

VIETNAM NATIONAL UNIVERSITY - HO CHI MINH CITY
HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY
FACULTY OF COMPUTER SCIENCE AND ENGINEERING



DATABASE SYSTEM - SEMESTER 241

CELLPHONE SYSTEM MANAGING

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1 Description

The selling mobile store keeps track of Device, Branch, Staff, Supply Store and transaction with customer

The store is divided into many branches that have unique ID, name and location

The database will also store the employee, which is compulsory to be Staff or Manager, but both share the same attributes: unique ID, Name (LName, FName), Date of Birth (Date, Month, Year), Gender and Address

All employees must work for exactly one branch, but branch must be worked by at least 1 employees, and each employee will have the working duration value along with a specific branch.

The employee must be a staff or a manager, and the manager must control at least one staff, and each staff must be controlled by exactly one manager.

The database keeps track of devices sold which contain unique device ID, Price, DType and Dname, each device must be a smartphone or accessory.

Each type of device can be provided the specific discount given by a branch through discount programs that contains attributes: unique name, unique ID and description, and the store must follow the start date and end date as well as percent discount.

The accessory (which is the subclass of device) must be divided into adapt all (which can connect with all types of smartphones) or specific (which is only available to specific types of smartphones). For specific entity type, it must adapt at least one smartphone, but a smartphone can do not suit with any specific accessories.

Branches can be supplied for many devices by many supply stores, which store unique ID, Location and name, and the time as well as quantity will be stored.

The information of customer, who contains unique Account_ID, Address, CusPoint, one or more phone numbers, Name (FName, MName, LName), DOB, Gender also be kept track.

Moreover, after each transaction information should be contained in Bill: unique ID, Exported date consisting Date (D_Num, Month, Year), Time (Hour, Minute), Total Price and PaymentMethod

Each customer can receive one or more bills can have extra discount, and a bill must be received by exactly one customer The bill must contain at least one device, and a device can contain in exactly one bill

The bill must be created by exactly one staff, but a staff can create many bills

The bill can be returned or exchanged by many branches, and a branch can receive many those, the information about return_date and amount of return and exchange will be stored

2 Requirement

2.1 Tables and Sample Data

2.1.1 Create tables

1. Customer (AccountID , CusPoint, FName, MName, LName, DOB, Gender, Address)

```
1      CREATE TABLE Customer (  
2          AccountID INT PRIMARY KEY,  
3          CusPoint INT,  
4          FName VARCHAR(50),  
5          MName VARCHAR(50),  
6          LName VARCHAR(50),  
7          DOB DATE,  
8          Gender ENUM('Male', 'Female'),  
9          Address TEXT  
10 );  
11
```

2. CusNumPhone (AccountID, PhoneNumber)

```
1      CREATE TABLE CusNumPhone (  
2          AccountID INT,  
3          PhoneNumber VARCHAR(15),  
4          PRIMARY KEY (AccountID, PhoneNumber),  
5          FOREIGN KEY (AccountID) REFERENCES Customer(AccountID)  
6 );  
7
```

3. Voucher (AccountID, expiredDate, discountValue)

```
1      CREATE TABLE Voucher (  
2          AccountID INT,  
3          expiredDate DATE,  
4          discountValue DECIMAL(10, 2),  
5          FOREIGN KEY (AccountID) REFERENCES Customer(AccountID)  
6 );  
7
```

4. Branch (ID, Name, Location, DiscountType)

```
1      CREATE TABLE Branch (  
2          ID INT PRIMARY KEY,  
3          Name VARCHAR(100),  
4          Location VARCHAR(255),  
5          DiscountType VARCHAR(50)  
6 );  
7  
8
```

5. Manager (Manager_ID, BranchID)

```
1      CREATE TABLE Manager (  
2          Manager_ID INT PRIMARY KEY,  
3          BranchID INT,  
4          FOREIGN KEY (BranchID) REFERENCES Branch(ID)  
5 );  
6
```

6. Employee (EMP_ID, LName, FName, EMP_Date, Month, Year, EMP_Address, Gender, ManagerID)

```
1      CREATE TABLE Employee (  
2      EMP_ID INT PRIMARY KEY,  
3      LName VARCHAR(50),  
4      FName VARCHAR(50),  
5      EMP_Date DATE,  
6      Month INT,  
7      Year INT,  
8      EMP_Address TEXT,  
9      Gender ENUM('Male', 'Female'),  
10     ManagerID INT,  
11     FOREIGN KEY (ManagerID) REFERENCES Manager(Manager_ID)  
12 );  
13
```

7. Staff (StaffID)

```
1      CREATE TABLE Staff (  
2      StaffID INT PRIMARY KEY,  
3      FOREIGN KEY (StaffID) REFERENCES Employee(EMP_ID)  
4 );  
5
```

8. Bill (BillID, Cus_AccountID, PaymentMethod_ID, StaffID, D_Num, Month, Year, Hour, Minute, TotalPrice)

```
1      CREATE TABLE Bill (  
2      BillID INT PRIMARY KEY,  
3      Cus_AccountID INT,  
4      PaymentMethod_ID INT,  
5      StaffID INT,  
6      D_Num INT,  
7      Month INT,  
8      Year INT,  
9      Hour INT,  
10     Minute INT,  
11     TotalPrice DECIMAL(10, 2),  
12     FOREIGN KEY (Cus_AccountID) REFERENCES Customer(AccountID),  
13     FOREIGN KEY (StaffID) REFERENCES Staff(StaffID)  
14 );  
15
```

9. DeviceType (DeviceID, DeviceName)

```
1      CREATE TABLE DeviceType (  
2      DeviceID INT PRIMARY KEY,  
3      DeviceName VARCHAR(100)  
4 );  
5
```

10. Contain (BillID, deviceType, deviceNumber)

```
1      CREATE TABLE Contain (  
2      BillID INT,  
3      deviceType INT,  
4      deviceNumber INT,  
5      PRIMARY KEY (BillID, deviceType),
```

```
6 FOREIGN KEY (BillID) REFERENCES Bill(BillID),
7 FOREIGN KEY (deviceType) REFERENCES DeviceType(DeviceID)
8 );
9
```

11. Device (DeviceType, Status, DevicePrice)

```
1 CREATE TABLE Device (
2 DeviceType INT PRIMARY KEY,
3 Status ENUM('Active', 'Inactive'),
4 DevicePrice DECIMAL(10, 2),
5 FOREIGN KEY (DeviceType) REFERENCES DeviceType(DeviceID)
6 );
7
```

12. Updated (BillID, NoteID, SellQuantity, DeviceStatus)

```
1 CREATE TABLE Updated (
2 BillID INT,
3 NoteID INT,
4 SellQuantity INT,
5 DeviceStatus ENUM('New', 'Used', 'Defective'),
6 FOREIGN KEY (BillID) REFERENCES Bill(BillID)
7 );
8
```

13. ReturnExchangeStock (ID, ExpiredDate, BillID, BranchID)

```
1 CREATE TABLE ReturnExchangeStock (
2 ID INT PRIMARY KEY,
3 ExpiredDate DATE,
4 BillID INT,
5 BranchID INT,
6 FOREIGN KEY (BillID) REFERENCES Bill(BillID),
7 FOREIGN KEY (BranchID) REFERENCES Branch(ID)
8 );
9
```

14. PhoneNumber (PhoneNumber, EmployeeID)

```
1 CREATE TABLE PhoneNumber (
2 PhoneNumber VARCHAR(15) PRIMARY KEY,
3 EmployeeID INT,
4 FOREIGN KEY (EmployeeID) REFERENCES Employee(EMP_ID)
5 );
6
```

15. GoodDeliveryNote (ID, Description, DeliveryDate, BranchID)

```
1 CREATE TABLE GoodDeliveryNote (
2 ID INT PRIMARY KEY,
3 Description TEXT,
4 DeliveryDate DATE,
5 BranchID INT,
6 FOREIGN KEY (BranchID) REFERENCES Branch(ID)
7 );
8
```

16. GoodReceiveNote (ID, Description, ReceiveDate, BranchID)

```
1      CREATE TABLE GoodReceiveNote (  
2      ID INT PRIMARY KEY,  
3      Description TEXT,  
4      ReceiveDate DATE,  
5      BranchID INT,  
6      FOREIGN KEY (BranchID) REFERENCES Branch(ID)  
7  );  
8
```

