Assignment

Topic Name:
Mapping ERDs into Relations

Submitted to: Sir Imran Mughal

Submitted by: Maimoona Khilji

Registration No: 195300273

Class Section: A

Date: 12th April, 2021

Semester: 4th

Department: BS-DS

Assignment 2

Mapping ERDs into Relations

Real Life Problem: Hospital Management System

Entities:

- Hospital
- Receptionist
- Records
- Doctors (Supertype entity)
- Permanent (Subtype entity)
- Trainee (Subtype entity)
- Visiting (Subtype entity)
- Appointment (Associative entity)
- Patients
- Patient_History

Relationship Cardinality:

- **One** Hospital has **many** Doctors.
- **One** Hospital has **one** or **many** Receptionist.
- **Many** Receptionists record **many** Records of patient.
- **Many** Doctors attend **many** Patients
  (In other words, different doctors checks different patient in one hospital at a time.)
- **One** Patient may have **zero** or **many** Patient_History.

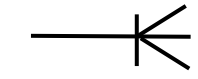
Note:

- Disjoint rule is used because a **Doctor** must be either a Trainee, Visiting or Permanent doctor.

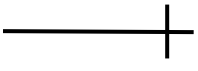
Attributes:

Attribute	**Entity**
Primary Key	
Hos_ID	Hospital
Doc_ID	Doctors
R_ID	Receptionist
Record_ID	Records
Appointment_ID	Appointment
P_ID	Patients
PH_ID	Patient_History
Composite Attribute	
Address (Composed of Colony, City, Zip)	Hospital
Derived Attribute	
Age (Derived of Date of birth i.e. D_O_B)	Patients
Multivalued Attribute	
Phone_No.	Patients
Specialization	Doctor

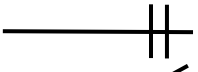
Notations:



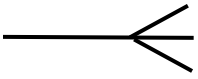
One or Many



One

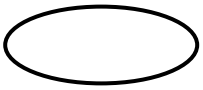


One and only one



Many

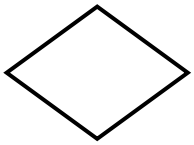
Symbols:



Attribute

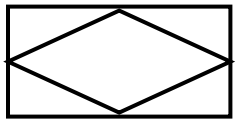
Derived Attribute

Multivalued Attribute



Relationship

Entity



Associative Entity

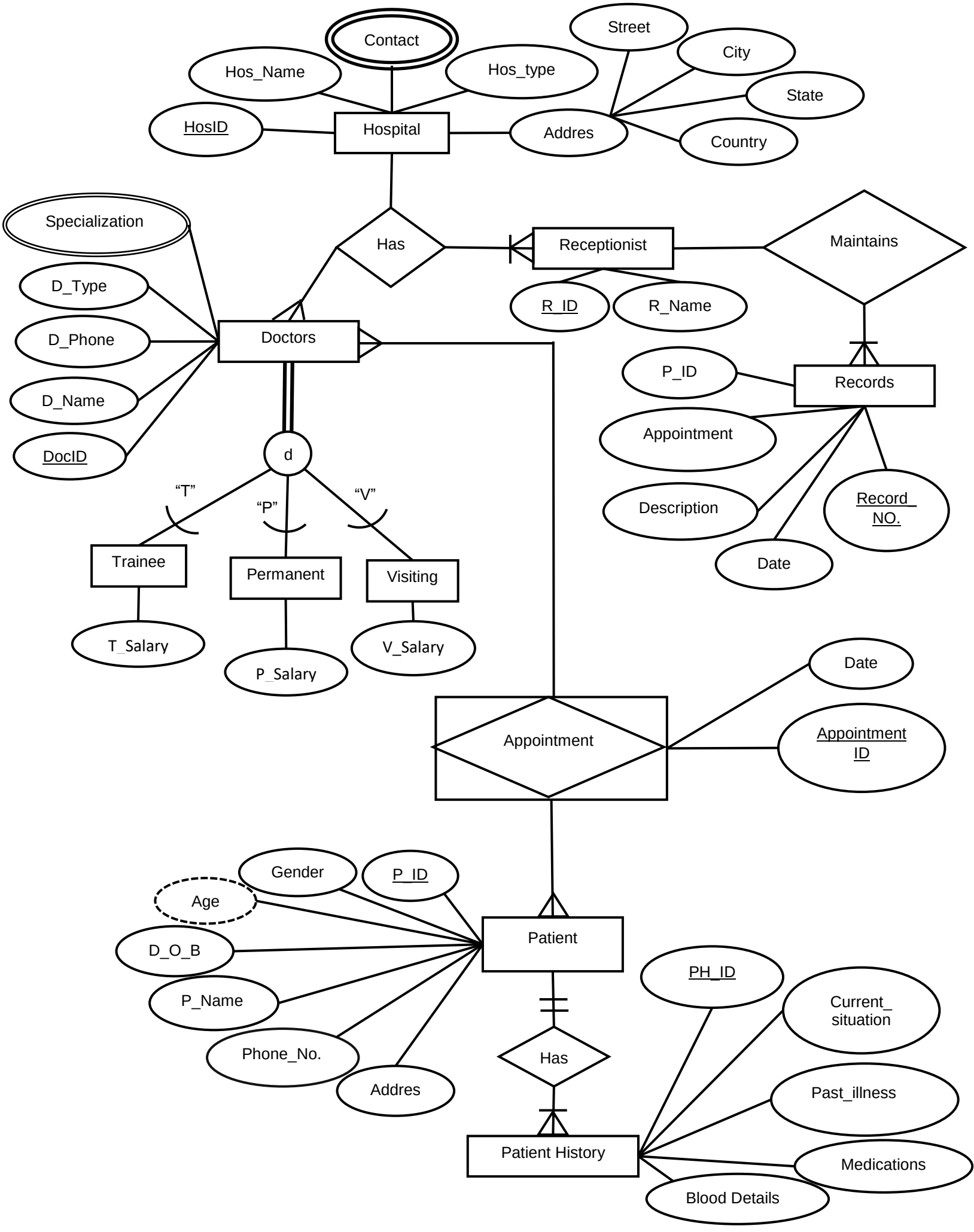
Explanation:

The above EERD is of Hospital Management System. From EERD, it is concluded that in Hospitals, There are receptionist and doctors. Receptionist can be one or many, they are responsible for recording the data of many patients. So there **One to Many** relationship between receptionist and patients. The relation between Hospital and Doctors is **one to many** because one hospital has many doctors. The Relation between Doctors and Patients is **many to many** because many patients take appointments of many doctors. In other words, one patient can take appointment of one or many doctors.

