

IT214 - DBMS- Winter'25 – Project (Final Submission)

LAB GROUP – 6

GROUP ID – 3

Group Members:-

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TOPIC:- NATIONAL HEALTH MANAGEMENT SYSTEM

1) Project Description:-

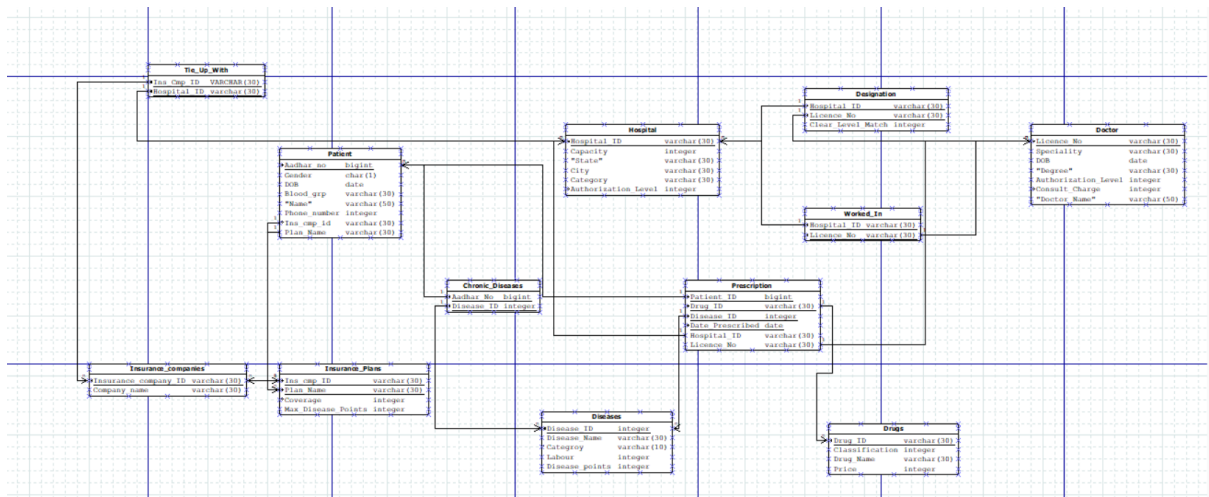
India's healthcare system is vast and complex, involving millions of patients, thousands of hospitals, doctors, diseases, and insurance providers. But currently, there is no single platform that brings all this information together in a well-organized and accessible way. This makes it hard to track patient histories, manage insurance claims, monitor hospital resources, and analyse national health data. Manual record-keeping or disconnected systems often lead to inefficiencies, errors, and delays in care.

To solve this, we propose the National Healthcare Management System (NHMS), a centralized, relational database management system. It captures the core entities of the Indian healthcare system: patients, doctors, hospitals, diseases, insurance companies, and the government. Each entity is modelled as a table, with relationships connecting them in meaningful ways.

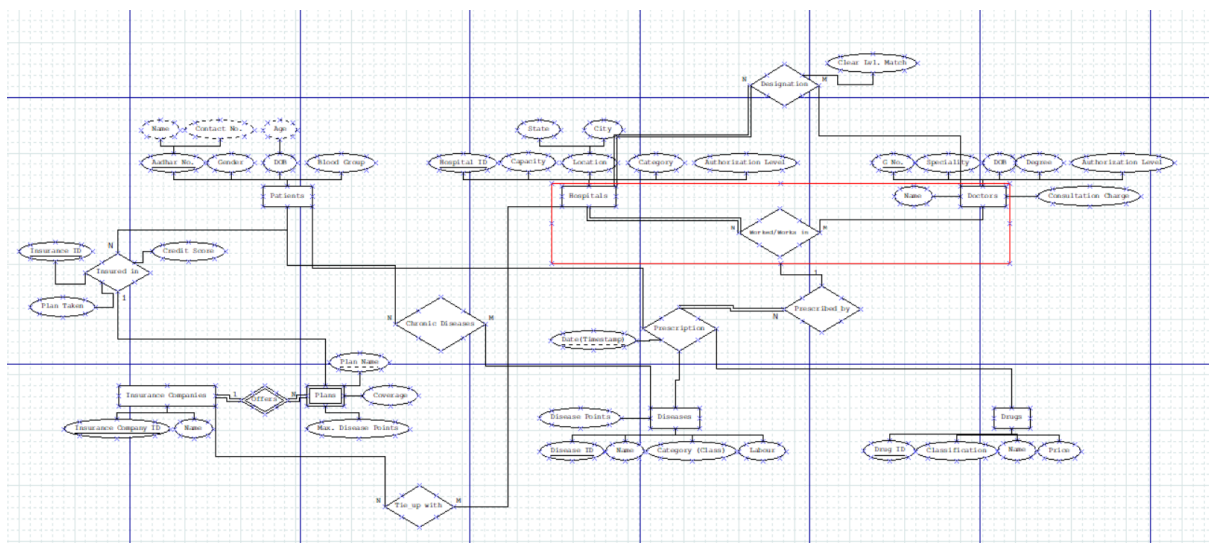
The system tracks hospital affiliations, doctor specializations, prescriptions, chronic diseases, and insurance coverage. It also includes government support for specific diseases. Through stored procedures and powerful SQL queries, NHMS can generate bills, retrieve medical histories, track disease trends, and evaluate insurance eligibility.

With NHMS, we aim to provide a robust and flexible foundation for better healthcare management across the country, making data more accessible, improving coordination between institutions, and supporting smarter healthcare decisions for all.

2) Relational Schema:-



3) ER Diagram:-



4) Minimal FD Set AND BCNF/Normalization Proofs:

1. Patient (In BCNF)

FDs:

Address No \rightarrow Gender

Address No \rightarrow DOB

Address No \rightarrow Blood Group

Address No \rightarrow Name

Address No \rightarrow Phone No

Address No \rightarrow Insurance Comp. ID

Address No \rightarrow Plan Name

2. Plans (In BCNF)

{Insurance Comp. ID, Plan Name} \rightarrow Coverage

{Insurance Comp. ID, Plan Name} \rightarrow Max Dist pts

Here we suppose that Plan Names across all companies are the same, but Insurance Comp. ID determines Coverage & Max. Disease pts

3. Insurance Companies (In BCNF)

Insurance Comp. ID \rightarrow Insurance Comp. Names

4. Chronic Diseases

Table doesn't have any FDs, so automatically in BCNF.

5. Diseases

FDs:

Disease ID \rightarrow Name

Disease ID \rightarrow Category

Disease ID \rightarrow Label

Disease ID \rightarrow Symptoms

Disease ID \rightarrow Disease points

Name \rightarrow Disease ID

Here as Name & Disease ID are both keys, we conclude that this relation is in 3NF & not BCNF

6. Prescription (In BCNF)

{Patient ID, Drug ID, Disease ID, Date} → Hospital ID

{Patient ID, Drug ID, Disease ID, Date} → License ID

7. Drugs (In 3NF)

Drug ID → Classification

Drug ID → Name

Drug ID → Price

Drug ID → Side effects

Name → Drug ID

8. Hospital (In BCNF)

Hosp. ID → Capacity

Hosp. ID → State

Hosp. ID → City

Hosp. ID → Category

Hosp. ID → Author. Level

9. Doctor (In BCNF)

License No → Specialty

License No → DOB

License No → Degree

License No → Authorization

License No → Consult Charge

License No → Name

10. Designation

Hospital ID, License No

No FDs, so BCNF

11. Work In:

Has no FDs, so in BCNF

12. Tie Up With:

No FDs, so in BCNF