17. Workfor (EMP_ID, BranchID, WorkingDuration)

```
1      CREATE TABLE Workfor (  
2      EMP_ID INT,  
3      BranchID INT,  
4      WorkingDuration INT,  
5      PRIMARY KEY (EMP_ID, BranchID),  
6      FOREIGN KEY (EMP_ID) REFERENCES Employee(EMP_ID),  
7      FOREIGN KEY (BranchID) REFERENCES Branch(ID)  
8  );  
9
```

18. Is_Haven (DeviceType, BranchID, ResidualQuantity)

```
1      CREATE TABLE Is_Haven (  
2      DeviceType INT,  
3      BranchID INT,  
4      ResidualQuantity INT,  
5      PRIMARY KEY (DeviceType, BranchID),  
6      FOREIGN KEY (DeviceType) REFERENCES DeviceType(DeviceID),  
7      FOREIGN KEY (BranchID) REFERENCES Branch(ID)  
8  );  
9
```

19. SupplyStore (SupplyID, BranchID, Location, Name)

```
1      CREATE TABLE SupplyStore (  
2      SupplyID INT PRIMARY KEY,  
3      BranchID INT,  
4      Location VARCHAR(255),  
5      Name VARCHAR(100),  
6      FOREIGN KEY (BranchID) REFERENCES Branch(ID)  
7  );  
8
```

20. DiscountProgram (Type, Name, Location, DeviceType)

```
1      CREATE TABLE DiscountProgram (  
2      Type INT PRIMARY KEY,  
3      Name VARCHAR(100),  
4      Location VARCHAR(255),  
5      DeviceType INT,  
6      FOREIGN KEY (DeviceType) REFERENCES DeviceType(DeviceID)  
7  );  
8
```

2.1.2 Insert data for tables

- insert data for customer table.



```
1      INSERT INTO Customer (AccountID, CusPoint, FName, MName, LName, DOB, Gender,
2      Address)
3      VALUES
4      ('CP123456789', 100, 'John', 'Michael', 'Doe', '1985-02-15', 'Male', '123 Maple
5      Street, Cityville'),
6      ('SV987654321', 200, 'Jane', 'Elizabeth', 'Smith', '1990-05-20', 'Female', '456 Oak
7      Avenue, Townsville'),
8      ('G0123098456', 150, 'George', 'Edward', 'Johnson', '1987-08-30', 'Male', '789 Pine
9      Road, Suburbia'),
10     ('DM456789123', 250, 'Diana', 'Rose', 'Williams', '1992-11-25', 'Female', '321
11     Birch Lane, Rivertown'),
12     ('CP678901234', 300, 'Chris', 'James', 'Brown', '1980-03-17', 'Male', '654 Cedar
13     Boulevard, Hilltown'),
14     ('SV345678901', 120, 'Sarah', 'Anne', 'Davis', '1995-07-10', 'Female', '987 Maple
15     Drive, Brookside'),
16     ('G0890123456', 180, 'Gary', 'Leonard', 'Miller', '1988-01-05', 'Male', '132 Elm
17     Street, Lakeview'),
18     ('DM234567890', 220, 'Donna', 'Marie', 'Moore', '1986-04-22', 'Female', '765 Pine
19     Hill, Springfield'),
20     ('CP567890123', 160, 'Catherine', 'Louise', 'Taylor', '1994-09-14', 'Female', '321
21     Walnut Way, Greenfield'),
22     ('SV123456789', 90, 'Samuel', 'David', 'Anderson', '1993-06-18', 'Male', '654
23     Spruce Street, Fairview'),
24     ('G0678901234', 110, 'Gregory', 'Philip', 'Thomas', '1982-12-30', 'Male', '876
25     Willow Lane, Meadowbrook'),
26     ('DM345678901', 130, 'Deborah', 'Grace', 'Jackson', '1991-03-25', 'Female', '543
27     Oak Street, Woodlands'),
28     ('CP234567890', 140, 'Charles', 'Arthur', 'White', '1989-10-02', 'Male', '234 Maple
29     Avenue, Coastline'),
30     ('SV890123456', 170, 'Sophia', 'Helen', 'Harris', '1996-04-12', 'Female', '789
31     Cedar Road, Crestwood'),
32     ('G0456789123', 200, 'Gina', 'Marie', 'Scott', '1984-09-28', 'Female', '654 Elm
33     Road, Hilltop'),
34     ('DM678901234', 250, 'Dennis', 'Paul', 'King', '1981-11-14', 'Male', '456 Birch
35     Boulevard, Valleyview'),
36     ('CP345678901', 220, 'Carlos', 'Ernesto', 'Martinez', '1997-05-04', 'Male', '123
37     Oak Circle, Westport'),
38     ('SV567890123', 130, 'Samantha', 'Joyce', 'Evans', '1993-02-16', 'Female', '321
39     Pine Street, Eastbrook'),
40     ('G0234567890', 90, 'Grant', 'Isaac', 'Green', '1989-08-21', 'Male', '432 Birch
41     Drive, Riverdale'),
42     ('DM890123456', 210, 'Danielle', 'Rosemary', 'Adams', '1991-12-10', 'Female', '876
43     Maple Road, Hillview'),
44     ('CP789012345', 230, 'Peter', 'Jack', 'Clark', '1986-05-22', 'Male', '654 Elm
45     Avenue, Greenhill'),
46     ('SV678901234', 140, 'Victoria', 'Grace', 'Baker', '1983-07-07', 'Female', '321 Oak
47     Street, Pinehill'),
48     ('G0123456789', 160, 'Brian', 'Lee', 'Nelson', '1990-03-12', 'Male', '987 Maple
49     Street, Seaside'),
50     ('DM567890123', 180, 'Daniel', 'Andrew', 'Carter', '1995-11-05', 'Male', '654 Pine
51     Lane, Ridgefield'),
52     ('CP234567891', 250, 'Patricia', 'Marie', 'Roberts', '1988-01-23', 'Female', '432
53     Cedar Avenue, Lakeside'),
54     ('SV123098456', 300, 'Samuel', 'Victor', 'Lopez', '1992-06-28', 'Male', '876 Birch
55     Road, Stonehill'),
56     ('G0789012345', 220, 'Gillian', 'Beatrice', 'Morris', '1996-09-19', 'Female', '321
57     Oak Boulevard, Forestview'),
58     ('DM890123457', 250, 'Douglas', 'Arthur', 'Evans', '1984-12-11', 'Male', '765 Pine
59     Street, Briarwood'),
```

```
31 ('CP345678900', 200, 'Clara', 'Jane', 'Parker', '1987-04-09', 'Female', '987 Elm
    Avenue, Brookfield'),
32 ('SV567890124', 170, 'Sophie', 'Louise', 'Gonzalez', '1993-10-15', 'Female', '654
    Maple Lane, Rosewood'),
33 ('G0234567891', 180, 'Oliver', 'Henry', 'Morris', '1995-08-29', 'Male', '321 Cedar
    Drive, Clearview');
34
```

- insert data for CusNumPhone table

```
1      INSERT INTO CusNumPhone (AccountID, PhoneNumber)
2  VALUES
3  ('CP123456789', '0123456789'),
4  ('SV987654321', '0234567890'),
5  ('G0123098456', '0345678901'),
6  ('DM456789123', '0456789012'),
7  ('CP678901234', '0567890123'),
8  ('SV345678901', '0678901234'),
9  ('G0890123456', '0789012345'),
10 ('DM234567890', '0890123456'),
11 ('CP567890123', '0901234567'),
12 ('SV123456789', '0912345678'),
13 ('G0678901234', '0123456789'),
14 ('DM345678901', '0134567890'),
15 ('CP234567890', '0245678901'),
16 ('SV890123456', '0356789012'),
17 ('G0456789123', '0467890123'),
18 ('DM678901234', '0578901234'),
19 ('CP345678901', '0689012345'),
20 ('SV567890123', '0790123456'),
21 ('G0234567890', '0801234567'),
22 ('DM890123456', '0912345678'),
23 ('CP789012345', '0723456789'),
24 ('SV678901234', '0534567890'),
25 ('G0123456789', '0645678901'),
26 ('DM567890123', '0356789012'),
27 ('CP234567891', '0267890123'),
28 ('SV123098456', '0178901234'),
29 ('G0789012345', '0989012345'),
30 ('DM890123457', '0790123456'),
31 ('CP345678900', '0801234567'),
32 ('SV567890124', '0912345678'),
33 ('G0234567891', '0323456789');
34
```

