

Medical Center Management System Database

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Functional Requirements Report for Medical Center Management System Database

1. Introduction

This report describes the functional requirements of a Clinic Management System. The system focuses on managing patients, doctors, appointments, services, and maintenance to make clinic operations faster and more organized.

2. Project Scope

The system will cover core clinic operations such as managing patients, doctors, appointments, medical records, and services & payments. These features will help improve efficiency, reduce errors, and support better healthcare service delivery in the clinic.

3. Functional Requirements:

3.1 Patient Management:

- This part stores basic information about patients, like Patient_ID, Name, Gender, Phone, Address, Email, Medical_history, phone number, Blood_type, and Marital_status.
- We can determine which blood types you can donate or receive blood from, based on the blood transfusion Table, for cases that may require tests and blood transfusions.

3.2 Staff Management:

This part stores information about the clinic staff such as Staff_ID , Name, Gender, Birth_Date, Phone, Email, Specialization(for doctors), Hire_Date.,Gender

Not all the staff are doctors we have employee's working on the medical center

- Each doctor has a consultation fee.
- Any other employee has a salary.
- Each employee belongs to a specific department.
- Each doctor belongs to a specific department.

3.3 Equipment Management:

This part stores information about the clinic's equipment, like Equipment_ID, Name, Model, price,maintenance interval

- Some Equipment's provides services
- Each Equipment has a maintenance interval

3.4 Departments:

This part stores information about the different departments in the clinic, like Department_ID, name

- Each department has a phone number

3.5 Appointment:

- The system allows the patient to book an appointment with a specific doctor. Once the booking is confirmed, the system automatically stores all relevant appointment details, including patient information, assigned doctor, visit date, payment method
- The system supports multiple payment methods, allowing the patient to pay either online (via credit card or electronic payment) or in person at the clinic(cash).
- During the booking process, the system allows the patient to request extra services if needed, with additional fees applied. - The system allows individuals to request medical services, such as X-rays, ultrasound, or laboratory tests, without requiring a doctor's consultation.

3.6 Medical_history:

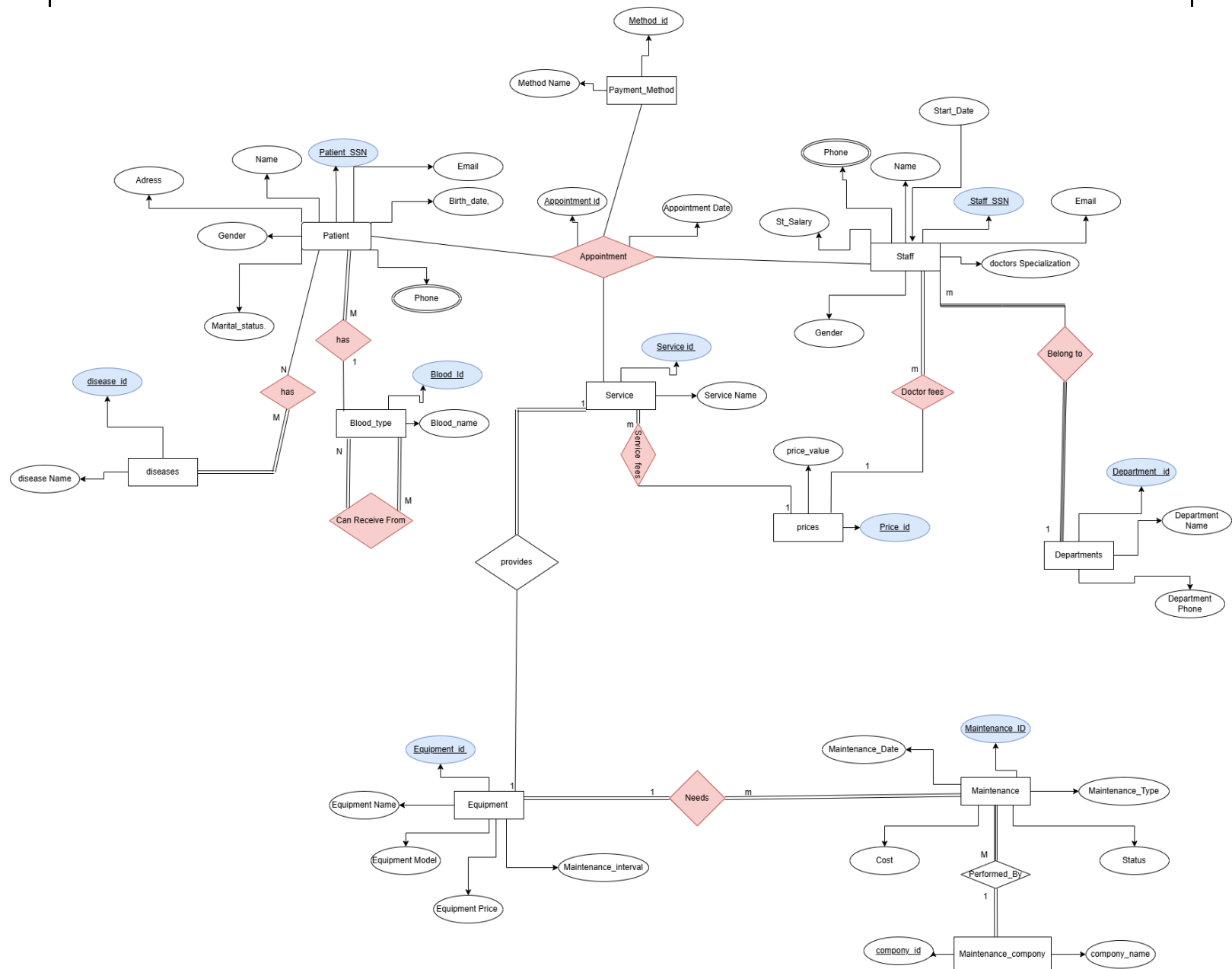
- We can know the medical history of patient by knowing the diseases he has.
- The patient may have one disease or more .
- Some patients may haven't any disease .

