DBMS
Lab 1 Report

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- We have created a Hospital management database, in which we try to keep the helpful information related to patients, hospitals, doctors, and their Medical Record
- Our assumption is that:
  A patient can only be in a hospital at one time.
  A doctor can only be present in a hospital at a time .

We have created 4 tables:

- enrollement_table
- lecturer_table
- lectures_table
- lect_prof_table
- student_table

Code for Questions 1 and 2

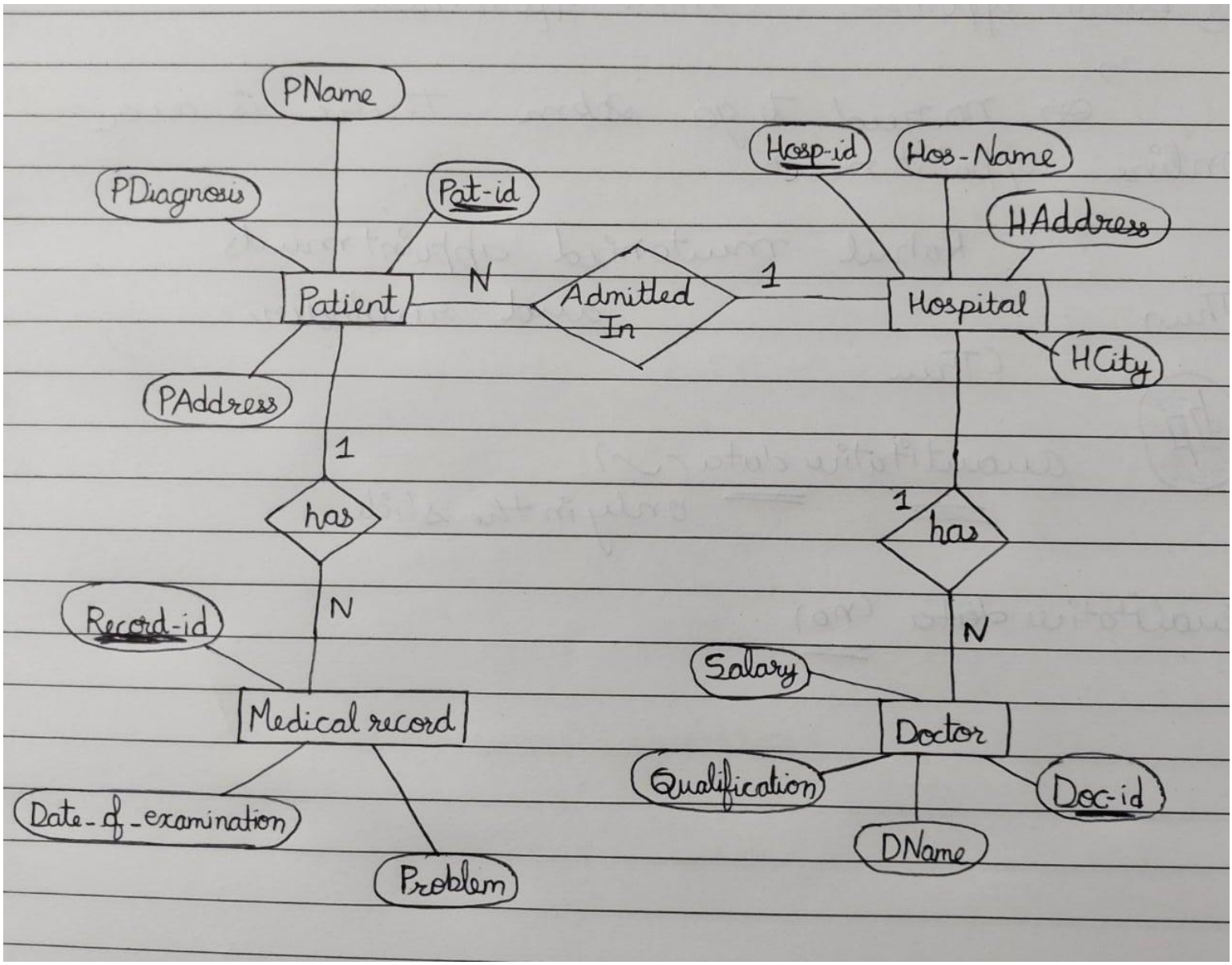
```
//Command to Compile: g++ demo.cpp -o demo.exe -lmysql
#include <iostream>
#include <windows.h>
#include <mysql.h>
using namespace std;
MYSQL *conn;

int main()
{
    conn = mysql_init(NULL);
    if (conn == NULL)
    {
        cout<<"Error: "<<mysql_error(conn)<<endl;
        exit(1);
    }
// mysql_real_connect(Connection Instance, Username, Password,Database,
Port, Unix Socket, Client Flag)
    if (mysql_real_connect(conn, "localhost", "vageesh","1234", "lab1",
3306, NULL, 0))
    {

        cout<<"Connected Successfully!"<<endl;
    }
    else
    {
        cout<<"Error while connecting!"<<endl;
    }
    char tableName1[256] = "Patient";
    char query1[512];
    snprintf(query1, 512, "CREATE TABLE `%s` (`Pat-id` int NOT NULL
PRIMARY KEY, `Pname` varchar(255), `Pdiagnosis` varchar(255), `Paddress`
varchar(255));",tableName1);
```