- insert data for voucher table

```
1      INSERT INTO Voucher (AccountID, expiredDate, discountValue)
2  VALUES
3  ('CP123456789', '2025-12-31', 50.00),
4  ('SV987654321', '2026-05-15', 20.00),
5  ('G0234567890', '2024-08-01', 75.50),
6  ('DM345678901', '2025-10-10', 10.99),
7  ('CP789123456', '2024-07-30', 0.00),
8  ('SV123098765', '2026-01-20', 30.75),
9  ('G0345678901', '2024-06-15', 40.00),
10 ('DM876543210', '2024-12-12', 99.99),
11 ('CP567890123', '2024-11-01', 60.10),
12 ('SV432109876', '2025-03-25', 5.50),
```

```

13 ('G0901234567', '2025-09-05', 100.00),
14 ('DM654321098', '2025-06-20', 25.00),
15 ('CP456789012', '2025-03-05', 85.60),
16 ('SV876543210', '2024-07-18', 15.25),
17 ('G0123987654', '2025-11-11', 22.45),
18 ('DM234567890', '2024-06-22', 38.90),
19 ('CP987654321', '2026-03-15', 13.70),
20 ('SV123456789', '2025-10-30', 60.20),
21 ('G0678901234', '2024-05-11', 33.80),
22 ('DM765432109', '2024-08-09', 77.60),
23 ('CP345678901', '2025-12-01', 92.50),
24 ('SV567890123', '2024-09-28', 10.90),
25 ('G0432109876', '2024-07-05', 60.00),
26 ('DM876543210', '2025-04-15', 18.99),
27 ('CP234567890', '2024-11-20', 41.15),
28 ('SV345678901', '2026-02-10', 58.70),
29 ('G0789123456', '2025-01-28', 14.00),
30 ('DM123098765', '2026-06-25', 19.95),
31 ('CP567890123', '2025-07-11', 7.80),
32 ('SV432109876', '2024-10-15', 42.30),
33 ('G0123456789', '2025-08-17', 99.99);
34

```

• insert data for branch table

```

1      INSERT INTO Branch (ID, Name, Location, DiscountType) VALUES
2 (1, 'Branch1', '123 Main Street, Springfield', 'Student Discount'),
3 (2, 'Branch2', '456 Elm Street, Springfield', 'Senior Discount'),
4 (3, 'Branch3', '789 Oak Street, Springfield', 'Membership Discount'),
5 (4, 'Branch4', '101 Maple Avenue, Springfield', 'Holiday Discount'),
6 (5, 'Branch5', '202 Birch Road, Springfield', 'No Discount'),
7 (6, 'Branch6', '303 Pine Lane, Springfield', 'Seasonal Discount'),
8 (7, 'Branch7', '404 Cedar Drive, Springfield', 'Student Discount'),
9 (8, 'Branch8', '505 Willow Boulevard, Springfield', 'Flash Sale Discount'),
10 (9, 'Branch9', '606 Redwood Street, Springfield', 'Senior Discount'),
11 (10, 'Branch10', '707 Spruce Avenue, Springfield', 'Family Discount'),
12 (11, 'Branch11', '808 Poplar Lane, Springfield', 'Student Discount'),
13 (12, 'Branch12', '909 Fir Street, Springfield', 'Holiday Discount'),
14 (13, 'Branch13', '1010 Aspen Way, Springfield', 'Membership Discount'),
15 (14, 'Branch14', '1111 Alder Road, Springfield', 'No Discount'),
16 (15, 'Branch15', '1212 Sycamore Drive, Springfield', 'Seasonal Discount'),
17 (16, 'Branch16', '1313 Cypress Street, Springfield', 'Senior Discount'),
18 (17, 'Branch17', '1414 Hickory Lane, Springfield', 'Family Discount'),
19 (18, 'Branch18', '1515 Juniper Boulevard, Springfield', 'Flash Sale Discount'),
20 (19, 'Branch19', '1616 Magnolia Avenue, Springfield', 'Holiday Discount'),
21 (20, 'Branch20', '1717 Palm Road, Springfield', 'Student Discount'),
22 (21, 'Branch21', '1818 Olive Street, Springfield', 'Senior Discount'),
23 (22, 'Branch22', '1919 Walnut Avenue, Springfield', 'Membership Discount'),
24 (23, 'Branch23', '2020 Chestnut Lane, Springfield', 'Seasonal Discount'),
25 (24, 'Branch24', '2121 Beech Road, Springfield', 'Family Discount'),
26 (25, 'Branch25', '2222 Cherry Boulevard, Springfield', 'Flash Sale Discount'),
27 (26, 'Branch26', '2323 Dogwood Avenue, Springfield', 'Holiday Discount'),
28 (27, 'Branch27', '2424 Elmwood Drive, Springfield', 'No Discount'),
29 (28, 'Branch28', '2525 Pinecone Road, Springfield', 'Student Discount'),
30 (29, 'Branch29', '2626 Sequoia Street, Springfield', 'Seasonal Discount'),
31 (30, 'Branch30', '2727 Willow Way, Springfield', 'Family Discount');
32

```

• insert data for manager table

```
1 INSERT INTO Manager (Manager_ID, BranchID)
2 VALUES
3 ('MN12345', 1),
4 ('MN23456', 2),
5 ('MN34567', 3),
6 ('MN45678', 4),
7 ('MN56789', 5),
8 ('MN67890', 6),
9 ('MN78901', 7),
10 ('MN89012', 8),
11 ('MN90123', 9),
12 ('MN01234', 10),
13 ('MN54321', 11),
14 ('MN65432', 12),
15 ('MN76543', 13),
16 ('MN87654', 14),
17 ('MN98765', 15),
18 ('MN09876', 16),
19 ('MN10987', 17),
20 ('MN21098', 18),
21 ('MN32109', 19),
22 ('MN43210', 20),
23 ('MN54322', 21),
24 ('MN65433', 22),
25 ('MN76544', 23),
26 ('MN87655', 24),
27 ('MN98766', 25),
28 ('MN09877', 26),
29 ('MN10988', 27),
30 ('MN21099', 28),
31 ('MN32110', 29),
32 ('MN43211', 30);
```

