FORE School of Management
New Delhi

<u>Big Data for Managers & Analytics</u>

<u>Topic: Database Project Report on Chaayos</u>

<u>Submitted To</u>

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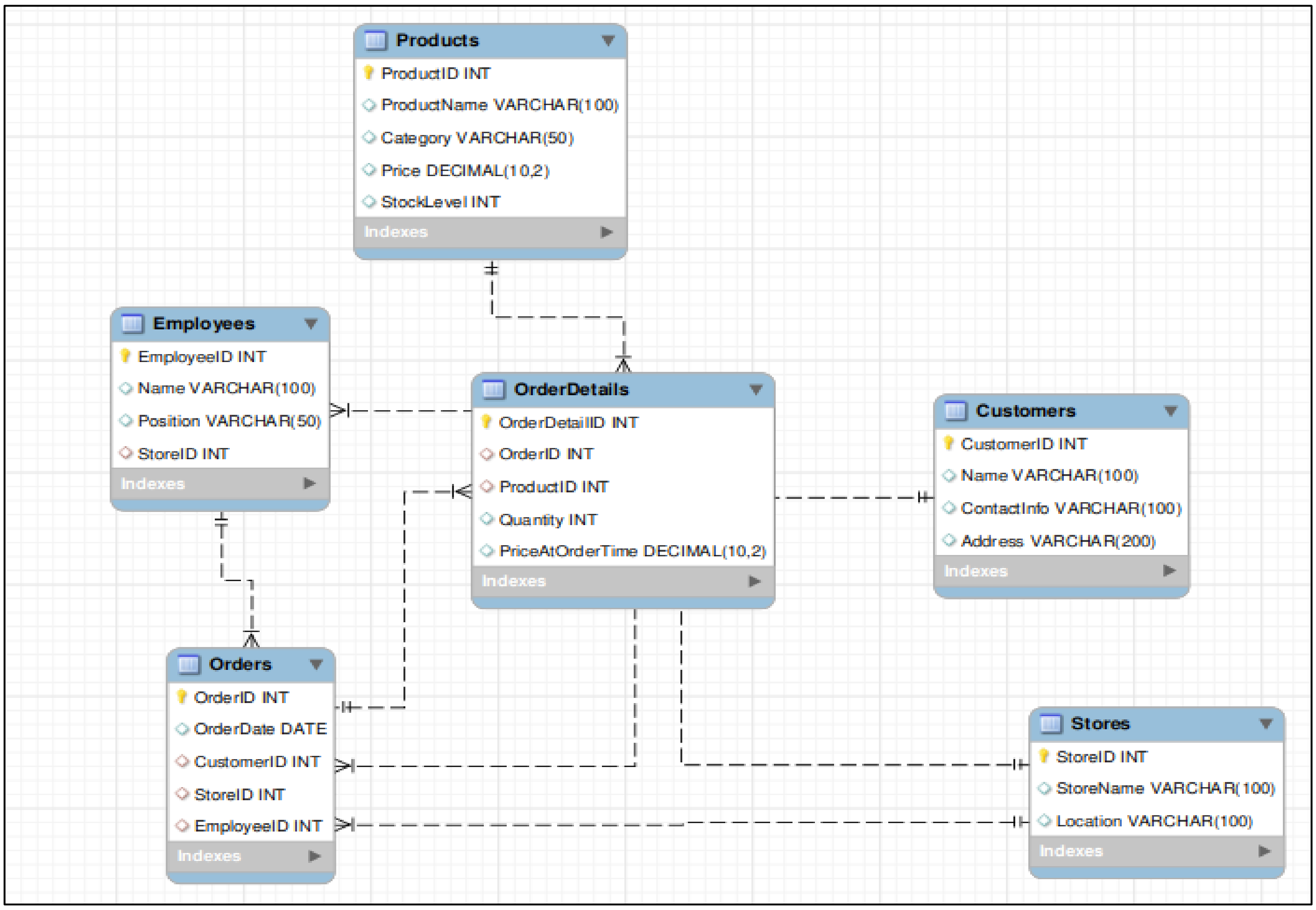
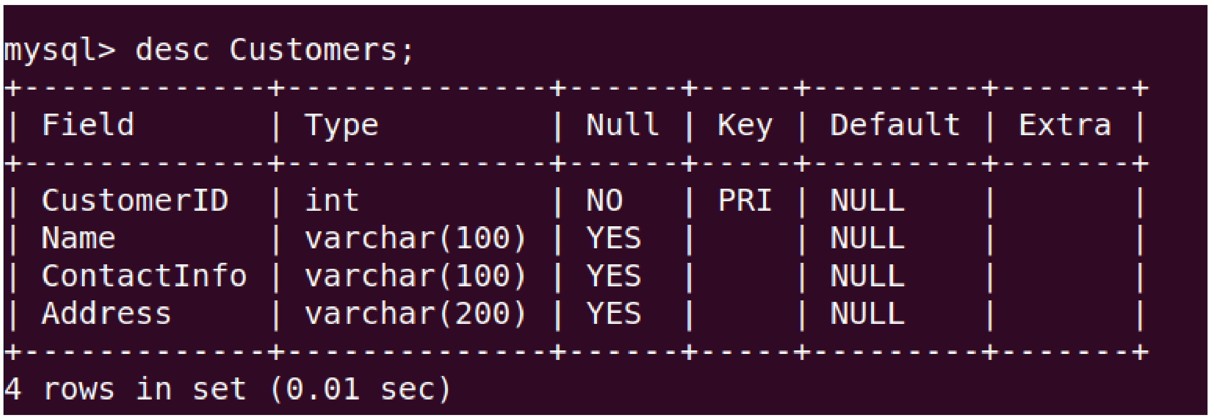
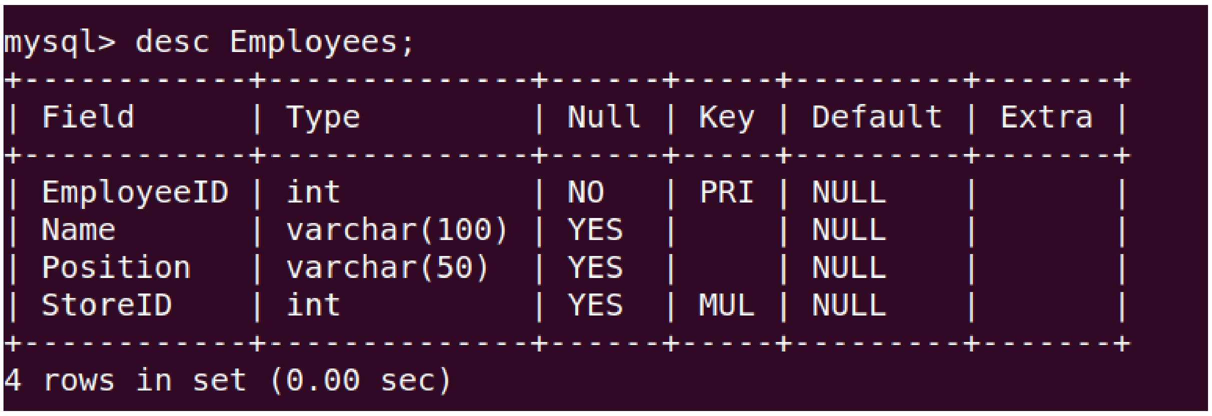
ERD Diagram