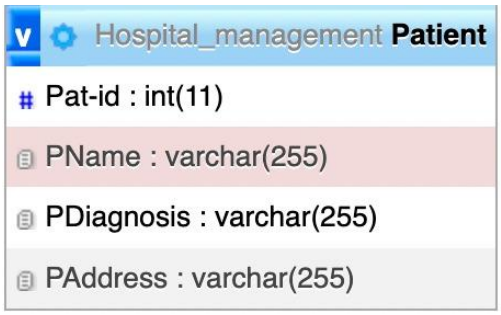
```
    snprintf(query1, 512, "INSERT INTO `%s` (Pat-id, Pname, Pdiagnosis,
Paddress) VALUES (1, 'Chakshu', 'Rickets', 'Mumbai');",tableName1);
    snprintf(query1, 512, "INSERT INTO `%s` (Pat-id, Pname, Pdiagnosis,
Paddress) VALUES (2, 'Rahul', 'Rabies', 'Amravati');",tableName1);
    snprintf(query1, 512, "INSERT INTO `%s` (Pat-id, Pname, Pdiagnosis,
Paddress) VALUES (3, 'Vageesh', 'Polio', 'Rewari');",tableName1);
    int createTableStatus = mysql_query(conn, query1);
    if (createTableStatus != 0)
    {
        cout<<"Error while creating table: "<<mysql_error(conn)<<endl;
    }
    //int a = display();
    return 0;
}
```

ER Diagram


PName
PDiagnosis
Pat-id
Patient
N
Admitted In
1
Hosp-id
Hos-Name
HAddress
Hospital
HCity
PAddress
1
has
N
Record-id
Medical record
Date-of-examination
Problem
1
has
N
Salary
Doctor
Qualification
Doc-id
DName

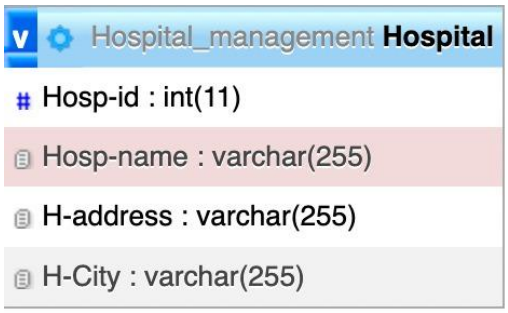
Individual Tables

Patient



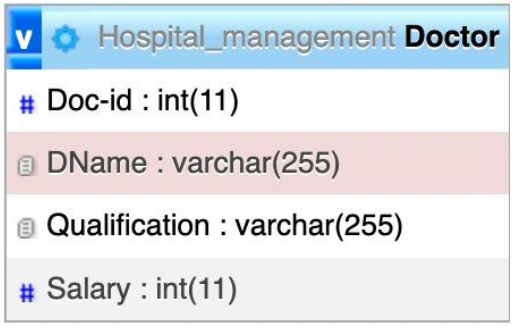
Pat-id	PName	PDiagnosis	PAddress
1	Chakshu	Rickets	Mumbai
2	Rahul	Rabies	Amravati
3	Vageesh	Polio	Rewari

Hospital



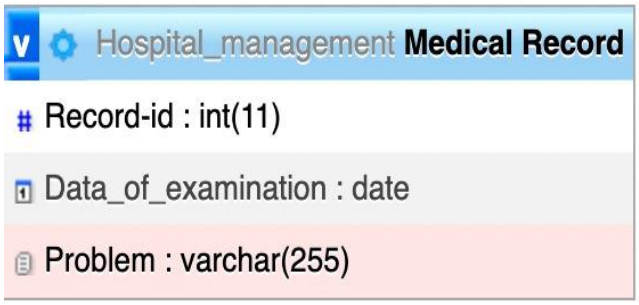
Hosp-id	Hosp-name	H-address	H-City
1	Appolo	Delhi	Sarita Vihar
2	AIIMS	Jodhpur	Marudhat idustrial Area
3	Goel	Jodhpur	Sardarpura

Doctor



Doc-id	DName	Qualification	Salary
1	Devi	MBBS	1000002
2	Ribhav	MD	100000
3	Rushil	BMS	100000

Medical Record



Record-id	Data_of_examination	Problem
1	2022-08-28	Pain in legs
2	2022-08-19	Rashes
3	2022-08-18	Weak Legs

Question 3

a)

- For Table Patients, the primary key is Patient-id.
  Candidate keys are: Pat-id and Patient Name.
  (Assuming many people exist with same name)
- For Table Hospital, the primary key is Hospital-id.
  Candidate keys: Hosp-id and Hosp-Name
  (Assuming multiple hospitals exist with same name)
- For Table Doctor, primary key is Doc-id.
  Candidate Keys: Doc-id and DName.
  (Assuming multiple doctors with same name)
- For Medical Report, primary key is Report-id.
  Candidate Key: Report-id.
  (As no other colums can uniquely identify the entity)

b) A functional dependency on part of any candidate key is a violation of 2NF.
Our Table is in 2NF as we don't have any functional dependency.
For example, when we consider a table of Patients, the non-prime attributes(P-Address, P-Diagnosis) are not dependent directly on a subset of candidate keys.
(P-Name cannot uniquely identify non-prime attributes as different people may exist with the same name.)

Similarly, on checking other tables, we can conclude that the table is already in the 2nd Normal Form.

As for extra work done, we tried to establish relationships between tables with the help of foreign keys and all our tables are in 3rd normal form as well.