● insert data for employee table

```
1 INSERT INTO Employee (EMP_ID, LName, FName, EMP_Date, Month, Year, EMP_Address,
2 Gender, ManagerID)
3 VALUES
4 ('MN12345', 'Smith', 'John', '2023-01-10', 1, 2023, '1234 Elm St', 'Male', NULL),
5 ('MN23456', 'Doe', 'Jane', '2022-11-05', 11, 2022, '5678 Oak St', 'Female', NULL),
6 ('MN34567', 'Johnson', 'Michael', '2022-09-14', 9, 2022, '2345 Pine St', 'Male',
7 NULL),
8 ('MN45678', 'Williams', 'Sarah', '2021-08-20', 8, 2021, '9876 Maple St', 'Female',
9 NULL),
10 ('MN56789', 'Brown', 'David', '2023-02-11', 2, 2023, '1357 Birch St', 'Male', NULL),
11 ('MN67890', 'Jones', 'Emily', '2022-06-01', 6, 2022, '2468 Cedar St', 'Female',
12 NULL),
13 ('MN78901', 'Miller', 'Robert', '2021-12-22', 12, 2021, '3690 Redwood St', 'Male',
14 NULL),
15 ('MN89012', 'Davis', 'Linda', '2020-10-16', 10, 2020, '4812 Walnut St', 'Female',
16 NULL),
17 ('MN90123', 'Garcia', 'James', '2023-03-25', 3, 2023, '5729 Ash St', 'Male', NULL),
18 ('MN01234', 'Martinez', 'Patricia', '2022-04-14', 4, 2022, '6137 Maple St', 'Female',
19 NULL),
20 ('MN54321', 'Rodriguez', 'John', '2021-05-30', 5, 2021, '1453 Birch St', 'Male',
21 NULL),
22 ('MN65432', 'Hernandez', 'Mia', '2020-12-08', 12, 2020, '2849 Pine St', 'Female',
23 NULL),
```



```
15 ('MN76543', 'Lopez', 'Liam', '2021-03-23', 3, 2021, '3695 Cedar St', 'Male', NULL),
16 ('MN87654', 'Gonzalez', 'Sophia', '2022-10-04', 10, 2022, '4956 Redwood St', '
    Female', NULL),
17 ('MN98765', 'Perez', 'Ethan', '2023-07-10', 7, 2023, '5472 Oak St', 'Male', NULL),
18 ('MN09876', 'Wilson', 'Ava', '2021-09-15', 9, 2021, '6337 Walnut St', 'Female',
    NULL),
19 ('MN10987', 'Anderson', 'Isabella', '2022-05-13', 5, 2022, '7245 Ash St', 'Female',
    NULL),
20 ('MN21098', 'Thomas', 'Mason', '2020-11-07', 11, 2020, '8034 Birch St', 'Male',
    NULL),
21 ('MN32109', 'Taylor', 'Lucas', '2021-02-19', 2, 2021, '9145 Maple St', 'Male', NULL
    ),
22 ('MN43210', 'Moore', 'Harper', '2022-07-30', 7, 2022, '1043 Pine St', 'Female',
    NULL),
23 ('MN54322', 'Jackson', 'Benjamin', '2021-04-02', 4, 2021, '2156 Oak St', 'Male',
    NULL),
24 ('MN65433', 'White', 'Charlotte', '2023-05-20', 5, 2023, '3267 Cedar St', 'Female',
    NULL),
25 ('MN76544', 'Lee', 'Amelia', '2022-01-18', 1, 2022, '4378 Redwood St', 'Female',
    NULL),
26 ('MN87655', 'Walker', 'Elijah', '2021-06-12', 6, 2021, '5489 Walnut St', 'Male',
    NULL),
27 ('MN98766', 'Young', 'Oliver', '2020-08-25', 8, 2020, '6590 Ash St', 'Male', NULL),
28 ('MN09877', 'Allen', 'Isabella', '2021-01-08', 1, 2021, '7612 Birch St', 'Female',
    NULL),
29 ('MN10988', 'Sanchez', 'Harvey', '2022-12-14', 12, 2022, '8723 Pine St', 'Male',
    NULL),
30 ('MN21099', 'King', 'Eleanor', '2023-06-22', 6, 2023, '9834 Maple St', 'Female',
    NULL),
31 ('MN32110', 'Scott', 'Henry', '2020-09-16', 9, 2020, '1075 Oak St', 'Male', NULL),
32 ('MN43211', 'Green', 'Grace', '2021-07-03', 7, 2021, '2186 Cedar St', 'Female',
    NULL);

33
34 ('ST10001', 'Wilson', 'Jack', '2033-09-01', 9, 2033, '9012 Birch St', 'Male', '
    MN12345'),
35 ('ST10002', 'Garcia', 'Mason', '2033-10-02', 10, 2033, '1234 Pine St', 'Female', '
    MN23456'),
36 ('ST10003', 'Taylor', 'Charlotte', '2033-11-03', 11, 2033, '2345 Oak St', 'Male', '
    MN34567'),
37 ('ST10004', 'Lopez', 'Lucas', '2033-12-04', 12, 2033, '3456 Cedar St', 'Female', '
    MN45678'),
38 ('ST10005', 'Smith', 'Liam', '2034-01-05', 1, 2034, '4567 Birch St', 'Male', '
    MN56789'),
39 ('ST10006', 'Johnson', 'Emily', '2034-02-06', 2, 2034, '5678 Pine St', 'Female', '
    MN67890'),
40 ('ST10007', 'Williams', 'Michael', '2034-03-07', 3, 2034, '6789 Oak St', 'Male', '
    MN78901'),
41 ('ST10008', 'Brown', 'Sarah', '2034-04-08', 4, 2034, '7890 Cedar St', 'Female', '
    MN89012'),
42 ('ST10009', 'Taylor', 'David', '2034-05-09', 5, 2034, '8901 Birch St', 'Male', '
    MN90123'),
43 ('ST10010', 'Davis', 'Olivia', '2034-06-10', 6, 2034, '9012 Pine St', 'Female', '
    MN01234'),
44 ('ST10011', 'Miller', 'Liam', '2034-07-11', 7, 2034, '1234 Oak St', 'Male', '
    MN54321'),
```

- insert data for staff table

```
1 INSERT INTO Staff (StaffID)
```



```
2 VALUES
3 ('ST10001'),
4 ('ST10002'),
5 ('ST10003'),
6 ('ST10004'),
7 ('ST10005'),
8 ('ST10006'),
9 ('ST10007'),
10 ('ST10008'),
11 ('ST10009'),
12 ('ST10010'),
13 ('ST10011'),
14 ('ST10012'),
15 ('ST10013'),
16 ('ST10014'),
17 ('ST10015'),
18 ('ST10016'),
19 ('ST10017'),
20 ('ST10018'),
21 ('ST10019'),
22 ('ST10020'),
23 ('ST10021'),
24 ('ST10022'),
25 ('ST10023'),
26 ('ST10024'),
27 ('ST10025'),
28 ('ST10026'),
29 ('ST10027'),
30 ('ST10028'),
31 ('ST10029'),
32 ('ST10030'),
33 ('ST10031'),
34 ('ST10032'),
35 ('ST10033'),
36 ('ST10034'),
37 ('ST10035'),
38 ('ST10036'),
39 ('ST10037'),
40 ('ST10038'),
41 ('ST10039'),
42 ('ST10040'),
43 ('ST10041'),
44 ('ST10042'),
45 ('ST10043'),
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53 ('ST10051'),
54 ('ST10052'),
55 ('ST10053'),
56 ('ST10054'),
57 ('ST10055'),
58 ('ST10056'),
59 ('ST10057'),
60 ('ST10058'),
```



```
61 ('ST10059'),
62 ('ST10060'),
63 ('ST10061'),
64 ('ST10062'),
65 ('ST10063'),
66 ('ST10064'),
67 ('ST10065'),
68 ('ST10066'),
69 ('ST10067'),
70 ('ST10068'),
71 ('ST10069'),
72 ('ST10070'),
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74 ('ST10072'),
75 ('ST10073'),
76 ('ST10074'),
77 ('ST10075'),
78 ('ST10076'),
79 ('ST10077'),
80 ('ST10078'),
81 ('ST10079'),
82 ('ST10080'),
83 ('ST10081'),
84 ('ST10082'),
85 ('ST10083'),
86 ('ST10084'),
87 ('ST10085'),
88 ('ST10086'),
89 ('ST10087'),
90 ('ST10088'),
91 ('ST10089'),
92 ('ST10090'),
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96 ('ST10094'),
97 ('ST10095'),
98 ('ST10096'),
99 ('ST10097'),
100 ('ST10098'),
101 ('ST10099'),
102 ('ST10100'),
103 ('ST10101'),
104 ('ST10102'),
105 ('ST10103'),
106 ('ST10104'),
107 ('ST10105'),
108 ('ST10106'),
109 ('ST10107'),
110 ('ST10108'),
111 ('ST10109'),
112 ('ST10110'),
113 ('ST10111'),
114 ('ST10112'),
115 ('ST10113'),
116 ('ST10114'),
117 ('ST10115'),
118 ('ST10116'),
119 ('ST10117'),
```

```
120 ('ST10118'),
121 ('ST10119'),
122 ('ST10120'),
123 ('ST10121'),
124 ('ST10122'),
125 ('ST10123'),
126 ('ST10124'),
127 ('ST10125'),
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142 ('ST10140'),
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153 ('ST10151'),
154 ('ST10152'),
155 ('ST10153'),
156 ('ST10154'),
157 ('ST10155'),
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161 ('ST10159'),
162 ('ST10160'),
163 ('ST10161'),
164 ('ST10162'),
165 ('ST10163'),
166 ('ST10164'),
167 ('ST10165'),
168 ('ST10166'),
169 ('ST10167'),
170 ('ST10168'),
171 ('ST10169'),
172 ('ST10170'),
173 ('ST10171');
```

