Case Study: Inventory Management System for StoreX

StoreX is a small retail business that specializes in selling computer peripherals and accessories. The company maintains an inventory database to keep track of its products, pricing, and stock levels. You have been assigned as a database administrator to design, implement, and manage this inventory system.

Background Information

The **Product_master** table is used to store details about each product available in the inventory. The table includes columns such as **Product Number, Description, Profit Percentage, Unit of Measure, Quantity on Hand, Reorder Level, Selling Price, and Cost Price**.

Recently, StoreX has decided to restructure its inventory database to optimize operations and improve profitability. Several tasks have been assigned based on specific business conditions.

Tasks & Queries Based on Business Conditions

1. **Database & Table Creation**

   - You need to create a new database named **Store** and define the **Product_master** table with relevant attributes.

2. **Inserting Initial Product Data**

   - The company has decided to populate the table with an initial set of products, including items such as Floppies, Monitors, Keyboards, Mouse, and CD Drives.

3. **Identifying Unique Product Categories**

   - Management wants to know the **distinct product descriptions** available in the inventory.

```
Database created
Table created
('Floppies',)
('Monitor',)
('Mouse',)
('Keyboards',)
('Cd Drive',)
('1.44 Drive',)
```

4. **Updating Product Cost for Floppies**

- The cost price of **Floppies** needs to be updated to ₹950.00 due to changes in supplier pricing.

```
Database created
Table created
('P001', 'Floppies', Decimal('5.00'), 'Piece', 100, 20, Decimal('525.00'), Decimal('950.00'), None)
('P002', 'Monitor', Decimal('6.00'), 'Piece', 10, 3, Decimal('12000.00'), Decimal('11280.00'), None)
('P003', 'Mouse', Decimal('5.00'), 'Piece', 20, 5, Decimal('1050.00'), Decimal('1000.00'), None)
('P004', 'Floppies', Decimal('5.00'), 'Piece', 100, 20, Decimal('525.00'), Decimal('950.00'), None)
('P005', 'Keyboards', Decimal('2.00'), 'Piece', 10, 3, Decimal('3150.00'), Decimal('3050.00'), None)
('P006', 'Cd Drive', Decimal('2.50'), 'Piece', 10, 3, Decimal('5250.00'), Decimal('5100.00'), None)
('P007', '1.44 Drive', Decimal('4.00'), 'Piece', 10, 3, Decimal('8400.00'), Decimal('8000.00'), None)
```

5. **Removing Excess Inventory**

- Products with **quantity on hand equal to 100** should be removed from the database as they are considered overstocked.

```
Database created
Table created
('P002', 'Monitor', Decimal('6.00'), 'Piece', 10, 3, Decimal('12000.00'), Decimal('11280.00'), None)
('P003', 'Mouse', Decimal('5.00'), 'Piece', 20, 5, Decimal('1050.00'), Decimal('1000.00'), None)
('P005', 'Keyboards', Decimal('2.00'), 'Piece', 10, 3, Decimal('3150.00'), Decimal('3050.00'), None)
('P006', 'Cd Drive', Decimal('2.50'), 'Piece', 10, 3, Decimal('5250.00'), Decimal('5100.00'), None)
('P007', '1.44 Drive', Decimal('4.00'), 'Piece', 10, 3, Decimal('8400.00'), Decimal('8000.00'), None)
```

6. **Correcting Sell Price Data Type**

- There was an error in defining the **Sell_price** column, and it needs to be corrected to **decimal(10,2)**.

```
Database created
Table created
('Product_no', 'varchar(6)', 'NO', 'PRI', None, '')
('Description', 'varchar(15)', 'YES', '', None, '')
('P_percent', 'decimal(4,2)', 'YES', '', None, '')
('U_measure', 'varchar(10)', 'YES', '', None, '')
('Qut_on_hand', 'int', 'YES', '', None, '')
('Recorder_lvl', 'int', 'YES', '', None, '')
('Sell_price', 'decimal(10,2)', 'YES', '', None, '')
('Cost_price', 'decimal(8,2)', 'YES', '', None, '')
('Charge', 'int', 'YES', '', None, '')
('Charge1', 'int', 'YES', '', None, '')
```

7. **Adding a New Column for Additional Charges**

   ○ A new column named **Charge1** should be added to store any additional charges applied to the products.

```
Database created
Table created
('Product_no', 'varchar(6)', 'NO', 'PRI', None, '')
('Description', 'varchar(15)', 'YES', '', None, '')
('P_percent', 'decimal(4,2)', 'YES', '', None, '')
('U_measure', 'varchar(10)', 'YES', '', None, '')
('Qut_on_hand', 'int', 'YES', '', None, '')
('Recorder_lvl', 'int', 'YES', '', None, '')
('Sell_price', 'decimal(10,2)', 'YES', '', None, '')
('Cost_price', 'decimal(8,2)', 'YES', '', None, '')
('Charge', 'int', 'YES', '', None, '')
('Charge1', 'int', 'YES', '', None, '')
```

8. **Updating Charge for All Products**

   ○ The **Charge** for every product should be set to **₹1000** as per new company policies.

```
Database created
Table created
('P001', 'Floppies', Decimal('5.00'), 'Piece', 100, 20, Decimal('525.00'), Decimal('500.00'), 1000)
('P002', 'Monitor', Decimal('6.00'), 'Piece', 10, 3, Decimal('12000.00'), Decimal('11280.00'), 1000)
('P003', 'Mouse', Decimal('5.00'), 'Piece', 20, 5, Decimal('1050.00'), Decimal('1000.00'), 1000)
('P004', 'Floppies', Decimal('5.00'), 'Piece', 100, 20, Decimal('525.00'), Decimal('500.00'), 1000)
('P005', 'Keyboards', Decimal('2.00'), 'Piece', 10, 3, Decimal('3150.00'), Decimal('3050.00'), 1000)
('P006', 'Cd Drive', Decimal('2.50'), 'Piece', 10, 3, Decimal('5250.00'), Decimal('5100.00'), 1000)
('P007', '1.44 Drive', Decimal('4.00'), 'Piece', 10, 3, Decimal('8400.00'), Decimal('8000.00'), 1000)
```

9. **Retrieving Specific Product Information**

   ○ Fetch **Product Numbers and Descriptions** of items where **quantity on hand is less than or equal to 100 and the profit percentage is 5%**.

```
Database created
Table created
('P001', 'Floppies')
('P003', 'Mouse')
('P004', 'Floppies')
```

10. **Displaying Final Product List**

   ○ Retrieve and display all the records from the **Product_master** table after performing the necessary updates.

```
Database created
Table created
('P001', 'Floppies', Decimal('5.00'), 'Piece', 100, 20, Decimal('525.00'), Decimal('500.00'), None)
('P002', 'Monitor', Decimal('6.00'), 'Piece', 10, 3, Decimal('12000.00'), Decimal('11280.00'), None)
('P003', 'Mouse', Decimal('5.00'), 'Piece', 20, 5, Decimal('1050.00'), Decimal('1000.00'), None)
('P004', 'Floppies', Decimal('5.00'), 'Piece', 100, 20, Decimal('525.00'), Decimal('500.00'), None)
('P005', 'Keyboards', Decimal('2.00'), 'Piece', 10, 3, Decimal('3150.00'), Decimal('3050.00'), None)
('P006', 'Cd Drive', Decimal('2.50'), 'Piece', 10, 3, Decimal('5250.00'), Decimal('5100.00'), None)
('P007', '1.44 Drive', Decimal('4.00'), 'Piece', 10, 3, Decimal('8400.00'), Decimal('8000.00'), None)
```