OYEBOLA OLAOLUWA ISAAC

170901082

MIT 802

INTRODUCTION TO DATABASE MANAGEMENT

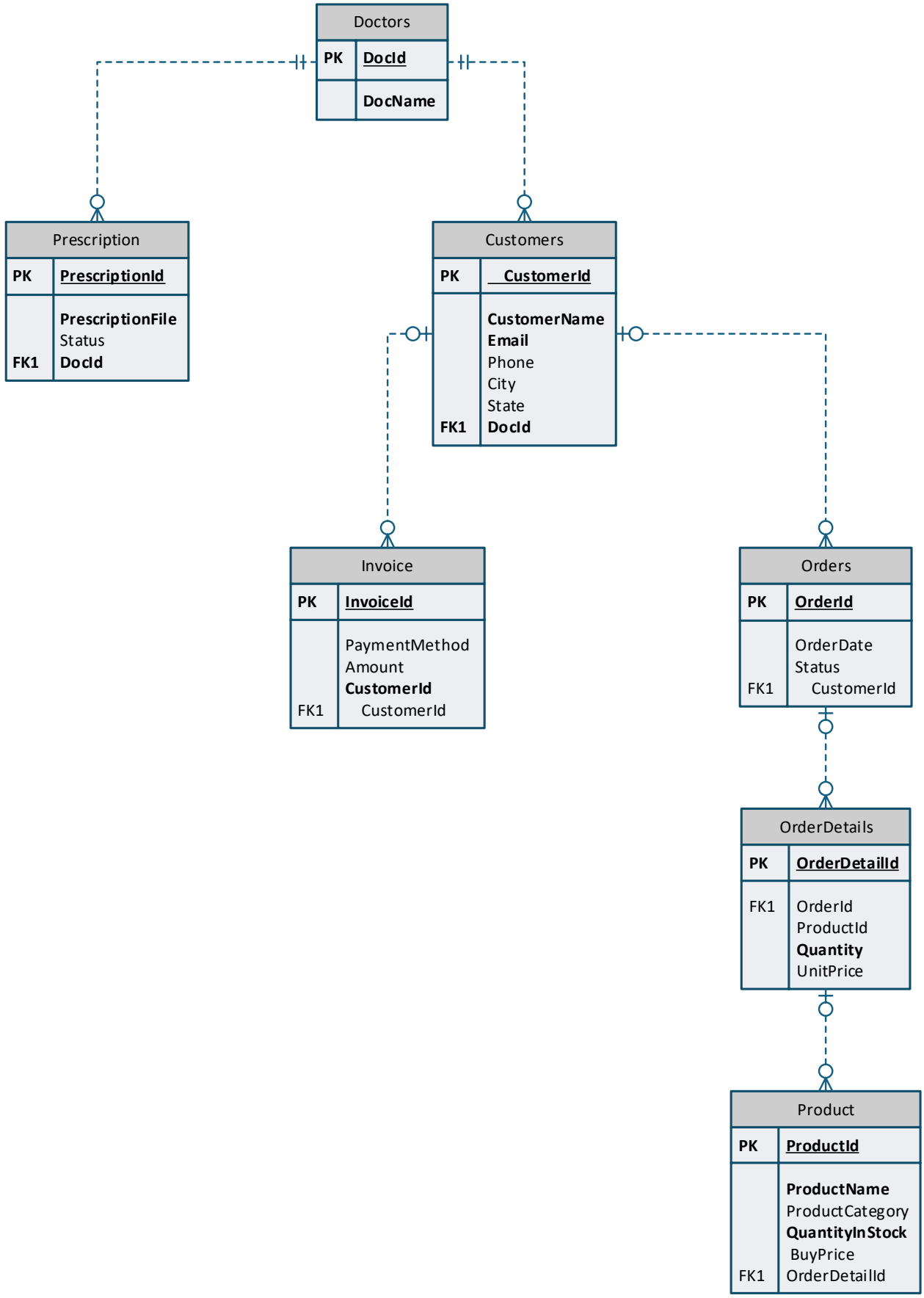
CASE STUDY: ONLINE PHARMACY MANAGEMENT SYSTEM

Business Description: Customers can use an online platform to browse, order, and buy prescription and over the counter medication from an online pharmacy. Pharmacists receive orders, approve prescriptions, and maintain inventory. For the patients, doctors input prescriptions straight into the system. Customer profiles, orders, medication inventories, and deliveries are all managed through the platform.