- insert data for bill table

```
1 INSERT INTO Bill (BillID, Cus_AccountID, PaymentMethod_ID, StaffID, D_Num,
    Month, Year, Hour, Minute, TotalPrice)
```



```

2 VALUES
3 ('CP123456789456', 'CP123456789', 1, 'ST10001', 101, 12, 2024, 14, 30, 150.75),
4 ('SV987654321873', 'SV987654321', 2, 'ST10002', 102, 12, 2024, 16, 45, 80.50),
5 ('G0123098456271', 'G0123098456', 1, 'ST10003', 103, 12, 2024, 10, 15, 200.00),
6 ('DM456789123985', 'DM456789123', 3, 'ST10004', 104, 12, 2024, 11, 00, 120.25),
7 ('CP678901234682', 'CP678901234', 2, 'ST10005', 105, 12, 2024, 18, 30, 75.90),
8 ('SV345678901943', 'SV345678901', 3, 'ST10006', 106, 12, 2024, 20, 00, 300.00),
9 ('G0890123456251', 'G0890123456', 1, 'ST10007', 107, 12, 2024, 9, 15, 180.40),
10 ('DM234567890118', 'DM234567890', 2, 'ST10008', 108, 12, 2024, 17, 30, 95.60),
11 ('CP567890123639', 'CP567890123', 1, 'ST10009', 109, 12, 2024, 12, 45, 250.00),
12 ('SV123456789561', 'SV123456789', 3, 'ST10010', 110, 12, 2024, 13, 00, 150.75),
13 ('G0678901234402', 'G0678901234', 1, 'ST10011', 111, 12, 2024, 14, 00, 310.00),
14 ('DM345678901184', 'DM345678901', 2, 'ST10012', 112, 12, 2024, 15, 45, 120.50),
15 ('CP234567890963', 'CP234567890', 3, 'ST10013', 113, 12, 2024, 16, 30, 95.75),
16 ('SV890123456551', 'SV890123456', 1, 'ST10014', 114, 12, 2024, 10, 00, 180.60),
17 ('G0456789123700', 'G0456789123', 2, 'ST10015', 115, 12, 2024, 11, 30, 205.90),
18 ('DM678901234846', 'DM678901234', 3, 'ST10016', 116, 12, 2024, 12, 00, 150.20),
19 ('CP345678901573', 'CP345678901', 1, 'ST10017', 117, 12, 2024, 13, 30, 275.00),
20 ('SV567890123408', 'SV567890123', 2, 'ST10018', 118, 12, 2024, 14, 15, 125.40),
21 ('G0234567890217', 'G0234567890', 3, 'ST10019', 119, 12, 2024, 15, 00, 135.60),
22 ('DM890123456312', 'DM890123456', 1, 'ST10020', 120, 12, 2024, 16, 30, 220.80);

```

• insert data for deviceType table

```

1 INSERT INTO DeviceType (DeviceID, DeviceName) VALUES
2 ('OL123456789', 'Apple iPhone 15 Pro'),
3 ('NE987654321', 'Samsung Galaxy Tab S9'),
4 ('OL456789123', 'Dell XPS 13 Laptop'),
5 ('NE234567891', 'Apple iMac 24-inch'),
6 ('OL345678912', 'Apple Watch Series 8'),
7 ('NE567891234', 'Amazon Kindle Paperwhite'),
8 ('OL678912345', 'Sony PlayStation 5'),
9 ('NE789123456', 'Samsung 55-inch QLED TV'),
10 ('OL891234567', 'Bose SoundLink Revolve+ Bluetooth Speaker'),
11 ('NE912345678', 'Sony WH-1000XM5 Noise Cancelling Headphones'),
12 ('OL102938475', 'Google Pixel 7'),
13 ('NE564738291', 'Microsoft Surface Pro 9'),
14 ('OL192837465', 'Lenovo ThinkPad X1 Carbon'),
15 ('NE837465192', 'HP Spectre x360'),
16 ('OL384756291', 'OnePlus 11 5G'),
17 ('NE182736495', 'Huawei MateBook 16'),
18 ('OL647382910', 'Apple iPad Pro 12.9-inch'),
19 ('NE293847561', 'Bose QuietComfort 45 Headphones'),
20 ('OL918273645', 'LG OLED C1 TV'),
21 ('NE123654789', 'Sony Xperia 1 IV'),
22 ('OL321456789', 'Razer Blade 15 Laptop'),
23 ('NE987321654', 'Oculus Quest 2 VR'),
24 ('OL765432198', 'Samsung Galaxy Z Flip 5'),
25 ('NE564738219', 'Xiaomi Mi 11 Ultra'),
26 ('OL234987612', 'Asus ROG Strix Laptop'),
27 ('NE547892136', 'Amazon Echo Show 10'),
28 ('OL982134765', 'Nintendo Switch OLED'),
29 ('NE847362915', 'Google Nest Audio'),
30 ('OL134765982', 'Samsung Galaxy Buds Pro'),
31 ('NE298374651', 'Fujitsu Lifebook U939X');

```

• insert data for contain table

```

1 INSERT INTO Contain (BillID, deviceType, deviceNumber) VALUES

```

```
2 ('CP123456789456', 'OL123456789', 1),
3 ('CP123456789456', 'NE987654321', 2),
4 ('SV987654321873', 'OL456789123', 3),
5 ('SV987654321873', 'NE234567891', 4),
6 ('G0123098456271', 'OL345678912', 5),
7 ('G0123098456271', 'NE567891234', 6),
8 ('DM456789123985', 'OL678912345', 7),
9 ('DM456789123985', 'NE789123456', 8),
10 ('CP678901234682', 'OL891234567', 9),
11 ('CP678901234682', 'NE912345678', 10),
12 ('SV345678901943', 'OL102938475', 11),
13 ('SV345678901943', 'NE564738291', 12),
14 ('G0890123456251', 'OL192837465', 13),
15 ('G0890123456251', 'NE837465192', 14),
16 ('DM234567890118', 'OL384756291', 15),
17 ('DM234567890118', 'NE182736495', 16),
18 ('CP567890123639', 'OL647382910', 17),
19 ('CP567890123639', 'NE293847561', 18),
20 ('SV123456789561', 'OL918273645', 19),
21 ('SV123456789561', 'NE123654789', 20),
22 ('G0678901234402', 'OL321456789', 21),
23 ('G0678901234402', 'NE987321654', 22),
24 ('DM345678901184', 'OL765432198', 23),
25 ('DM345678901184', 'NE564738219', 24),
26 ('CP234567890963', 'OL234987612', 25),
27 ('CP234567890963', 'NE547892136', 26),
28 ('SV890123456551', 'OL982134765', 27),
29 ('SV890123456551', 'NE847362915', 28),
30 ('G0456789123700', 'OL134765982', 29),
31 ('G0456789123700', 'NE298374651', 30),
32 ('DM678901234846', 'OL123456789', 31),
33 ('DM678901234846', 'NE987654321', 32),
34 ('CP345678901573', 'OL456789123', 33),
35 ('CP345678901573', 'NE234567891', 34),
36 ('SV567890123408', 'OL345678912', 35),
37 ('SV567890123408', 'NE567891234', 36),
38 ('G0234567890217', 'OL678912345', 37),
39 ('G0234567890217', 'NE789123456', 38),
40 ('DM890123456312', 'OL891234567', 39),
41 ('DM890123456312', 'NE912345678', 40);
```

● insert data for device table

```
1      INSERT INTO Device (DeviceType, Status, DevicePrice) VALUES
2
3 ('OL123456789', 'Active', 299.99),
4 ('NE987654321', 'Inactive', 199.49),
5 ('OL456789123', 'Active', 399.99),
6 ('NE234567891', 'Active', 249.99),
7 ('OL345678912', 'Inactive', 149.99),
8 ('NE567891234', 'Active', 89.99),
9 ('OL678912345', 'Inactive', 499.95),
10 ('NE789123456', 'Active', 350.49),
11 ('OL891234567', 'Inactive', 129.99),
12 ('NE912345678', 'Active', 599.99),
13 ('OL102938475', 'Active', 899.99),
14 ('NE564738291', 'Inactive', 749.99),
15 ('OL192837465', 'Active', 999.49),
16 ('NE837465192', 'Active', 450.99),
```

```

17 ('OL384756291', 'Inactive', 319.49),
18 ('NE182736495', 'Active', 199.99),
19 ('OL647382910', 'Inactive', 259.99),
20 ('NE293847561', 'Active', 300.00),
21 ('OL918273645', 'Inactive', 399.99),
22 ('NE123654789', 'Active', 700.00),
23 ('OL321456789', 'Active', 800.00),
24 ('NE987321654', 'Inactive', 299.99),
25 ('OL765432198', 'Active', 150.00),
26 ('NE564738219', 'Inactive', 50.00),
27 ('OL234987612', 'Active', 120.00),
28 ('NE547892136', 'Inactive', 450.00),
29 ('OL982134765', 'Active', 99.99),
30 ('NE847362915', 'Inactive', 650.00),
31 ('OL134765982', 'Active', 499.00),
32 ('NE298374651', 'Inactive', 899.00);

