Database Schema Report

Design Phase

Mohammed Elsayed | 201501508
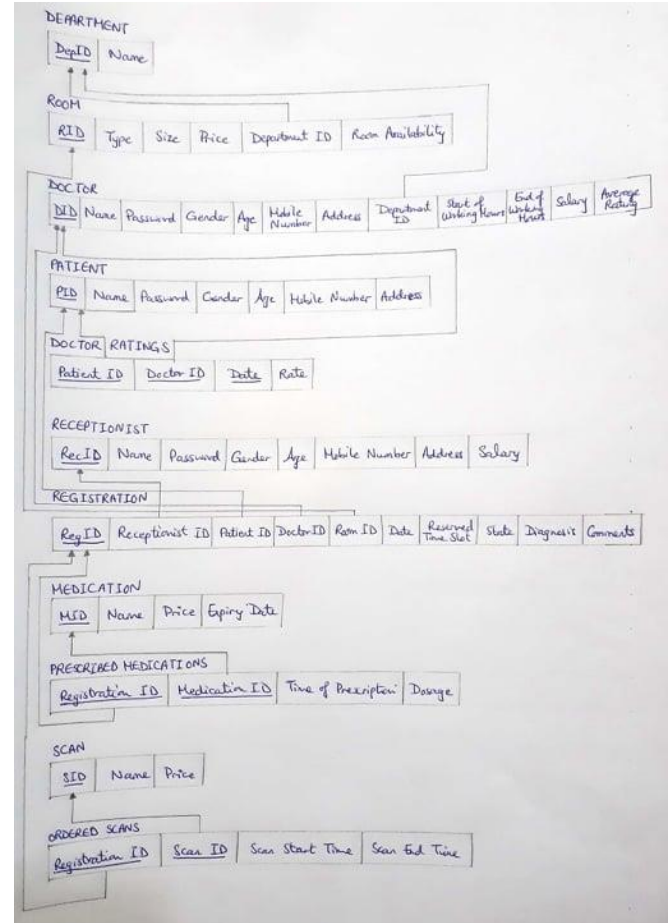
Nadine Amr | 201501328

Omar Yasser | 201500831

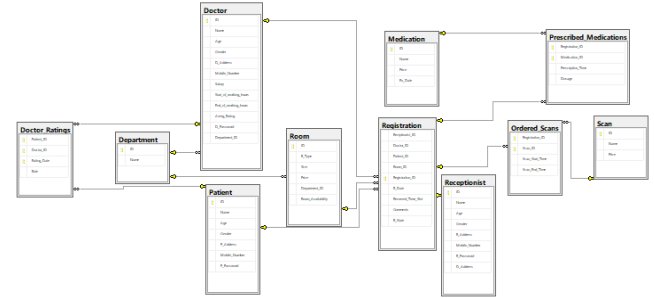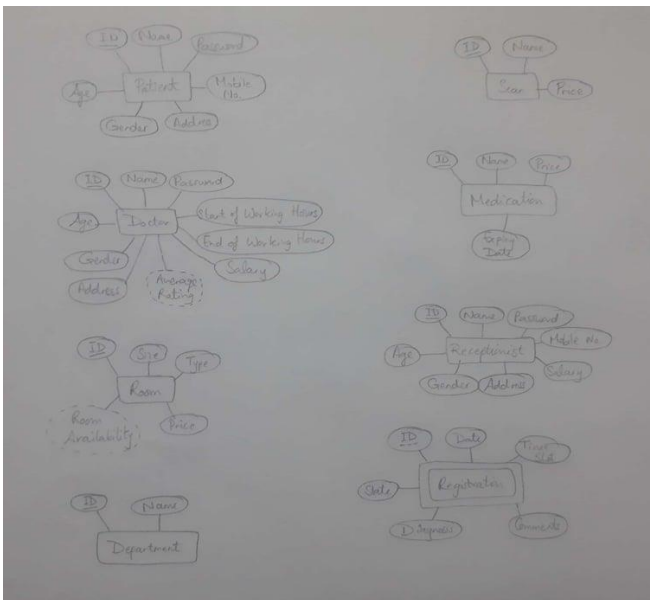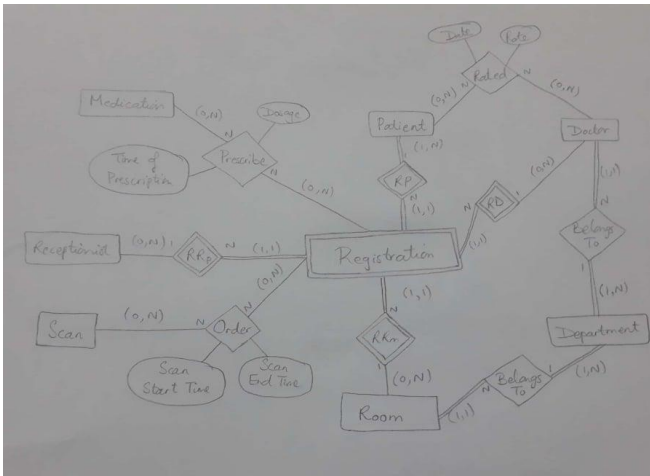**Supervised by:**

Dr. Mayada Hadhoud

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I. New ER Diagram

II. Database Schema Diagram

A. Database Relations (Tables)

Below a screenshot from Microsoft SQL server showing the tables and the schema with foreign keys showing the referenced relations – for a better view, kindly find the file attached with submission files.

