-10 16:10:00.000
6	5	156192	5	2010-02-28 11:00:00.000
7	6	300076	7	2024-05-05 15:25:00.000
8	7	829357	8	2021-03-12 08:50:00.000
9	8	498098	9	2019-06-01 17:15:00.000
10	9	736184	10	2011-04-20 12:00:00.000
11	10	684475	11	2022-07-15 10:00:00.000
12	11	485324	12	2023-08-22 14:30:00.000
13	12	283222	13	2024-09-10 09:15:00.000
14	13	382806	14	2024-10-05 16:45:00.000
15	14	934488	15	2024-11-20 11:50:00.000
16	15	412892	16	2024-12-01 13:10:00.000
17	16	602475	17	2024-12-05 15:00:00.000
18	17	969837	18	2024-12-10 17:30:00.000
19	18	128121	19	2024-12-15 10:20:00.000
20	19	676858	20	2024-12-16 12:40:00.000

# Table Order

## Table Creation

```
SQLQuery1.sql - L...3E2AC\Lenovo (56))*
CREATE TABLE [Order] (
    ID INT IDENTITY(1, 1) NOT NULL,
    Customer_ID INT NOT NULL,
    Discount DECIMAL(18, 2) NOT NULL,
    Shipping_Method VARCHAR(50) NOT NULL,

    PRIMARY KEY (ID),
    FOREIGN KEY (Customer_ID) REFERENCES Customer (ID)
);
```

## Data Insertion

```
SQLQuery1.sql - L...3E2AC\Lenovo (56))*
INSERT INTO [Order] (Customer_ID, Discount, Shipping_Method)
VALUES
(1, 0.10, 'Standard'),
(2, 0.15, 'Express'),
(3, 0.00, 'Standard'),
(4, 0.05, 'Express'),
(5, 0.20, 'Standard'),
(6, 0.00, 'Express'),
(7, 0.12, 'Standard'),
(8, 0.08, 'Express'),
(9, 0.00, 'Standar'),
(10, 0.18, 'Express'),
(11, 0.10, 'Standard'),
(12, 0.15, 'Express'),
(13, 0.00, 'Standard'),
(14, 0.05, 'Express'),
(15, 0.20, 'Standard'),
(16, 0.00, 'Express'),
(17, 0.12, 'Standard'),
(18, 0.08, 'Express'),
(19, 0.00, 'Standard'),
(20, 0.18, 'Express');
```

## All Data

Results		Messages		
	ID	Customer_ID	Discount	Shipping_Method
1	1	1	0.10	Standard
2	2	2	0.15	Express
3	3	3	0.00	Standard
4	4	4	0.05	Express
5	5	5	0.20	Standard
6	6	6	0.00	Express
7	7	7	0.12	Standard
8	8	8	0.08	Express
9	9	9	0.00	Standar
10	10	10	0.18	Express
11	11	11	0.10	Standard
12	12	12	0.15	Express
13	13	13	0.00	Standard
14	14	14	0.05	Express
15	15	15	0.20	Standard
16	16	16	0.00	Express
17	17	17	0.12	Standard
18	18	18	0.08	Express
19	19	19	0.00	Standard
20	20	20	0.18	Express

# Table Contain

## Table Creation

```
SQLQuery1.sql - L...3E2AC\Lenovo (56))*
CREATE TABLE Contain (
    Order_ID INT NOT NULL,
    Product_ID INT NOT NULL,
    Quantity INT NOT NULL,

    PRIMARY KEY (Order_ID, Product_ID),
    FOREIGN KEY (Order_ID) REFERENCES [Order](ID),
    FOREIGN KEY (Product_ID) REFERENCES Products(Product_ID)
);
```

## Data Insertion

```
SQLQuery1.sql - L...3E2AC\Lenovo (56))*
INSERT INTO Contain (Order_ID, Product_ID, Quantity)
VALUES
    (1, 982278, 2),
    (2, 505608, 1),
    (3, 890126, 3),
    (4, 918160, 1),
    (5, 156192, 4),
    (6, 212517, 2),
    (7, 300076, 1),
    (8, 829357, 2),
    (9, 498098, 1),
    (10, 736184, 3),
    (11, 684475, 1),
    (12, 485324, 2),
    (13, 283222, 1),
    (14, 382806, 2),
    (15, 934488, 1),
    (16, 412892, 3),
    (17, 602475, 2),
    (18, 969837, 1),
    (19, 128121, 2),
    (20, 676858, 1);
```

## All Data

Results		Messages	
	Order_ID	Product_ID	Quantity
1	1	982278	2
2	2	505608	1
3	3	890126	3
4	4	918160	1
5	5	156192	4
6	6	212517	2
7	7	300076	1
8	8	829357	2
9	9	498098	1
10	10	736184	3
11	11	684475	1
12	12	485324	2
13	13	283222	1
14	14	382806	2
15	15	934488	1
16	16	412892	3
17	17	602475	2
18	18	969837	1
19	19	128121	2
20	20	676858	1

# Table **Customer\_Products** (Associative table between Customer and Products table)

## Table Creation

```
CREATE TABLE Customer_Products (  
    Product_ID INT NOT NULL,  
    Customer_ID INT NOT NULL,  
    Customer_Address VARCHAR(100),  
    Total_Purchased INT NOT NULL,  
    Purchased_Date DATETIME,  
    Pay_Method VARCHAR(55) NOT NULL,  
    Payment_Status BIT NOT NULL,  
  
    PRIMARY KEY (Product_ID, Customer_ID),  
    FOREIGN KEY (Product_ID) REFERENCES Products (Product_ID),  
    FOREIGN KEY (Customer_ID) REFERENCES Customer (ID)  
);
```