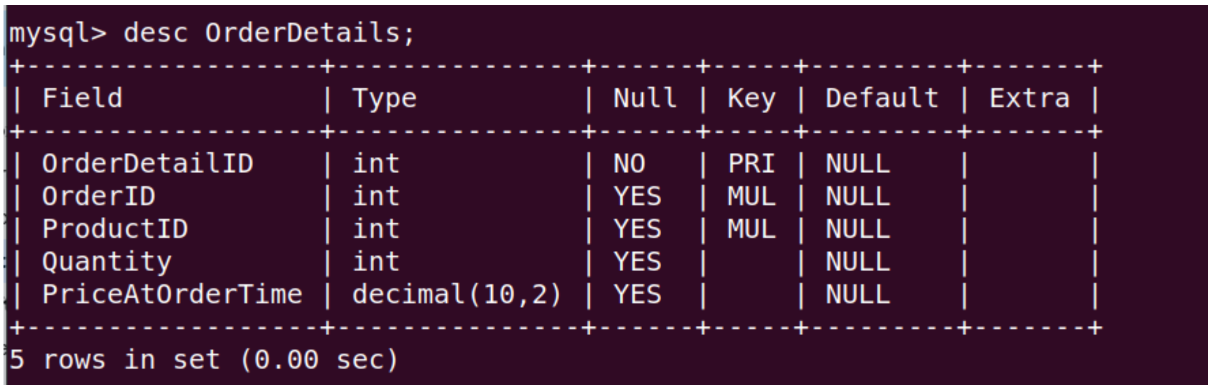
Products
ProductID INT
ProductName VARCHAR(100)
Category VARCHAR(50)
Price DECIMAL(10,2)
StockLevel INT
Indexes
Employees
EmployeeID INT
Name VARCHAR(100)
Position VARCHAR(50)
StoreID INT
Indexes
OrderDetails
OrderDetailID INT
OrderID INT
ProductID INT
Quantity INT
PriceAtOrderTime DECIMAL(10,2)
Indexes
Customers
CustomerID INT
Name VARCHAR(100)
ContactInfo VARCHAR(100)
Address VARCHAR(200)
Indexes
Orders
OrderID INT
OrderDate DATE
CustomerID INT
StoreID INT
EmployeeID INT
Indexes
Stores
StoreID INT
StoreName VARCHAR(100)
Location VARCHAR(100)
Indexes