III.   Database Constraints

A. Patient

Attribute	Constraint
PID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Long Integer
Name	**Domain Constraint:** Varchar(30)
Password	**Domain Constraint:** Varchar(15)
Gender	**Domain Constraint:** Varchar(1) **Semantic Constraint:** 'M' or 'F'
Age	**Domain Constraint:** Integer **Semantic Constraint:** >0
Mobile Number	**Domain Constraint:** Long Integer **Semantic Constraint:** 11 digits
Address	**Domain Constraint:** Varchar(30)

B. Doctor

Attribute	Constraint
DID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Long Integer
Name	**Domain Constraint:** Varchar(30)
Password	**Domain Constraint:** Varchar(15)
Gender	**Domain Constraint:** Varchar(1) **Semantic Constraint:** 'M' or 'F'
Age	**Domain Constraint:** Integer **Semantic Constraint:** >0
Mobile Number	**Domain Constraint:** Long Integer

	Semantic Constraint: 11 digits
Address	**Domain Constraint:** Varchar(30)
Department ID	**Referential Constraint: FK → DepID** in DEPARTMENT Table
Start of Working Hours	**Domain Constraint:** Hour **Semantic Constraint:** Within working hours: [08:00, 18:00]
End of Working Hours	**Domain Constraint:** Hour **Semantic Constraint:** Within working hours: [08:00, 18:00]
Salary	**Domain Constraint:** Integer
Average Rating	**Domain Constraint:** Double **Semantic Constraint:** [0, 10]

C. Room

Attribute	**Constraint**
RID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Integer **Semantic Constraint:** [1, 500]
Type	**Domain Constraint:** Varchar(16) **Semantic Constraint:** 'Examination Room', 'Surgery Room' or 'ICU'
Size	**Domain Constraint:** Double **Semantic Constraint:** [30, 60]
Price	**Domain Constraint:** Double **Semantic Constraint:** [100, 1000]
Department ID	**Referential Constraint: FK → DepID** in DEPARTMENT Table
Room Availability	**Domain Constraint:** Boolean

D. Department

Attribute	Constraint
DepID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Integer **Semantic Constraint:** [1, 100]
Name	**Domain Constraint:** Varchar(30)

E. Scan

Attribute	Constraint
SID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Integer **Semantic Constraint:** [1, 100]
Name	**Domain Constraint:** Varchar(30)
Price	**Domain Constraint:** Double **Semantic Constraint:** [100, 1000]

F. Medication

Attribute	Constraint
MID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Integer **Semantic Constraint:** [1, 500]
Name	**Domain Constraint:** Varchar(30)
Price	**Domain Constraint:** Double **Semantic Constraint:** [20, 1000]
Expiry Date	**Domain Constraint:** Date (DD/MM/YYYY) **Semantic Constraint:** > Current Date

G. Receptionist

Attribute	Constraint
RecID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Long Integer
Name	**Domain Constraint:** Varchar(30)
Password	**Domain Constraint:** Varchar(15)
Gender	**Domain Constraint:** Varchar(1) **Semantic Constraint:** 'M' or 'F'
Age	**Domain Constraint:** Integer **Semantic Constraint:** >0
Mobile Number	**Domain Constraint:** Long Integer **Semantic Constraint:** 11 digits
Address	**Domain Constraint:** Varchar(30)
Salary	**Domain Constraint:** Integer

H. Registration

Attribute	Constraint
RegID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Long Integer
Receptionist ID	**Referential Constraint: FK → RecID** in RECEPTIONIST Table
Patient ID	**Referential Constraint: FK → PID** in PATIENT Table
Doctor ID	**Referential Constraint: FK → DID** in DOCTOR Table
Room ID	**Referential Constraint: FK → RID** in ROOM Table
Date	**Domain Constraint:** Date (DD/MM/YYYY) **Semantic Constraint:** = Current Date

Reserved Time Slot	**Domain Constraint:** Hour **Semantic Constraint:** Within working hours: [08:00, 18:00]
State	**Domain Constraint:** Varchar(18) **Semantic Constraint:** 'Waiting', 'Being Examined', 'Getting Scanned', 'Buying Medications' or 'Released'
Diagnosis	**Domain Constraint:** Varchar(1000)
Comments	**Domain Constraint:** Varchar(1000)

I. Ordered Scans

Attribute	Constraint
Registration ID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Referential Constraint: FK → RegID** in REGISTRATION Table
Scan ID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Referential Constraint: FK → SID** in SCAN Table
Scan Start Time	**Domain Constraint:** Hour **Semantic Constraint:** Within working hours: [08:00, 18:00]
Scan End Time	**Domain Constraint:** Hour **Semantic Constraint:** Within working hours: [08:00, 18:00]

J. Prescribed Medications

Attribute	Constraint
Registration ID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Referential Constraint: FK → RegID** in REGISTRATION Table
Medication ID	**Key Constraint: PK**

Attribute	Constraint
	Entity Integrity Constraint: Not Null **Referential Constraint: FK → MID** in MEDICATION Table
Time of Prescription	**Domain Constraint:** Hour **Semantic Constraint:** Within working hours: [08:00, 18:00]
Dosage	**Domain Constraint:** Varchar(30)

K. Doctor Ratings

Attribute	Constraint
Patient ID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Referential Constraint: FK → PID** in PATIENT Table
Doctor ID	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Referential Constraint: FK → DID** in DOCTOR Table
Date	**Key Constraint: PK** **Entity Integrity Constraint:** Not Null **Domain Constraint:** Date (DD/MM/YYYY) **Semantic Constraint:** = Current Date
Rate	**Domain Constraint:** Double **Semantic Constraint:** [0, 10]