```

• insert data for updated table

```

1      INSERT INTO Updated (BillID, NoteID, SellQuantity, DeviceStatus) VALUES
2 ('CP123456789456', 101, 10, 'New'),
3 ('SV987654321873', 102, 5, 'Used'),
4 ('G0123098456271', 103, 15, 'Defective'),
5 ('DM456789123985', 104, 8, 'New'),
6 ('CP678901234682', 105, 20, 'Used'),
7 ('SV345678901943', 106, 12, 'Defective'),
8 ('G0890123456251', 107, 25, 'New'),
9 ('DM234567890118', 108, 18, 'Used'),
10 ('CP567890123639', 109, 7, 'Defective'),
11 ('SV123456789561', 110, 30, 'New'),
12 ('G0678901234402', 111, 9, 'Used'),
13 ('DM345678901184', 112, 13, 'Defective'),
14 ('CP234567890963', 113, 22, 'New'),
15 ('SV890123456551', 114, 17, 'Used'),
16 ('G0456789123700', 115, 11, 'Defective'),
17 ('DM678901234846', 116, 14, 'New'),
18 ('CP345678901573', 117, 6, 'Used'),
19 ('SV567890123408', 118, 16, 'Defective'),
20 ('G0234567890217', 119, 21, 'New'),
21 ('DM890123456312', 120, 19, 'Used');

```

• insert data for return exchange table

```

1      INSERT INTO ReturnExchangeStock (ID, ExpiredDate, BillID, BranchID) VALUES
2 (1, '2025-06-15', 'CP123456789456', 1),
3 (2, '2024-08-20', 'SV987654321873', 2),
4 (3, '2024-11-10', 'G0123098456271', 3),
5 (4, '2025-01-25', 'DM456789123985', 4),
6 (5, '2024-12-30', 'CP678901234682', 5),
7 (6, '2025-03-18', 'SV345678901943', 6),
8 (7, '2024-09-14', 'G0890123456251', 7),
9 (8, '2025-02-28', 'DM234567890118', 8),
10 (9, '2024-07-10', 'CP567890123639', 9),
11 (10, '2025-05-05', 'SV123456789561', 10),
12 (11, '2024-12-01', 'G0678901234402', 11),
13 (12, '2024-10-22', 'DM345678901184', 12),
14 (13, '2025-07-19', 'CP234567890963', 13),
15 (14, '2024-11-02', 'SV890123456551', 14),
16 (15, '2024-09-08', 'G0456789123700', 15),

```

```
17 (16, '2025-04-17', 'DM678901234846', 16),
18 (17, '2024-10-30', 'CP345678901573', 17),
19 (18, '2024-12-25', 'SV567890123408', 18),
20 (19, '2025-01-12', 'G0234567890217', 19),
21 (20, '2024-08-05', 'DM890123456312', 20),
22 (21, '2025-01-01', 'CP123456789456', 21),
23 (22, '2024-11-15', 'SV987654321873', 22),
24 (23, '2025-02-10', 'G0123098456271', 23),
25 (24, '2024-09-25', 'DM456789123985', 24),
26 (25, '2025-03-12', 'CP678901234682', 25),
27 (26, '2024-07-19', 'SV345678901943', 26),
28 (27, '2025-04-07', 'G0890123456251', 27),
29 (28, '2024-10-05', 'DM234567890118', 28),
30 (29, '2024-08-23', 'CP567890123639', 29),
31 (30, '2025-05-10', 'SV123456789561', 30);
```

- insert data for employee phone number table

```
1      INSERT INTO PhoneNumber (PhoneNumber, EmployeeID) VALUES
2 ('0123456789', 'MN12345'),
3 ('0234567890', 'MN23456'),
4 ('0345678901', 'MN34567'),
5 ('0456789012', 'MN45678'),
6 ('0567890123', 'MN56789'),
7 ('0678901234', 'MN67890'),
8 ('0789012345', 'MN78901'),
9 ('0890123456', 'MN89012'),
10 ('0901234567', 'MN90123'),
11 ('0102345678', 'MN01234'),
12 ('0543210987', 'MN54321'),
13 ('0654321098', 'MN65432'),
14 ('0765432109', 'MN76543'),
15 ('0876543210', 'MN87654'),
16 ('0987654321', 'MN98765'),
17 ('0098765432', 'MN09876'),
18 ('0110987654', 'MN10987'),
19 ('0121098765', 'MN21098'),
20 ('0132109876', 'MN32109'),
21 ('0143210987', 'MN43210'),
22 ('0154321098', 'MN54322'),
23 ('0165432109', 'MN65433'),
24 ('0176543210', 'MN76544'),
25 ('0187654321', 'MN87655'),
26 ('0198765432', 'MN98766'),
27 ('0209876543', 'MN09877'),
28 ('0210987654', 'MN10988'),
29 ('0221098765', 'MN21099'),
30 ('0232109876', 'MN32110'),
```

- insert data for good delivery note

```
1      INSERT INTO GoodDeliveryNote (ID, Description, DeliveryDate, BranchID) VALUES
2 (1, 'Delivery of goods to client A', '2024-12-01', 1),
3 (2, 'Delivery of office supplies', '2024-12-02', 2),
4 (3, 'Delivery of electronic components', '2024-12-03', 3),
5 (4, 'Shipment of raw materials', '2024-12-04', 4),
6 (5, 'Delivery of furniture', '2024-12-05', 5),
7 (6, 'Delivery of laboratory equipment', '2024-12-06', 6),
8 (7, 'Goods delivered for project B', '2024-12-07', 7),
```

```
9 (8, 'Delivery of uniforms to retail outlet', '2024-12-08', 8),
10 (9, 'Delivery of machinery', '2024-12-09', 9),
11 (10, 'Goods shipped to warehouse Z', '2024-12-10', 10),
12 (11, 'Transport of industrial goods', '2024-12-11', 11),
13 (12, 'Delivery of packaged food', '2024-12-12', 12),
14 (13, 'Delivery of construction materials', '2024-12-13', 13),
15 (14, 'Delivery of customer order #12345', '2024-12-14', 14),
16 (15, 'Shipment of office equipment', '2024-12-15', 15),
17 (16, 'Delivery of wholesale goods', '2024-12-16', 16),
18 (17, 'Transport of chemicals', '2024-12-17', 17),
19 (18, 'Delivery of imported goods', '2024-12-18', 18),
20 (19, 'Bulk delivery of books', '2024-12-19', 19),
21 (20, 'Shipment of electronics to client X', '2024-12-20', 20),
22 (21, 'Transport of home appliances', '2024-12-21', 21),
23 (22, 'Delivery of construction equipment', '2024-12-22', 22),
24 (23, 'Shipment of medical supplies', '2024-12-23', 23),
25 (24, 'Delivery of spare parts', '2024-12-24', 24),
26 (25, 'Delivery of promotional items', '2024-12-25', 25),
27 (26, 'Delivery of pet supplies', '2024-12-26', 26),
28 (27, 'Goods shipped to retail outlets', '2024-12-27', 27),
29 (28, 'Transport of books and magazines', '2024-12-28', 28),
30 (29, 'Delivery of agricultural products', '2024-12-29', 29),
31 (30, 'Delivery of cleaning materials', '2024-12-30', 30);
```

- insert data for good receive note

```
1      INSERT INTO GoodReceiveNote (ID, Description, ReceiveDate, BranchID) VALUES
2 (1, 'Goods received from supplier A', '2024-12-01', 1),
3 (2, 'Received office supplies from vendor', '2024-12-02', 2),
4 (3, 'Received components for assembly', '2024-12-03', 3),
5 (4, 'Received shipment of raw materials', '2024-12-04', 4),
6 (5, 'Received new furniture stock', '2024-12-05', 5),
7 (6, 'Received laboratory equipment', '2024-12-06', 6),
8 (7, 'Received goods for project B', '2024-12-07', 7),
9 (8, 'Received uniforms from supplier', '2024-12-08', 8),
10 (9, 'Received machinery for production', '2024-12-09', 9),
11 (10, 'Received bulk shipment at warehouse Z', '2024-12-10', 10),
12 (11, 'Received industrial materials from overseas', '2024-12-11', 11),
13 (12, 'Received packaged food items', '2024-12-12', 12),
14 (13, 'Received construction materials for project', '2024-12-13', 13),
15 (14, 'Received customer order #12345', '2024-12-14', 14),
16 (15, 'Received new office equipment', '2024-12-15', 15),
17 (16, 'Received wholesale goods from distributor', '2024-12-16', 16),
18 (17, 'Received chemicals from supplier', '2024-12-17', 17),
19 (18, 'Received imported goods from overseas', '2024-12-18', 18),
20 (19, 'Received books for retail', '2024-12-19', 19),
21 (20, 'Received electronics from vendor X', '2024-12-20', 20),
22 (21, 'Received home appliances for retail', '2024-12-21', 21),
23 (22, 'Received construction equipment for site', '2024-12-22', 22),
24 (23, 'Received medical supplies for hospital', '2024-12-23', 23),
25 (24, 'Received spare parts for maintenance', '2024-12-24', 24),
26 (25, 'Received promotional items for sale', '2024-12-25', 25),
27 (26, 'Received pet supplies for store', '2024-12-26', 26),
28 (27, 'Received goods for retail sale', '2024-12-27', 27),
29 (28, 'Received books and magazines for sale', '2024-12-28', 28),
30 (29, 'Received agricultural products for farm', '2024-12-29', 29),
31 (30, 'Received cleaning materials for stock', '2024-12-30', 30);
32
```