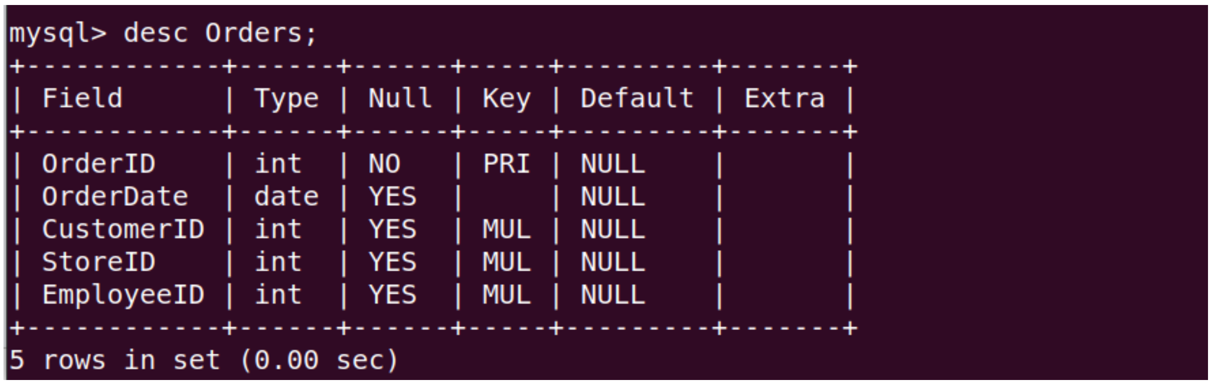
```
mysql> desc Customers;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| CustomerID  | int          | NO   | PRI | NULL    |       |
| Name        | varchar(100) | YES  |     | NULL    |       |
| ContactInfo | varchar(100) | YES  |     | NULL    |       |
| Address     | varchar(200) | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```



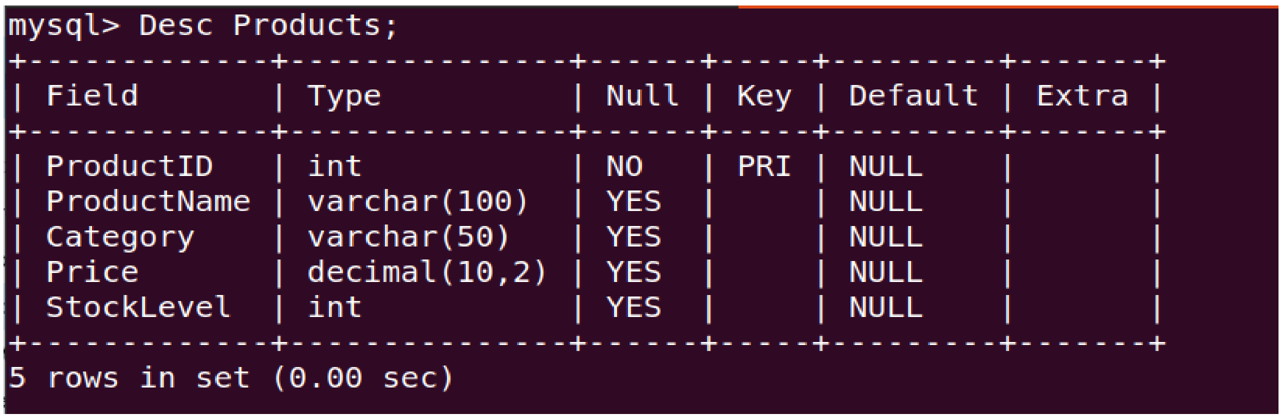
```
mysql> desc Employees;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| EmployeeID | int          | NO   | PRI | NULL    |       |
| Name       | varchar(100) | YES  |     | NULL    |       |
| Position   | varchar(50)  | YES  |     | NULL    |       |
| StoreID    | int          | YES  | MUL | NULL    |       |
+------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```



