Database Design for an Electronic Medical Record System

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Scope and Requirements

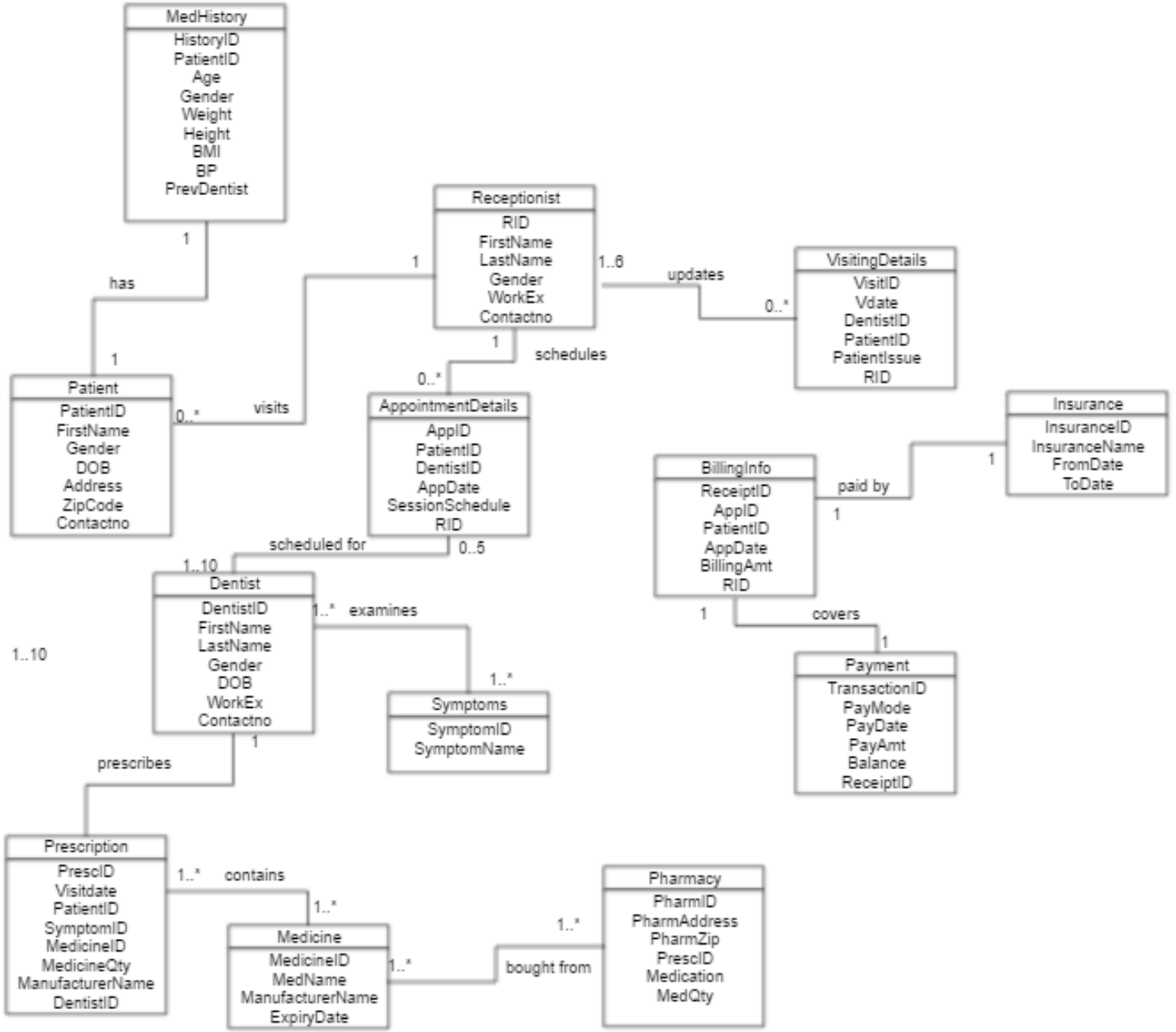
Project Scope

- This Electronic Medical Records system captures information of Patients dealing with Dental disease. The key focus is to be able to retrieve Patient's Med History, Visiting details, Insurance Info, Appointment details, Billing Info and the Dentist associated with the Patient. The database will support the retrieval of information of all patients that have been admitted in a hospital over the past one month.

Project Constraints

- A patient can take treatment or be associated with only one Dentist at a time.
- A Dentist can take none or Max 5 appointments in a day.
- A patient can book only one appointment in a day.
- For every appointment booked by a patient he will be provided with one Visit ID which will be valid for one day using which he can make multiple visits in a day.
- A patient is allowed to provide only one insurance id for each bill.