3.7 Maintenance:

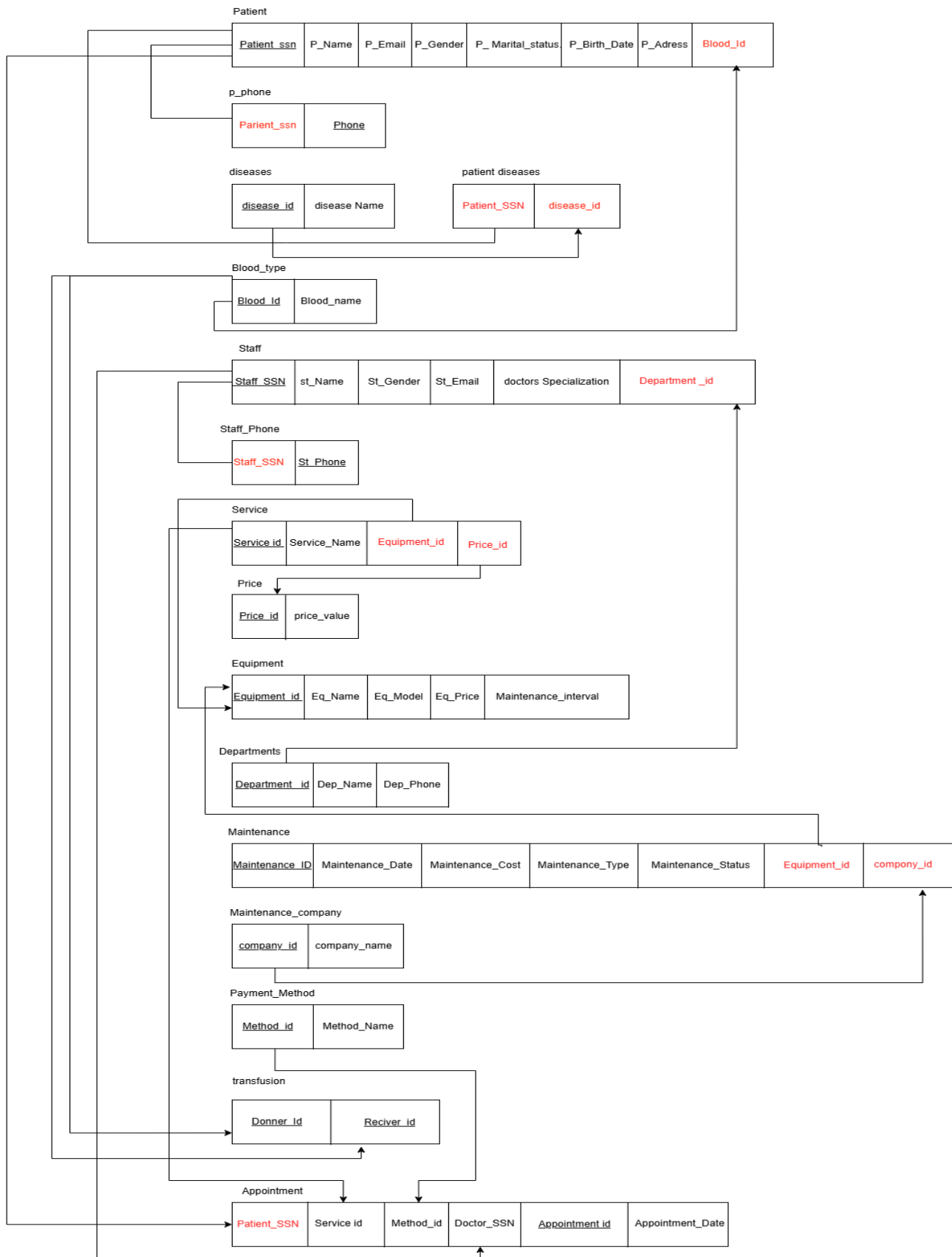
- Each equipment undergoes maintenance, which is performed by a