- insert data for work for table

```
1      INSERT INTO Workfor (EMP_ID, BranchID, WorkingDuration) VALUES
2      ('MN12345', 1, 10),
3      ('MN23456', 2, 12),
4      ('MN34567', 3, 9),
5      ('MN45678', 4, 15),
6      ('MN56789', 5, 11),
7      ('MN67890', 6, 8),
8      ('MN78901', 7, 10),
9      ('MN89012', 8, 13),
10     ('MN90123', 9, 9),
11     ('MNO1234', 10, 7),
12     ('MN54321', 11, 14),
13     ('MN65432', 12, 11),
14     ('MN76543', 13, 8),
15     ('ST10152', 1, 14),
16     ('ST10153', 2, 13),
17     ('ST10154', 2, 11),
18     ('ST10155', 3, 15),
19     ('ST10156', 3, 10),
20     ('ST10157', 4, 7),
21     ('ST10158', 4, 12),
22     ('ST10159', 5, 9),
23     ('ST10160', 5, 8),
24     ('ST10161', 6, 10),
25     ('ST10162', 6, 14),
26     ('ST10163', 7, 12),
27     ('ST10164', 7, 11),
28     ('ST10165', 8, 15),
29     ('ST10166', 8, 9),
30     ('ST10167', 9, 13),
31     ('ST10168', 9, 10),
32     ('ST10169', 10, 12),
33     ('ST10170', 10, 11),
34     ('ST10171', 11, 14);
35
```

- insert data for is haven table

```
1      INSERT INTO Is_Haven (DeviceType, BranchID, ResidualQuantity) VALUES
2      ('OL123456789', 1, 150),
3      ('NE987654321', 2, 200),
4      ('OL456789123', 3, 180),
5      ('NE234567891', 4, 220),
6      ('OL345678912', 5, 250),
7      ('NE567891234', 6, 300),
8      ('OL678912345', 7, 350),
9      ('NE789123456', 8, 400),
10     ('OL891234567', 9, 450),
11     ('NE912345678', 10, 500),
12     ('OL102938475', 11, 550),
13     ('NE564738291', 12, 600),
14     ('OL192837465', 13, 650),
15     ('NE837465192', 14, 700),
16     ('OL384756291', 15, 750),
17     ('NE182736495', 16, 800),
18     ('OL647382910', 17, 850),
19     ('NE293847561', 18, 900),
20     ('OL918273645', 19, 950),
```

```
21 ('NE123654789', 20, 1000),
22 ('OL321456789', 21, 1050),
23 ('NE987321654', 22, 1100),
24 ('OL765432198', 23, 1150),
25 ('NE564738219', 24, 1200),
26 ('OL234987612', 25, 1250),
27 ('NE547892136', 26, 1300),
28 ('OL982134765', 27, 1350),
29 ('NE847362915', 28, 1400),
30 ('OL134765982', 29, 1450),
31 ('NE298374651', 30, 1500);
32
```

- insert data for supply store table

```
1      INSERT INTO SupplyStore (SupplyID, BranchID, Location, Name) VALUES
2 (1, 1, 'New York', 'Tech Supplies Co. '),
3 (2, 2, 'Los Angeles', 'City Electronics'),
4 (3, 3, 'Chicago', 'Gadget World'),
5 (4, 4, 'Houston', 'Device Depot'),
6 (5, 5, 'Phoenix', 'Future Tech Supplies'),
7 (6, 6, 'Philadelphia', 'HomeTech Solutions'),
8 (7, 7, 'San Antonio', 'Pro Devices Store'),
9 (8, 8, 'San Diego', 'NextGen Electronics'),
10 (9, 9, 'Dallas', 'Techno Haven'),
11 (10, 10, 'San Jose', 'Supplies Plus'),
12 (11, 11, 'Austin', 'Innovative Electronics'),
13 (12, 12, 'Jacksonville', 'Tech Gadgets & More'),
14 (13, 13, 'Fort Worth', 'SmartTech Hub'),
15 (14, 14, 'Columbus', 'AllTech Supplies'),
16 (15, 15, 'Indianapolis', 'Best Devices Store'),
17 (16, 16, 'Charlotte', 'Tech Haven'),
18 (17, 17, 'Seattle', 'Tech Gear Co. '),
19 (18, 18, 'Denver', 'Supplies Express'),
20 (19, 19, 'Washington', 'Electro World'),
21 (20, 20, 'Boston', 'Gadget Central'),
22 (21, 21, 'El Paso', 'Device Kings'),
23 (22, 22, 'Nashville', 'Tech Unlimited'),
24 (23, 23, 'Detroit', 'Gadget Storehouse'),
25 (24, 24, 'Portland', 'FutureTech Supply'),
26 (25, 25, 'Memphis', 'Device Masters'),
27 (26, 26, 'Oklahoma City', 'Supplies Direct'),
28 (27, 27, 'Las Vegas', 'Gadget Empire'),
29 (28, 28, 'Louisville', 'Electronics Unlimited'),
30 (29, 29, 'Baltimore', 'Device Solutions'),
31 (30, 30, 'Milwaukee', 'TechMart');
32
```

- insert data for discountProgram table

```
1      INSERT INTO DiscountProgram (Type, Name, Location, DeviceType) VALUES
2 (1, 'Winter Sale', 'New York', 'OL123456789'),
3 (2, 'Black Friday Deal', 'Los Angeles', 'NE987654321'),
4 (3, 'Spring Clearance', 'Chicago', 'OL456789123'),
5 (4, 'Summer Savings', 'Houston', 'NE234567891'),
6 (5, 'Back to School Discount', 'Phoenix', 'OL345678912'),
7 (6, 'Holiday Special', 'Philadelphia', 'NE567891234'),
8 (7, 'Flash Sale', 'San Antonio', 'OL678912345'),
9 (8, 'Early Bird Offer', 'San Diego', 'NE789123456'),
```

```
10 (9, 'Tech Week Discount', 'Dallas', 'OL891234567'),
11 (10, 'New Year Promotion', 'San Jose', 'NE912345678'),
12 (11, 'Weekend Deal', 'Austin', 'OL102938475'),
13 (12, 'Christmas Sale', 'Jacksonville', 'NE564738291'),
14 (13, 'Summer Blowout', 'Fort Worth', 'OL192837465'),
15 (14, 'Special Offer', 'Columbus', 'NE837465192'),
16 (15, 'End of Year Sale', 'Indianapolis', 'OL384756291'),
17 (16, 'Clearance Event', 'Charlotte', 'NE182736495'),
18 (17, 'Autumn Sale', 'Seattle', 'OL647382910'),
19 (18, 'Mega Discount', 'Denver', 'NE293847561'),
20 (19, 'Seasonal Offer', 'Washington', 'OL918273645'),
21 (20, 'Super Sale', 'Boston', 'NE123654789'),
22 (21, 'Exclusive Offer', 'El Paso', 'OL321456789'),
23 (22, 'Holiday Deal', 'Nashville', 'NE987321654'),
24 (23, 'Discount Week', 'Detroit', 'OL765432198'),
25 (24, 'VIP Discount', 'Portland', 'NE564738219'),
26 (25, 'Flash Offer', 'Memphis', 'OL234987612'),
27 (26, 'New Launch Special', 'Oklahoma City', 'NE547892136'),
28 (27, 'Black Friday Promo', 'Las Vegas', 'OL982134765'),
29 (28, 'Storewide Discount', 'Louisville', 'NE847362915'),
30 (29, 'Buy More, Save More', 'Baltimore', 'OL134765982'),
31 (30, 'Exclusive Members Discount', 'Milwaukee', 'NE298374651');
32
```

