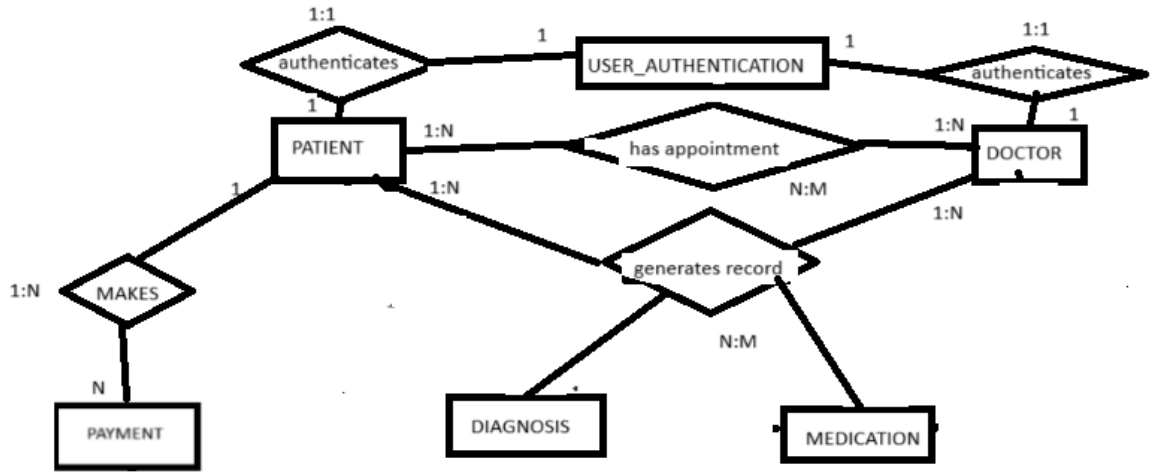
Tables

1. **Patient**
    - **PatientID**: Unique identifier for the patient (Primary Key)
    - **Name**: Name of the patient
    - **ContactDetails**: Contact details of the patient
    - **PersonalInformation**: Additional personal information of the patient
2. **Doctor**
    - **DoctorID**: Unique identifier for the doctor (Primary Key)
    - **Name**: Name of the doctor
    - **Specialty**: Specialty of the doctor
    - **ContactDetails**: Contact details of the doctor
3. **Record**
    - **RecordID**: Unique identifier for the record (Primary Key)
    - **PatientID**: Identifier of the patient (Foreign Key referencing **Patient**)
    - **Diagnosis**: Diagnosis of the patient
    - **DoctorID**: Identifier of the doctor (Foreign Key referencing **Doctor**)
4. **PrescribedMedication**
    - **MedicationID**: Unique identifier for the medication (Primary Key)
    - **Name**: Name of the medication
    - **Dosage**: Dosage of the medication
    - **RecordID**: Identifier of the record associated with the medication (Foreign Key referencing **Record**)
5. **Appointment**
    - **AppointmentID**: Unique identifier for the appointment (Primary Key)
    - **DateAndTime**: Date and time of the appointment
    - **PatientID**: Identifier of the patient (Foreign Key referencing **Patient**)
    - **DoctorID**: Identifier of the doctor (Foreign Key referencing **Doctor**)

6. **Payment**
    - **PaymentID**: Unique identifier for the payment (Primary Key)
    - **Amount**: Amount of the payment
    - **Date**: Date of the payment
    - **MedicationID**: Identifier of the medication associated with the payment (Foreign Key referencing **PrescribedMedication**)
7. **User_Authentication**
    - **UserID**: Unique identifier for the user (Primary Key)
    - **PatientID**: Identifier of the associated patient (Foreign Key referencing **Patient**)
    - **Username**: Username for authentication
    - **Password**: Password for authentication

URM



(cardinality is kind of wrong)