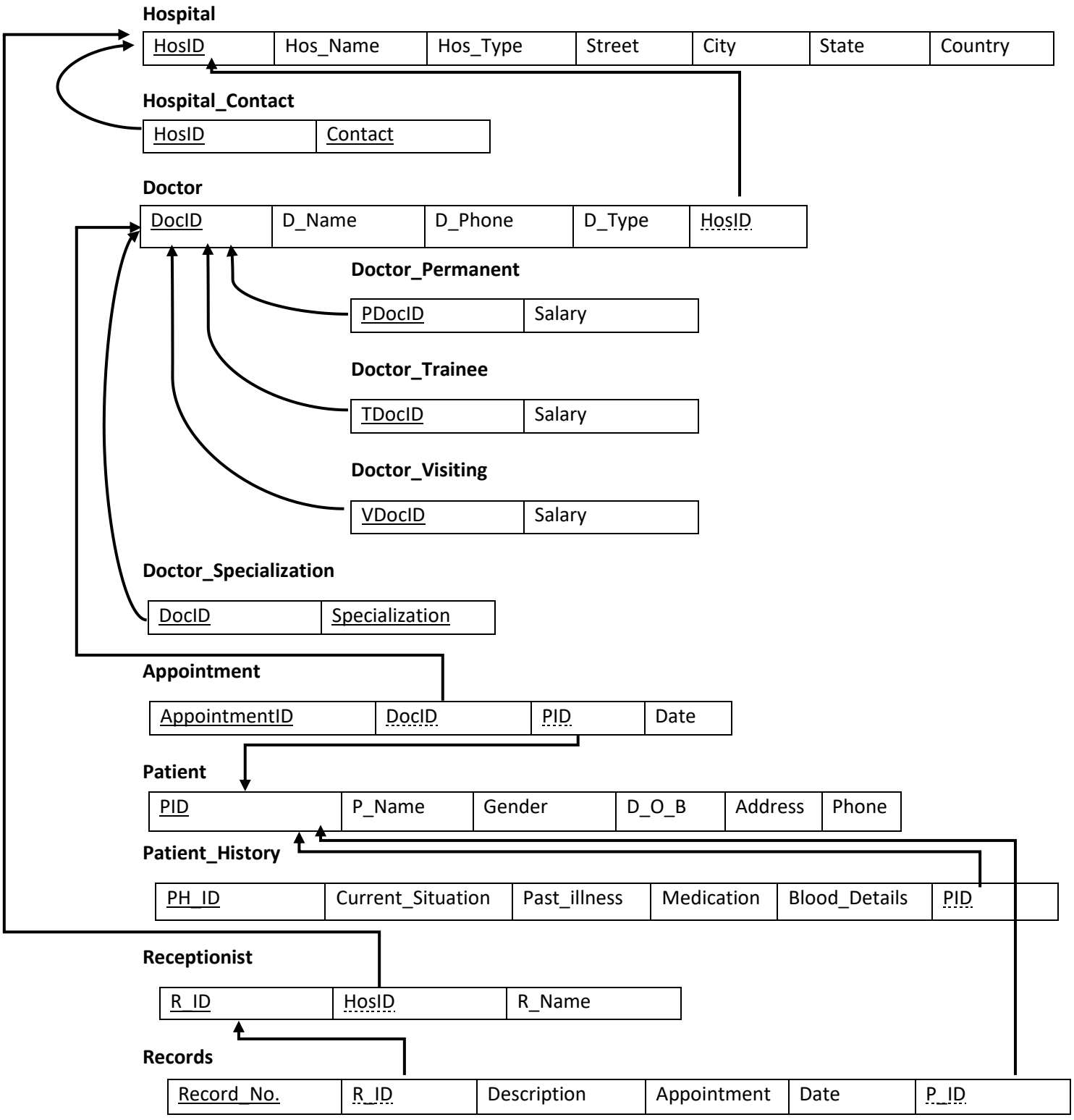
(For example: A patient with skin infection and bones disease visit hospital and take appointments of Dermatologist and Orthopedic on the same day. Similarly, a doctor can check many patients)