2.2 Implement application

2.2.1 PROCEDURES

1. Add new customer procedure

```
1      CREATE PROCEDURE AddNewCustomer(
2      IN p_AccountID INT,
3      IN p_CusPoint INT,
4      IN p_FName VARCHAR(50),
5      IN p_MName VARCHAR(50),
6      IN p_LName VARCHAR(50),
7      IN p_DOB DATE,
8      IN p_Gender ENUM('Male', 'Female'),
9      IN p_Address TEXT,
10     IN p_PhoneNumber VARCHAR(15)
11 )
12 BEGIN
13     DECLARE EXIT HANDLER FOR SQLEXCEPTION
14     BEGIN
15         ROLLBACK;
16     END;
17
18     START TRANSACTION;
19
20     IF EXISTS (SELECT 1 FROM Customer WHERE AccountID = p_AccountID) THEN
21         SIGNAL SQLSTATE '45000'
22         SET MESSAGE_TEXT = 'AccountID already exists.';
23     END IF;
24
25
26     INSERT INTO Customer (AccountID, CusPoint, FName, MName, LName, DOB, Gender,
27     Address)
28     VALUES (p_AccountID, p_CusPoint, p_FName, p_MName, p_LName, p_DOB, p_Gender,
29     p_Address);
```



```
28
29     INSERT INTO CusNumPhone (AccountID, PhoneNumber)
30     VALUES (p_AccountID, p_PhoneNumber);
31
32     COMMIT;
33 END$$
34
```

2. Update customer point procedure

```
1     CREATE PROCEDURE DeleteCustomer(
2     IN p_PhoneNumber VARCHAR(15)
3 )
4 BEGIN
5     DECLARE v_AccountID INT;
6     DECLARE customer_exists INT;
7
8     SELECT AccountID INTO v_AccountID
9     FROM CusNumPhone
10    WHERE PhoneNumber = p_PhoneNumber;
11
12    IF v_AccountID IS NULL THEN
13        SIGNAL SQLSTATE '45000'
14        SET MESSAGE_TEXT = 'Customer not exist.';
15    END IF;
16
17    SELECT COUNT(*) INTO customer_exists
18    FROM Customer
19    WHERE AccountID = v_AccountID;
20
21    IF customer_exists = 0 THEN
22        SIGNAL SQLSTATE '45000'
23        SET MESSAGE_TEXT = 'Customer not exist.';
24    ELSE
25        DELETE FROM CusNumPhone WHERE AccountID = v_AccountID;
26
27        DELETE FROM Voucher WHERE AccountID = v_AccountID;
28
29        DELETE FROM Customer WHERE AccountID = v_AccountID;
30    END IF;
31 END$$
32
```

3. Get customer detail procedure

```
1     CREATE PROCEDURE GetCustomerDetails(
2     IN p_AccountID INT
3 )
4 BEGIN
5     SELECT
6         AccountID, CusPoint, FName, MName, LName, DOB, Gender, Address
7     FROM
8         Customer
9     WHERE
10        AccountID = p_AccountID;
11    SELECT
12        PhoneNumber
13    FROM
14        CusNumPhone
```

```
15 WHERE
16     AccountID = p_AccountID;
17
18 SELECT
19     expiredDate, discountValue
20 FROM
21     Voucher
22 WHERE
23     AccountID = p_AccountID;
24 END$$
25
26
```

4. Get Branch Sell procedure

```
1 CREATE PROCEDURE GetBranchSalesReport(
2     IN p_BranchID INT,
3     IN p_StartMonth INT,
4     IN p_StartYear INT,
5     IN p_EndMonth INT,
6     IN p_EndYear INT
7 )
8 BEGIN
9     SELECT
10         b.ID AS BranchID,
11         b.Name AS BranchName,
12         COUNT(bill.BillID) AS TotalBills,
13         SUM(bill.TotalPrice) AS TotalSales
14     FROM
15         Branch b
16     LEFT JOIN
17         Bill bill ON b.ID = (SELECT BranchID FROM Workfor wf WHERE wf.EMP_ID = bill
18         .StaffID LIMIT 1)
19     WHERE
20         b.ID = p_BranchID
21         AND (
22             (bill.Month > p_StartMonth AND bill.Year >= p_StartYear) OR
23             (bill.Month < p_EndMonth AND bill.Year <= p_EndYear)
24         )
25     GROUP BY
26         b.ID, b.Name
27     HAVING
28         COUNT(bill.BillID) > 0
29     ORDER BY
30         TotalSales DESC;
31 END$$
```

2.2.2 TRIGGERS

1. Check existed account

```
1 CREATE TRIGGER BeforeBillInsert
2 BEFORE INSERT ON Bill
3 FOR EACH ROW
4 BEGIN
5     DECLARE customer_exists INT;
6
7     -- Check if the customer exists
```

```
8      SELECT COUNT(*)
9      INTO customer_exists
10     FROM Customer
11     WHERE AccountID = NEW.Cus_AccountID;
12
13     -- If the customer does not exist, raise an error
14     IF customer_exists = 0 THEN
15         SIGNAL SQLSTATE '45000'
16         SET MESSAGE_TEXT = 'Cannot create a bill for a non-existent customer';
17     END IF;
18 END$$
19
```

2. check overdue exchange date

```
1      CREATE TRIGGER BeforeReturnExchangeInsert
2  BEFORE INSERT ON ReturnExchangeStock
3  FOR EACH ROW
4  BEGIN
5      DECLARE bill_branch_id INT;
6      DECLARE staff_branch_id INT;
7
8      -- Get the branch where the bill was created
9      SELECT BranchID INTO bill_branch_id
10     FROM Bill
11     JOIN Stafff ON Bill.StaffID = Stafff.StaffID
12     JOIN Workfor ON Stafff.StaffID = Workfor.EMP_ID
13     WHERE Bill.BillID = NEW.BillID;
14
15     -- Get the branch of the staff processing the return
16     SELECT BranchID INTO staff_branch_id
17     FROM Workfor
18     WHERE EMP_ID = NEW.BranchID;
19
20     -- Validate that both branches match
21     IF bill_branch_id IS NULL OR staff_branch_id IS NULL OR bill_branch_id !=
22        staff_branch_id THEN
23         SIGNAL SQLSTATE '45000'
24         SET MESSAGE_TEXT = 'Cannot process return or exchange. Bill and return must
25            be handled by staff from the same branch.';
26     END IF;
27 END$$
28
```

3. Check number of staff

```
1      CREATE TRIGGER staff_count_check BEFORE INSERT ON Workfor
2  FOR EACH ROW
3  BEGIN
4      DECLARE staff_count INT;
5      SELECT COUNT(*) INTO staff_count FROM Workfor WHERE BranchID = NEW.BranchID;
6      IF staff_count >= 10 THEN
7          SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Branch cannot have more than 10
8             staff members';
9      ELSEIF staff_count < 5 THEN
10         SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Branch must have at least 5
11            staff members';
12     END IF;
13 END$$
14
```

2.2.3 FUNCTIONS

1. Calculate total discount

```
1      CREATE FUNCTION CalculateTotalDiscount(  
2          p_AccountID INT  
3      ) RETURNS DECIMAL(10,2)  
4      DETERMINISTIC  
5      BEGIN  
6          DECLARE total_discount DECIMAL(10,2);  
7  
8          SELECT  
9              IFNULL(SUM(discountValue), 0)  
10             INTO  
11                 total_discount  
12             FROM  
13                 Voucher  
14             WHERE  
15                 AccountID = p_AccountID  
16                 AND expiredDate >= CURDATE();  
17  
18             RETURN total_discount;  
19     END$$  
20
```

2. check valid phone number

```
1      CREATE FUNCTION ValidatePhoneNumber(  
2          p_PhoneNumber VARCHAR(15)  
3      ) RETURNS BOOLEAN  
4      DETERMINISTIC  
5      BEGIN  
6          DECLARE valid BOOLEAN DEFAULT FALSE;  
7  
8          IF p_PhoneNumber REGEXP '^0[0-9]{8}$' THEN  
9              SET valid = TRUE;  
10             END IF;  
11  
12             RETURN valid;  
13     END$$  
14
```

2.2.4 APPICATION

For more detail please refer to this link below: https://github.com/NgMinhTie/DBS_Ass2/tree/main