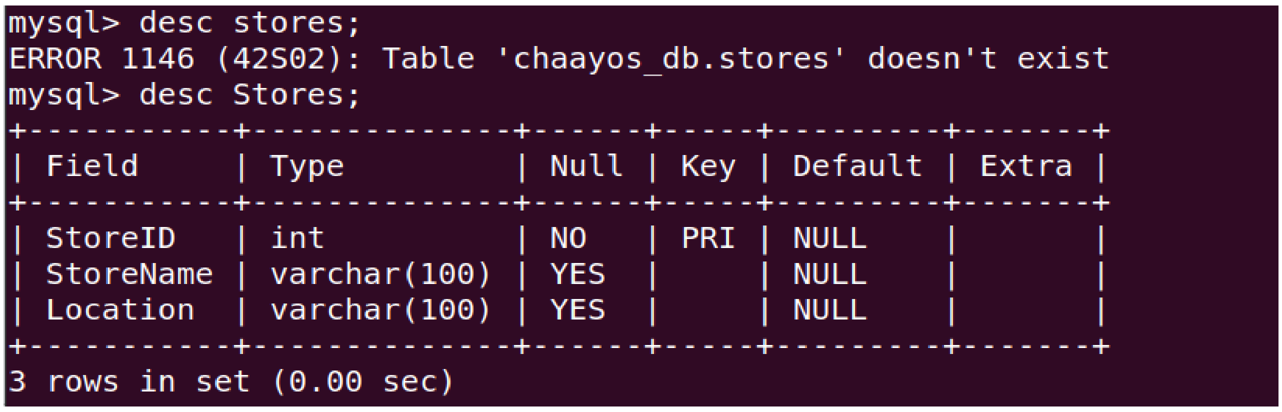
```
mysql> desc OrderDetails;
+------------------+---------------+------+-----+---------+-------+
| Field            | Type          | Null | Key | Default | Extra |
+------------------+---------------+------+-----+---------+-------+
| OrderDetailID    | int           | NO   | PRI | NULL    |       |
| OrderID          | int           | YES  | MUL | NULL    |       |
| ProductID        | int           | YES  | MUL | NULL    |       |
| Quantity         | int           | YES  |     | NULL    |       |
| PriceAtOrderTime | decimal(10,2) | YES  |     | NULL    |       |
+------------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```



```
mysql> desc Orders;
+------------+------+------+-----+---------+-------+
| Field      | Type | Null | Key | Default | Extra |
+------------+------+------+-----+---------+-------+
| OrderID    | int  | NO   | PRI | NULL    |       |
| OrderDate  | date | YES  |     | NULL    |       |
| CustomerID | int  | YES  | MUL | NULL    |       |
| StoreID    | int  | YES  | MUL | NULL    |       |
| EmployeeID | int  | YES  | MUL | NULL    |       |
+------------+------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```



```
mysql> Desc Products;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| ProductID   | int           | NO   | PRI | NULL    |       |
| ProductName | varchar(100)  | YES  |     | NULL    |       |
| Category    | varchar(50)   | YES  |     | NULL    |       |
| Price       | decimal(10,2) | YES  |     | NULL    |       |
| StockLevel  | int           | YES  |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```



```
mysql> desc stores;
ERROR 1146 (42S02): Table 'chaayos_db.stores' doesn't exist
mysql> desc Stores;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| StoreID   | int          | NO   | PRI | NULL    |       |
| StoreName | varchar(100) | YES  |     | NULL    |       |
| Location  | varchar(100) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

1.1 Codes for designing a SQL schema where all tables (Employees, Stores, Customers, Products, Orders, and Order Details

1. Stores Table

CREATE TABLE Stores (StoreID INT PRIMARY KEY, StoreName VARCHAR(100), Location VARCHAR(100));

2. Employees Table

CREATE TABLE Employees (EmployeeID INT PRIMARY KEY, Name VARCHAR(100), Position VARCHAR(50), StoreID INT, FOREIGN KEY (StoreID) REFERENCES Stores(StoreID));

3. Customers Table

CREATE TABLE Customers (CustomerID INT PRIMARY KEY, Name VARCHAR(100), ContactInfo VARCHAR(100), Address VARCHAR(200));