Creating SQL Tables

```
CREATE TABLE Patient (
    PatientID INT AUTO_INCREMENT PRIMARY KEY,
    Name VARCHAR(255),
    ContactDetails VARCHAR(255),
    PersonalInformation TEXT
);
```

```
CREATE TABLE Doctor (
    DoctorID INT AUTO_INCREMENT PRIMARY KEY,
    Name VARCHAR(255),
    Specialty VARCHAR(255),
    ContactDetails VARCHAR(255)
);

CREATE TABLE Record (
    RecordID INT AUTO_INCREMENT PRIMARY KEY,
    PatientID INT,
    Diagnosis VARCHAR(255),
    DoctorID INT,
    FOREIGN KEY (PatientID) REFERENCES Patient(PatientID),
    FOREIGN KEY (DoctorID) REFERENCES Doctor(DoctorID)
);

CREATE TABLE PrescribedMedication (
    MedicationID INT AUTO_INCREMENT PRIMARY KEY,
    Name VARCHAR(255),
    Dosage VARCHAR(255),
    RecordID INT,
    FOREIGN KEY (RecordID) REFERENCES Record(RecordID)
);
```

```
CREATE TABLE Appointment (
    AppointmentID INT AUTO_INCREMENT PRIMARY KEY,
    DateAndTime DATETIME,
    PatientID INT,
    DoctorID INT,
    FOREIGN KEY (PatientID) REFERENCES Patient(PatientID),
    FOREIGN KEY (DoctorID) REFERENCES Doctor(DoctorID)
);

CREATE TABLE Payment (
    PaymentID INT AUTO_INCREMENT PRIMARY KEY,
    Amount DECIMAL(10, 2),
    Date DATE,
    MedicationID INT,
    FOREIGN KEY (MedicationID) REFERENCES Medication(MedicationID)
);

CREATE TABLE User_Authentication (
    UserID INT AUTO_INCREMENT PRIMARY KEY,
    PatientID INT,
    Username VARCHAR(255),
    Password VARCHAR(255),
    FOREIGN KEY (PatientID) REFERENCES Patient(PatientID)
);
```

Data Inserting

For patient:

```
INSERT INTO Patient (Name, ContactDetails, PersonalInformation) VALUES ('John Doe', '123-456-7890', 'Male, 35 years old, non-smoker');
INSERT INTO Patient (Name, ContactDetails, PersonalInformation) VALUES ('Jane Smith', '456-789-0123', 'Female, 45 years old, occasional smoker');
INSERT INTO Patient (Name, ContactDetails, PersonalInformation) VALUES ('Michael Johnson', '789-012-3456', 'Male, 50 years old, diabetic');
INSERT INTO Patient (Name, ContactDetails, PersonalInformation) VALUES ('Emily Davis', '012-345-6789', 'Female, 25 years old, no significant medical history');
INSERT INTO Patient (Name, ContactDetails, PersonalInformation) VALUES ('David Wilson', '234-567-8901', 'Male, 40 years old, hypertension');
```

For doctor:

```
INSERT INTO Doctor (Name, Specialty, ContactDetails) VALUES ('Dr. Smith', 'Cardiologist',
'555-1234');
INSERT INTO Doctor (Name, Specialty, ContactDetails) VALUES ('Dr. Johnson',
'Pediatrician', '555-5678');
INSERT INTO Doctor (Name, Specialty, ContactDetails) VALUES ('Dr. Williams',
'Dermatologist', '555-9012');
INSERT INTO Doctor (Name, Specialty, ContactDetails) VALUES ('Dr. Brown', 'Psychiatrist',
'555-3456');
INSERT INTO Doctor (Name, Specialty, ContactDetails) VALUES ('Dr. Martinez', 'Orthopedic
Surgeon', '555-7890');
```

For Record:

```
INSERT INTO Record (PatientID, Diagnosis, DoctorID) VALUES (1, 'Hypertension', 5);
INSERT INTO Record (PatientID, Diagnosis, DoctorID) VALUES (2, 'Bronchitis', 2);
INSERT INTO Record (PatientID, Diagnosis, DoctorID) VALUES (3, 'Diabetes', 1);
INSERT INTO Record (PatientID, Diagnosis, DoctorID) VALUES (4, 'Allergy', 3);
INSERT INTO Record (PatientID, Diagnosis, DoctorID) VALUES (5, 'Fractured arm', 4);
```

For Appointment:

```
INSERT INTO Appointment (DateAndTime, PatientID, DoctorID) VALUES ('2024-03-15 10:00:00',
1, 5);
INSERT INTO Appointment (DateAndTime, PatientID, DoctorID) VALUES ('2024-03-16 11:30:00',
2, 2);
INSERT INTO Appointment (DateAndTime, PatientID, DoctorID) VALUES ('2024-03-17 14:00:00',
3, 1);
INSERT INTO Appointment (DateAndTime, PatientID, DoctorID) VALUES ('2024-03-18 15:45:00',
4, 3);
INSERT INTO Appointment (DateAndTime, PatientID, DoctorID) VALUES ('2024-03-19 09:30:00',
5, 4);
```