UML Diagram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PatientID
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Gender
Weight
Height
BMI
BP
PrevDentist
1
has
1
Receptionist
RID
FirstName
LastName
Gender
WorkEx
Contactno
1
1..6
updates
0..*
VisitingDetails
VisitID
Vdate
DentistID
PatientID
PatientIssue
RID
1
schedules
0..*
Patient
PatientID
FirstName
Gender
DOB
Address
ZipCode
Contactno
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visits
AppointmentDetails
AppID
PatientID
DentistID
AppDate
SessionSchedule
RID
Insurance
InsuranceID
InsuranceName
FromDate
ToDate
1
BillingInfo
ReceiptID
AppID
PatientID
AppDate
BillingAmt
RID
paid by
1
scheduled for
1..10
0..5
Dentist
DentistID
FirstName
LastName
Gender
DOB
WorkEx
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1..*
examines
1..*
Symptoms
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Prescription
PrescID
Visitdate
PatientID
SymptomID
MedicineID
MedicineQty
ManufacturerName
DentistID
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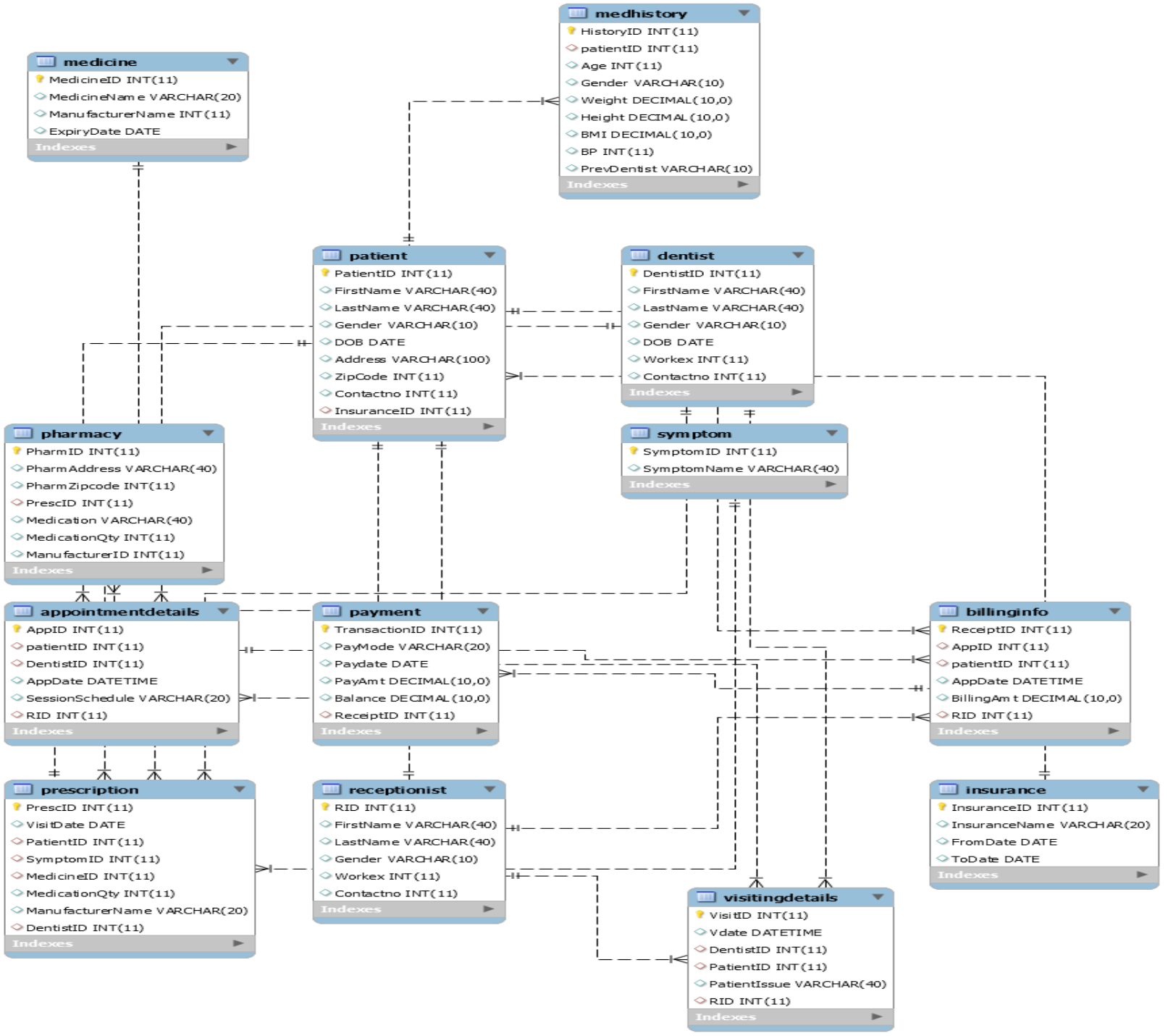
contains
1..*
Medicine
MedicineID
MedName
ManufacturerName
ExpiryDate
1..*
bought from
1..*
Pharmacy
PharmID
PharmAddress
PharmZip
PrescID
Medication
MedQty

Entity-Relationship Diagram



Database Creation Script

EMR Database Creation Script.sql

SQL Queries

- Query to retrieve medical history of a patient .

Select * from patient, medhistory Where patient.patientID = medhistory.patientID

- List down all the patients name , their Insurance Id and the company from where they have taken insurance.

Select firstNAme , lastName, insuranceId , insuranceName from patient, insurance where patient.insuranceid = insurance.insuraceid

- List the name of the patients who have taken treatment from DentistName = Joe over past seven days.

Select Patient Name from patient, visit where patient.patientId = Visit.patientID and DentistID IN(Select DentistID from Dentist where DentistName = Joe)

- Get all patients using National General insurance

SELECT firstName, lastName FROM patient WHERE insuranceid = (select insuranceid from insurance where insurancename = 'National General');

- Get manufacturer, medication, and quantity prescrbied of the medicine that was prescribed to Ryan Reynolds

SELECT manufacturername, medication, medicationQTY FROM prescription

WHERE patientID = (select patientID from patient where firstname = 'Ryan' AND lastname = 'Reynolds');

THANK YOU!