4. Products Table

CREATE TABLE Products (ProductID INT PRIMARY KEY, ProductName VARCHAR(100), Category VARCHAR(50), Price DECIMAL(10, 2), StockLevel INT);

5. Orders Table

CREATE TABLE Orders (OrderID INT PRIMARY KEY, OrderDate DATE, CustomerID INT, StoreID INT, EmployeeID INT, FOREIGN KEY (CustomerID) REFERENCES

Customers(CustomerID), FOREIGN KEY (StoreID) REFERENCES Stores(StoreID), FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)

6. OrderDetails Table

CREATE TABLE OrderDetails (OrderDetailID INT PRIMARY KEY, OrderID INT, ProductID INT, Quantity INT, PriceAtOrderTime DECIMAL(10, 2), FOREIGN KEY (OrderID) REFERENCES Orders(OrderID), FOREIGN KEY (ProductID) REFERENCES Products(ProductID));

1.2 Insert Statements (Establishing relationships across Customers, Employees, Stores, Products, Orders and Order Details

1. Stores Table

INSERT INTO Stores (StoreID, StoreName, Location) VALUES (1, 'Downtown Branch', '123 Main St, Downtown City'); INSERT INTO Stores (StoreID, StoreName, Location) VALUES (2, 'Uptown Branch', '456 High St, Uptown City');

2. Employees Table

INSERT INTO Employees (EmployeeID, Name, Position, StoreID)

VALUES (1, 'John Doe', 'Manager', 1);

INSERT INTO Employees (EmployeeID, Name, Position, StoreID)

VALUES (2, 'Jane Smith', 'Sales Associate', 2);

3. Customers Table

INSERT INTO Customers (CustomerID, Name, ContactInfo, Address) VALUES (1, 'Alice Johnson', 'alice.johnson@example.com', '789 Elm St, Downtown City'); INSERT INTO Customers (CustomerID, Name, ContactInfo, Address) VALUES (2, 'Bob Brown', 'bob.brown@example.com', '321 Oak St, Uptown City');

4. Products Table

INSERT INTO Products (ProductID, ProductName, Category, Price, StockLevel) VALUES (1, 'Wireless Headphones', 'Electronics', 99.99, 50); INSERT INTO Products (ProductID, ProductName, Category, Price, StockLevel) VALUES (2, 'Electric Kettle', 'Appliances', 29.99, 100);

5. Orders Table

INSERT INTO Orders (OrderID, OrderDate, CustomerID, StoreID, EmployeeID) VALUES (1, '2024-08-18', 1, 1, 1); INSERT INTO Orders (OrderID, OrderDate, CustomerID, StoreID, EmployeeID) VALUES (2, '2024-08-18', 2, 2, 2);

6. OrderDetails Table

INSERT INTO OrderDetails (OrderDetailID, OrderID, ProductID, Quantity, PriceAtOrderTime) VALUES (1, 1, 1, 2, 99.99); INSERT INTO OrderDetails (OrderDetailID, OrderID, ProductID, Quantity, PriceAtOrderTime)

1.3 To assign roles over tables to various persons in the organization, we have used Data Control Language (DCL) statement such as GRANT.

Assumptions:

- Alice is a Manager who should have full access to the tables.
- Bob is an Employee who should only have read access to specific tables.

1. Create Users

```
CREATE USER 'Alice'@'localhost' IDENTIFIED BY 'password1';

CREATE USER 'Bob'@'localhost' IDENTIFIED BY 'password2';
```

2. Grant Full Access to Manager (Alice)

Alice, as a manager, should have full access (SELECT, INSERT, UPDATE, DELETE) to all tables.

```
GRANT ALL PRIVILEGES ON Stores TO 'Alice'@'localhost';

GRANT ALL PRIVILEGES ON Employees TO 'Alice'@'localhost';

GRANT ALL PRIVILEGES ON Customers TO 'Alice'@'localhost';

GRANT ALL PRIVILEGES ON Products TO 'Alice'@'localhost';

GRANT ALL PRIVILEGES ON Orders TO 'Alice'@'localhost';

GRANT ALL PRIVILEGES ON OrderDetails TO 'Alice'@'localhost';
```

3. Grant Limited Access to Employee (Bob)

Bob, as an employee, should only have read access (SELECT) to certain tables, such as Customers, Products, and Orders.

```
GRANT SELECT ON Customers TO 'Bob'@'localhost';

GRANT SELECT ON Products TO 'Bob'@'localhost';

GRANT SELECT ON Orders TO 'Bob'@'localhost';
```