Conceptual Model

- Customer: CustomerId, CustomerName, Email, Phone, City, State, DocId
- Doctor: DocId, DocName
- Prescription: PrescriptionId, DocId, PrescriptionFile, Status
- Product: ProductId, ProductName, ProductCategory, QuantityInStock, BuyPrice
- Order: OrderId, OrderDate, Status, CustomerId
- Invoice: InvoiceId, CustomerId, PaymentMethod, Amount

Entity Relationship Diagram



Logical Model

- Customer (
  CustomerId Primary Key,
  CustomerName,
  Email,
  Phone,
  City,
  State,
  DocId Foreign Key
)
- Doctor (
  DocId Primary Key,
  DocName
)
- Prescription (
  PrescriptionId Primary Key,
  DocId Foreign Key,
  PrescriptionFile,
  Status
)
- Product (
  ProductId Primary Key,
  ProductName,
  ProductCategory,
  QuantityInStock,
  BuyPrice
)
- Order (
  OrderId Primary Key,
  OrderDate,
  Status,
  CustomerId Foreign Key
)

- OrderDetails (
    OrderDetailsId Primary Key,
    OrderId,
    ProductId,
    Quantity,
    UnitPrice
)
- Invoice (
    InvoiceId Primary Key,
    CustomerId Foreign Key,
    PaymentMethod,
    Amount
)

Physical Model

CREATE DATABASE ONLINE_PHARMACY;

USE ONLINE_PHARMACY;

Customer table

CREATE TABLE Customers (

CustomerId INT PRIMARY KEY,

CustomerName VARCHAR(100) NOT NULL,

Email VARCHAR(50) UNIQUE NOT NULL,

Phone VARCHAR(11),

City VARCHAR(50),

State VARCHAR(50),

DocId INT,

CONSTRAINT FK_CUSTOMERS_DOCTORS FOREIGN KEY (DocId) REFERENCES DOCTORS(DocId)

);

Doctor table

```
CREATE TABLE Doctors (
        DocId INT,
        DocName      VARCHAR(100) NOT NULL,
  CONSTRAINT PK_DOCTOR PRIMARY KEY (DocId)
);
```

Prescription table

```
CREATE TABLE Prescription (
        PrescriptionId INT PRIMARY KEY,
        PrescriptionFile VARCHAR(50) NOT NULL,
        Status VARCHAR(50),
  Doctors INT,
  CONSTRAINT FK_DOCTORS FOREIGN KEY (Doctors) REFERENCES DOCTORS(DocId)
);
```

Product table

```
CREATE TABLE Product (
  ProductId INT PRIMARY KEY,
  ProductName VARCHAR(50) NOT NULL,
  ProductCategory VARCHAR(50) NOT NULL,
  QuantityInStock INT NOT NULL DEFAULT 0,
  BuyPrice DECIMAL(10,2)
);
```

Orders table

```
CREATE TABLE Orders (
        OrderId INT PRIMARY KEY,
        OrderDate DATE,
        Status VARCHAR (50),
        CustomerId INT,
  CONSTRAINT FK_CUSTOMERS FOREIGN KEY (CustomerId) REFERENCES CUSTOMERS(CustomerId)
);
```

OrderDetails table

```
CREATE TABLE OrderDetails (
  OrderDetailId INT PRIMARY KEY AUTO_INCREMENT,
  OrderId INT,
  ProductId INT,
  Quantity INT NOT NULL,
  UnitPrice DECIMAL(10,2),
  CONSTRAINT FK_ORDERDETAILS_ORDERS FOREIGN KEY (OrderId) REFERENCES Orders(OrderId),
  CONSTRAINT FK_ORDERDETAILS_PRODUCT FOREIGN KEY (ProductId) REFERENCES Product(ProductId)
);
```

Invoice table

```
CREATE TABLE Invoice (
  InvoiceId INT PRIMARY KEY,
```

PaymentMethod VARCHAR(20),

Amount DECIMAL(10,2),

CustomerId INT,

CONSTRAINT FK_INVOICE_CUSTOMERS FOREIGN KEY (CustomerId) REFERENCES CUSTOMERS (CustomerId)

);

DML

INSERT INTO Doctors (DocId, DocName) VALUES

(1, 'Dr. Arogundade Ayomide'),

(2, 'Dr. Oluwaseun Lawal'),

(3, 'Dr. Temilade Ogunsanwo'),

(4, 'Dr. Damilola Omoniyi'),

(5, 'Dr. Bolaji Olatunde');

INSERT INTO Customers (CustomerId, CustomerName, Email, Phone, City, State, DocId) VALUES

(1, 'Olaoluwa Oyebola', 'olaoye@gmail.com', '1234567890', 'Yaba', 'LG', 3),

(2, 'Favour Oluwadare', 'favdare@gmail.com', '0987654321', 'Akute', 'OG', 2),

(3, 'Folusho Fatoye', 'folutoye@gmail.com', '1122334455', 'Ilesa', 'OS', 4),

(4, 'Joseph Obika', 'josbika@gmail.com', '6677889900', 'Awka', 'AN', 5),

(5, 'Solomon Ede', 'chukssoles@gamil.com', '5566778899', 'Asaba', 'DT', 1);

INSERT INTO Prescription (PrescriptionId, PrescriptionFile, Status, Doctors) VALUES