specific maintenance company. We can know more information about the maintenance by the maintenance id,date,status(done or pending),the maintenance type,And how much did it cost us?

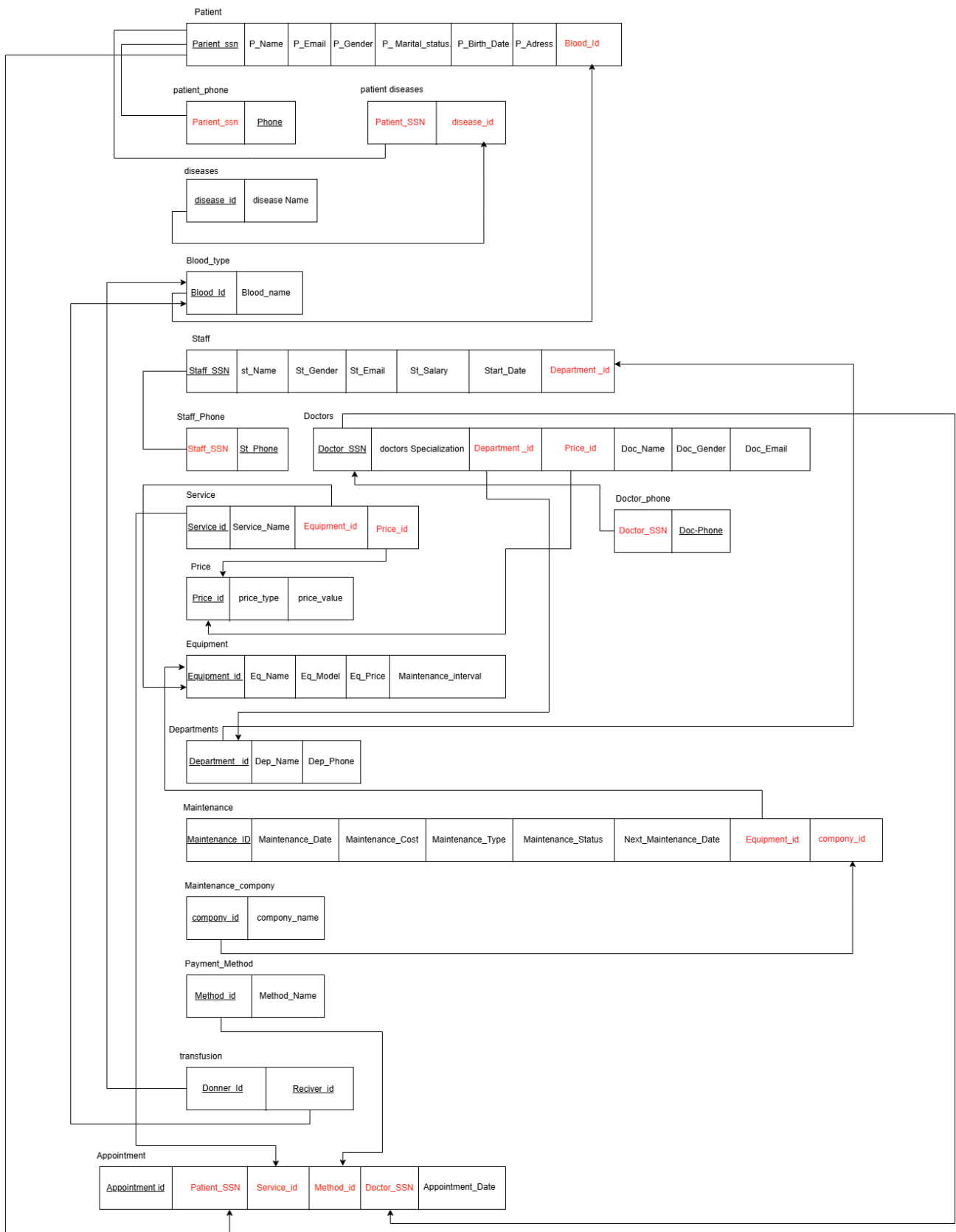
ERD:



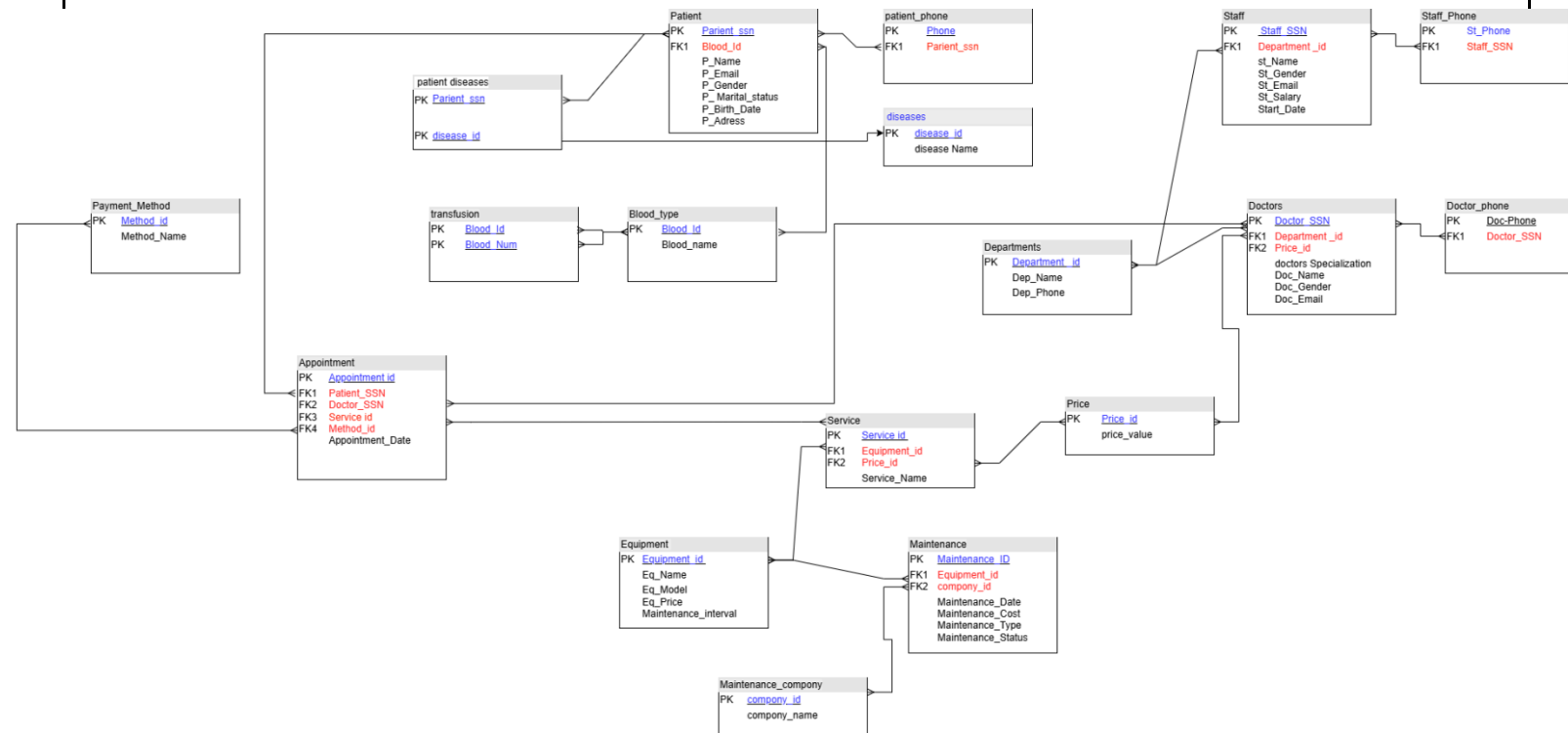
MAPPING AND 1F NORMALIZATION:



2NF & 3NF NORMALIZATION:



SCHEMA:



SQLQuery1.sql - DESKTOP-1PG4F9M\MSSQLSERVER01\MedicalCenter (DESKTOP-1PG4F9M\Access (76)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

Object Explorer

Connect

- System Tables
- FileTables
- External Tables
- Graph Tables
- dbo_Service
- dbo.Appointment
- dbo.Blood_type
- dbo.Departments
- dbo.Diseases
- dbo.Doctor_phone
- dbo.Doctors
- dbo.Equipment
- dbo.Maintenance_company
- dbo.Patient
- dbo.Patient_Diseases
- dbo.Patient_phone
- dbo.Payment_Method
- dbo.Prices
- dbo.Staff
- dbo.Staff_Phone
- dbo.Transfusion
- Dropped Ledger Tables
- Views
- External Resources
- Synonyms
- Programmability

SQLQuery1.sql - D:\G4F9M\Access (76) *

```

select *
from Patient

```

Results Messages

	Patient_SSN	Blood_Id	Patient_Name	Patient_Email	Patient_Gender	Patient_Marital_status	Patient_Birth_Date	Patient_Address
1	001166216	3	Jeanne Hood	dalen@example.com	M	Divorced	2010-04-12	"0612 Johnson Circles, Lake Kristen, RI 51495"
2	001739997	5	Cheryl Clark	krystalweich@example.net	M	Single	1945-10-25	"15953 Kelly Brook, Port Madison, CA 88027"
3	002725746	8	Jean Saunders	cynthiamueller@example.net	F	Divorced	1952-09-14	"Unit 0496 Box 5218, DPO AP 78033"
4	003883696	1	Katherine Riley	amanda86@example.net	F	Single	1953-08-26	"260 John Loaf Apt. 196, Smithtown, CA 99269"
5	004142824	4	Angela Dunn	jamescarlson@example.com	F	Divorced	1984-06-12	"41972 Smith Oval, Port Lindafurt, MA 14613"
6	004182423	4	Maria Hodge	alison24@example.net	M	Divorced	2024-01-26	"6666 Christina Causeway Apt. 623, Timothytown, FL...
7	004628562	4	Alexis Thomas	carolynwang@example.com	M	Divorced	1984-02-03	"80393 Khan Trace Suite 628, West Dawn, ME 76742"
8	006578005	8	Veronica Pittman	nguyengeorge@example.com	M	Married	1987-04-26	"279 Ryan Groves, West Ashley, ME 24089"
9	007076717	1	Dorothy Ingram	melinda35@example.net	M	Divorced	1993-08-31	"02890 Nathan Fork Apt. 793, South Kurtstad, IN 51...
10	007096296	5	Jeremy Martinez	zvincent@example.org	F	Single	2002-02-15	"USCGC Sullivan, FPO AP 24633"
11	007361789	5	Brian Reeves	diane56@example.org	F	Single	1937-03-02	"99632 Christopher Hollow, Lowefort, CO 55298"
12	007807893	8	David Ray	taylorjennifer@example.com	M	Married	1959-06-18	"32526 Rhodes Square Apt. 614, South Michaeliew,
13	008502985	8	Lake Hurley	ocones@example.org	F	Single	1950-05-02	"3541 Camell Mall Apt. 250, South Christinaburgh, M...