## Data Insertion

```
INSERT INTO Customer_Products  
(Product_ID, Customer_ID, Customer_Address, Total_Purchased, Purchased_Date, Pay_Method, Payment_Status)  
VALUES  
(982278, 1, '123 Tran Hung Dao street, Hoan Kiem district, Hanoi', 2, '2024-04-15 10:30:00', 'Credit Card', 1),  
(505608, 2, '456 Le Loi street, Hai Ba Trung district, Hanoi', 1, '2024-05-01 14:20:00', 'Cash', 1),  
(890126, 3, 'Thai Binh', 3, '2014-01-22 09:45:00', 'Credit Card', 1),  
(918160, 4, 'Ba Dinh district, Hanoi', 1, '2024-06-10 16:10:00', 'Debit Card', 1),  
(156192, 5, 'unknown', 4, '2010-02-28 11:00:00', 'Cash', 1),  
(212517, 2, '456 Le Loi street, Hai Ba Trung district, Hanoi', 2, '2024-04-18 13:40:00', 'Credit Card', 1),  
(300076, 6, '1010 Vo Thi Sau street, Thanh Khe district, Da Nang', 1, '2024-05-05 15:25:00', 'Debit Card', 1),  
(829357, 7, 'Ba Dinh district, Hanoi', 2, '2021-03-12 08:50:00', 'Credit Card', 1),  
(498098, 8, 'Ha Noi', 1, '2019-06-01 17:15:00', 'Cash', 1),  
(736184, 9, 'Ha Tinh', 3, '2011-04-20 12:00:00', 'Credit Card', 1),  
(684475, 10, 'Hai Ba Trung district, Hanoi', 1, '2022-07-15 10:00:00', 'Debit Card', 1),  
(485324, 11, '456 Le Loi street, Hai Ba Trung district, Hanoi', 2, '2023-08-22 14:30:00', 'Credit Card', 1),  
(283222, 12, '321 Tran Hung Dao street, Thanh Khe, Da Nang', 1, '2024-09-10 09:15:00', 'Cash', 1),  
(382806, 13, 'unknown', 2, '2024-10-05 16:45:00', 'Debit Card', 1),  
(934488, 14, '69 Tran Hung Dao street, Hoan Kiem district, Hanoi', 1, '2024-11-20 11:50:00', 'Credit Card', 1),  
(412892, 15, 'Hoan Kiem district, Hanoi', 3, '2024-12-01 13:10:00', 'Cash', 1),  
(602475, 16, '99 Le Loi street, Hai Ba Trung, Hanoi', 2, '2024-12-05 15:00:00', 'Credit Card', 1),  
(969837, 17, 'Hanoi', 1, '2024-12-10 17:30:00', 'Debit Card', 1),  
(128121, 18, 'Go Vap district, Ho Chi Minh city', 2, '2024-12-15 10:20:00', 'Cash', 1),  
(676858, 19, 'Gia Lam district, Hanoi', 1, '2024-12-16 12:40:00', 'Credit Card', 1);
```

## All Data

	Product_ID	Customer_ID	Customer_Address	Total_Purchased	Purchased_Date	Pay_Method	Payment_Status
1	128121	18	Go Vap district, Ho Chi Minh city	2	2024-12-15 10:20:00.000	Cash	1
2	156192	5	unknown	4	2010-02-28 11:00:00.000	Cash	1
3	212517	2	456 Le Loi street, Hai Ba Trung district, Hanoi	2	2024-04-18 13:40:00.000	Credit Card	1
4	283222	12	321 Tran Hung Dao street, Thanh Khe, Da Nang	1	2024-09-10 09:15:00.000	Cash	1
5	300076	6	1010 Vo Thi Sau street, Thanh Khe district, Da N...	1	2024-05-05 15:25:00.000	Debit Card	1
6	382806	13	unknown	2	2024-10-05 16:45:00.000	Debit Card	1
7	412892	15	Hoan Kiem district, Hanoi	3	2024-12-01 13:10:00.000	Cash	1
8	485324	11	456 Le Loi street, Hai Ba Trung district, Hanoi	2	2023-08-22 14:30:00.000	Credit Card	1
9	498098	8	Ha Noi	1	2019-06-01 17:15:00.000	Cash	1
10	505608	2	456 Le Loi street, Hai Ba Trung district, Hanoi	1	2024-05-01 14:20:00.000	Cash	1
11	602475	16	99 Le Loi street, Hai Ba Trung, Hanoi	2	2024-12-05 15:00:00.000	Credit Card	1
12	676858	19	Gia Lam district, Hanoi	1	2024-12-16 12:40:00.000	Credit Card	1
13	684475	10	Hai Ba Trung district, Hanoi	1	2022-07-15 10:00:00.000	Debit Card	1
14	736184	9	Ha Tinh	3	2011-04-20 12:00:00.000	Credit Card	1
15	829357	7	Ba Dinh district, Hanoi	2	2021-03-12 08:50:00.000	Credit Card	1
16	890126	3	Thai Binh	3	2014-01-22 09:45:00.000	Credit Card	1
17	918160	4	Ba Dinh district, Hanoi	1	2024-06-10 16:10:00.000	Debit Card	1
18	934488	14	69 Tran Hung Dao street, Hoan Kiem district, Hanoi	1	2024-11-20 11:50:00.000	Credit Card	1
19	969837	17	Hanoi	1	2024-12-10 17:30:00.000	Debit Card	1
20	982278	1	123 Tran Hung Dao street, Hoan Kiem district, Ha...	2	2024-04-15 10:30:00.000	Credit Card	1