For User_Authentication:

```
INSERT INTO User_Authentication (PatientID, Username, Password) VALUES (1, 'johndoe123',
'password123');
INSERT INTO User_Authentication (PatientID, Username, Password) VALUES (2, 'janesmith456',
'smith789');
INSERT INTO User_Authentication (PatientID, Username, Password) VALUES (3, 'michaelj789',
'mikejohnson');
INSERT INTO User_Authentication (PatientID, Username, Password) VALUES (4, 'emilydavis25',
'davise123');
INSERT INTO User_Authentication (PatientID, Username, Password) VALUES (5,
'davidwilson40', 'davidw234');
```

For Payment:

```
INSERT INTO Payment (Amount, Date, MedicationID) VALUES (50.00, '2024-03-15', 1);
INSERT INTO Payment (Amount, Date, MedicationID) VALUES (30.00, '2024-03-16', 2);
INSERT INTO Payment (Amount, Date, MedicationID) VALUES (100.00, '2024-03-17', 3);
INSERT INTO Payment (Amount, Date, MedicationID) VALUES (20.00, '2024-03-18', 4);
INSERT INTO Payment (Amount, Date, MedicationID) VALUES (15.00, '2024-03-19', 5);
```

For PrescribedMedication

```
INSERT INTO PrescribedMedication (Name, Dosage, RecordID) VALUES ('Aspirin', '100mg', 1);
INSERT INTO PrescribedMedication (Name, Dosage, RecordID) VALUES ('Ventolin', '2 puffs',
2);
INSERT INTO PrescribedMedication (Name, Dosage, RecordID) VALUES ('Insulin', '10 units',
3);
INSERT INTO PrescribedMedication (Name, Dosage, RecordID) VALUES ('Zyrtec', '10mg', 4);
INSERT INTO PrescribedMedication (Name, Dosage, RecordID) VALUES ('Painkillers', '1 tablet
every 4 hours', 5);
```

Queries Exercise

a. List all appointments made for a specific doctor

```
SELECT Appointment.*, Doctor.Name AS DoctorName, Patient.Name AS
PatientName
FROM Appointment
INNER JOIN Doctor ON Appointment.DoctorID = Doctor.DoctorID
INNER JOIN Patient ON Appointment.PatientID = Patient.PatientID
WHERE Doctor.DoctorID = {ID_del_Medico};
```

b. Find the total amount paid by each patient

```
SELECT Patient.Name AS PatientName, SUM(Payment.Amount) AS TotalPayment
FROM Patient
LEFT JOIN PrescribedMedication ON Patient.PatientID =
PrescribedMedication.RecordID
LEFT JOIN Payment ON PrescribedMedication.MedicationID =
Payment.MedicationID
GROUP BY Patient.PatientID;
```

c. Display the medications prescribed for each patient

```
SELECT Patient.Name AS PatientName, PrescribedMedication.Name AS
MedicationName, PrescribedMedication.Dosage
FROM Patient
LEFT JOIN Record ON Patient.PatientID = Record.PatientID
LEFT JOIN PrescribedMedication ON Record.RecordID =
PrescribedMedication.RecordID;
```

d. List all appointments scheduled for a specific date

```
SELECT Appointment.*, Doctor.Name AS DoctorName, Patient.Name AS
PatientName
FROM Appointment
INNER JOIN Doctor ON Appointment.DoctorID = Doctor.DoctorID
INNER JOIN Patient ON Appointment.PatientID = Patient.PatientID
WHERE DATE(Appointment.DateAndTime) = '2024-03-15';
```

e. Find the patient with the highest total payment

```
SELECT Patient.Name AS PatientName, SUM(Payment.Amount) AS TotalPayment
FROM Patient
LEFT JOIN PrescribedMedication ON Patient.PatientID =
PrescribedMedication.RecordID
LEFT JOIN Payment ON PrescribedMedication.MedicationID =
Payment.MedicationID
GROUP BY Patient.PatientID
ORDER BY TotalPayment DESC
LIMIT 1;
```

f. Display patient login details (username and associated patient name)

```
SELECT User_Authentication.Username, Patient.Name AS PatientName
FROM User_Authentication
INNER JOIN Patient ON User_Authentication.PatientID = Patient.PatientID;
```

g. Find the patients who have not made any payment

```
SELECT Patient.*
FROM Patient
LEFT JOIN PrescribedMedication ON Patient.PatientID =
PrescribedMedication.RecordID
LEFT JOIN Payment ON PrescribedMedication.MedicationID =
Payment.MedicationID
WHERE Payment.PaymentID IS NULL;
```