Query executed successfully. DESKTOP-1PG4F9M\MSSQLSERVER... DESKTOP-1PG4F9M\Access... MedicalCenter 00:00:00 1,000 rows

SQLQuery1.sql - DESKTOP-1PG4F9M\MSSQLSERVER01\MedicalCenter (DESKTOP-1PG4F9M\Access (76)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

Object Explorer

Connect

- External Tables
- Graph Tables
- dbo_Service
- dbo.Appointment
- dbo.Blood_type
- dbo.Departments
- Columns
 - Department_id (PK, int, 1)
 - Dep_Name (varchar(50))
 - Dep_Phone (varchar(13))
- Keys
- Constraints
- Triggers
- Indexes
- Statistics
- dbo.Diseases
- dbo.Doctor_phone
- dbo.Doctors
- dbo.Equipment
- dbo.Maintenance_company
- dbo.Patient
- dbo.Patient_Diseases
- dbo.Patient_phone
- dbo.Payment_Method
- dbo.Prices
- dbo.Staff

SQLQuery1.sql - D:\G4F9M\Access (76) *

```

select St_Name, d.Dep_Name
from Staff s
join Departments d
on s.Department_id=d.Department_id

```

Results Messages

	St_Name	Dep_Name
1	Angelica Cummings	ENT
2	Cathy Lawson	General Surgery
3	Zoe Russo	Pediatrics
4	Kevin Webb	ENT
5	Picky Bradley	Dermatology
6	Mario Rogers	Radiology
7	Anita Torres	Neurology
8	Ms. Margaret Jennings MD	Orthopedics
9	Laura Cabrera	Emergency
10	Carolyn Krause	Emergency
11	Stephen Young	Radiology
12	Victoria Taylor	Ophthalmology
13	Daniel Mocarath	Ophthalmology

Query executed successfully. DESKTOP-1PG4F9M\MSSQLSERVER... DESKTOP-1PG4F9M\Access... MedicalCenter 00:00:00 50 rows

SQLQuery1.sql - DESKTOP-1PG4F9M\MSSQLSERVER01\MedicalCenter (DESKTOP-1PG4F9M\Access (76)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

Object Explorer

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- dbo.Appointment
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- Columns
 - Department_id (PK, int, 1)
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- dbo.Diseases
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- dbo.Doctors
- dbo.Equipment
- dbo.Maintenance_company
- dbo.Patient
- dbo.Patient_Diseases
- dbo.Patient_phone
- dbo.Payment_Method
- dbo.Prices
- dbo.Staff
- Columns
 - Staff_SSN (PK, varchar(13))
 - Department_id (FK, int, 1)

SQLQuery1.sql - D:\G4F9M\Access (76) *

```

select Patient_Name, a.Doctor_SSN, a.Appointment_Date, a.Service_Id
from Appointment a
join Patient p
on a.Patient_SSN=p.Patient_ssn

```

Results Messages

	Patient_Name	Doctor_SSN	Appointment_Date	Service_Id
1	Dorothy Ingram	534322357	2025-01-13	15
2	Dorothy Ingram	075694557	2025-07-24	45
3	David Ray	304306168	2025-07-26	41
4	Sally Stewart	182542746	2025-09-19	13
5	Tonya Davis	731804044	2025-10-26	42
6	Bryce Porter	868443032	2025-08-19	20
7	Shannon Hoffman	186362650	2025-08-03	5
8	Taylor Munoz	008083265	2025-12-07	26
9	Taylor Munoz	281704166	2024-12-25	14
10	Teresa Grant	296687038	2025-08-23	1
11	Heather Morton	069877858	2025-06-03	40
12	Jill Mata	182542746	2025-08-15	44
13	Tonya Richardson	861304034	2025-08-21	19

Query executed successfully. DESKTOP-1PG4F9M\MSSQLSERVER... DESKTOP-1PG4F9M\Access... MedicalCenter 00:00:00 200 rows