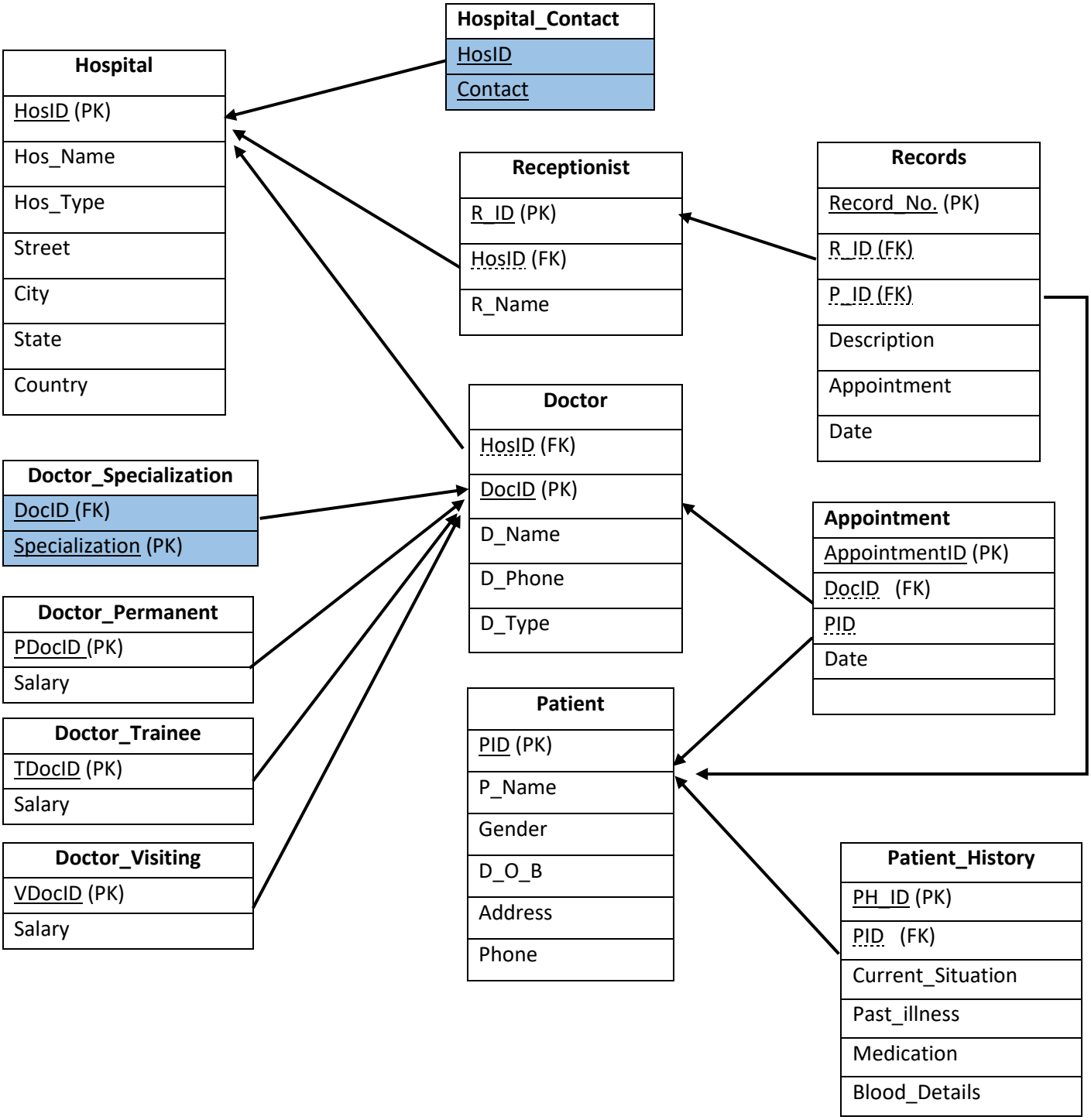
A patient has **one or many** patient history records.

(For example, a person who is doing his treatment from hospital from several months may have different history based on months.)


Contact
Hos_Name
Hos_type
Street
City
State
Country
Addres
HosID
Hospital
Specialization
Has
Receptionist
Maintains
R_ID
R_Name
D_Type
D_Phone
D_Name
DocID
Doctors
d
"T"
"P"
"V"
Trainee
Permanent
Visiting
T_Salary
P_Salary
V_Salary
P_ID
Records
Appointment
Description
Record_ NO.
Date
Appointment
Appointment ID
Gender
P_ID
Age
D_O_B
P_Name
Phone_No.
Addres
Patient
PH_ID
Current_ situation
Has
Past_illness
Patient History
Medications
Blood Details

ERD TO Relation





NOTE:

The highlighted Box shows **Composite key.**