(1, 'pt001.pdf', 'Pending', 5),

(2, 'pt002.pdf', 'Approved', 4),

(3, 'pt003.pdf', 'Dispensed', 3),

(4, 'pt004.pdf', 'Pending', 2),

(5, 'pt005.pdf', 'Approved', 1);

```
INSERT INTO Product (ProductId, ProductName, ProductCategory, QuantityInStock, BuyPrice) VALUES
(1, 'Aspirin', 'Pain Relief', 100, 5.99),
(2, 'Cough Syrup', 'Cold & Flu', 50, 7.49),
(3, 'Vitamin C', 'Supplements', 200, 8.99),
(4, 'Antibiotic Cream', 'Topical', 75, 6.25),
(5, 'Allergy Pills', 'Allergy', 150, 9.50);

INSERT INTO Orders (OrderId, OrderDate, Status, CustomerId) VALUES
(1, '2024-04-01', 'Processing', 1),
(2, '2024-04-02', 'Shipped', 2),
(3, '2024-04-03', 'Delivered', 3),
(4, '2024-04-04', 'Cancelled', 4),
(5, '2024-04-05', 'Shipped', 5);

INSERT INTO OrderDetails (OrderId, ProductId, Quantity, UnitPrice) VALUES
(1, 1, 2, 5.99),
(1, 3, 1, 8.99),
(2, 2, 3, 7.49),
(3, 5, 2, 9.50),
(4, 4, 1, 6.25);

INSERT INTO Invoice (InvoiceId, PaymentMethod, Amount, CustomerId) VALUES
(1, 'Credit Card', 19.99, 1),
(2, 'Cash', 29.99, 2),
(3, 'Debit Card', 39.49, 3),
(4, 'Online Transfer', 49.00, 4),
(5, 'Credit Card', 59.75, 5);
```

QUERIES

1. # all customers with their assigned doctors

```
SELECT C.CustomerName as Patient, D.DocName as Assigned_Doctor
FROM customers c
JOIN doctors d ON  c.DocId = d.DocId;
```

Patient	Assigned_Doctor
Solomon Ede	Dr. Arogundade Ayomide
Olaoluwa Oyebola	Dr. Temilade Ogunsanwo
Joseph Obika	Dr. Bolaji Olatunde
Folusho Fatoye	Dr. Damilola Omoniyi
Favour Oluwadare	Dr. Oluwaseun Lawal

2. # all prescriptions with doctor names

```
SELECT P.PrescriptionId, P.PrescriptionFile, P.Status, D.DocName
FROM prescription P
JOIN doctors D ON P.Doctors = D.DocId;
```

PrescriptionId	PrescriptionFile	Status	DocName
1	pt001.pdf	Pending	Dr. Bolaji Olatunde
2	pt002.pdf	Approved	Dr. Damilola Omoniyi
3	pt003.pdf	Dispensed	Dr. Temilade Ogunsanwo
4	pt004.pdf	Pending	Dr. Oluwaseun Lawal
5	pt005.pdf	Approved	Dr. Arogundade Ayomide

3. # all products with low stock (less than 100)

```
SELECT ProductId, ProductName, ProductCategory, QuantityInStock
FROM Product
WHERE QuantityInStock < 100;
```

ProductId	ProductName	ProductCategory	QuantityInStock
2	Cough Syrup	Cold & Flu	50
4	Antibiotic Cream	Topical	75

4. # show all orders along with the customer and order status

```
SELECT O.OrderId, O.OrderDate, O.Status, C.CustomerName
FROM Orders O
JOIN Customers C ON O.CustomerId = C.CustomerId;
```

OrderId	OrderDate	Status	CustomerName
1	01/04/2024	Processing	Olaoluwa Oyebola
2	02/04/2024	Shipped	Favour Oluwadare
3	03/04/2024	Delivered	Folusho Fatoye
4	04/04/2024	Cancelled	Joseph Obika
5	05/04/2024	Shipped	Solomon Ede

5. # the most expensive product

```
SELECT ProductName, BuyPrice
FROM Product
ORDER BY BuyPrice DESC
LIMIT 1;
```

ProductName	BuyPrice
Allergy Pills	9.5

6. # top 3 Most Ordered Products

```
SELECT P.ProductName, OD.Quantity as Quantity_Ordered
FROM Product P
JOIN Orderdetails OD ON P.ProductId = OD.ProductId
ORDER BY OD.Quantity DESC
LIMIT 3;
```

ProductName	Quantity_Ordered
Cough Syrup	3
Aspirin	2
Allergy Pills	2

7. # total invoice amount per payment method

```
SELECT PaymentMethod,
   COUNT(*) AS NumInvoices,
   SUM(Amount) AS TotalAmount
FROM Invoice
GROUP BY PaymentMethod;
```

PaymentMethod	NumInvoices	TotalAmount
Credit Card	2	79.74
Cash	1	29.99
Debit Card	1	39.49
Online Transfer	1	49