Lab 7
Entity Relationship (ER) Data Model II

CSE 4308

DATABASE MANAGEMENT SYSTEMS LAB

OCTOBER 20, 2022

1 Lab Task

Nationa ID (NID) is an integrated collection of citizens' information such as Name, Date of Birth, Occupation, Blood Group. Each citizen has his/her own NID. In order to investigate the population density, the country has been divided into divisions. Each divison has its name, size (in square KM), and a brief description. Again, each division has a number of districts with similar attributes. Citizen information must be connected to its corresponding division and district.
Each citizen may have exactly one driving license where information such as type of license, issue date, expiration date are maintained. Whenever any accident occurs, it is logged in the central system. The system stores relevant information such as date and time of accident, location of accident, number of deaths (if any), etc.
There are a number of hospitals in the country having name and contact information. Each hospital may have more than one contact number. Citizens may avail treatment in any hospitals they prefer. Whenever any patient (i.e., citizen) is admitted, the system keeps the record of his/here date of admission, a brief description, and release date.
Now, your task is to:

1. Draw an ER Diagram, without any data redundancy, specifying the cardinality explicitly. You may add additional attributes only if it is needed.
2. Convert the ER Diagram into DDL using standard SQL denoting the appropriate constraints.
3. Write SQL statements for the following queries:
   (a) Find the list of divisions along with its total number of districts.
   (b) Find the list of districts having at least 20,000 people living there.
   (c) Find the number of accidents that involved a citizen whose NID is 210.
   (d) Find the list of top 5 hospitals based on the number of patients admitted so far.
   (e) Find the blood group of all the patients admitted to different hospitals.
   (f) Find the population density for each division.
   (g) Find the top 3 densely populated districts.
   (h) Find the number of accidents that occurred in each district.
   (i) Find the division where the least amount of accidents occurred.
   (j) Find the number of accidents caused by 'non-professional' and 'professional' license holders.
   (k) Find the person who was admitted to the hospital for the longest period of time.
   (l) Find the division where the number of young people ($15 \leq \text{age} \leq 30$) is the lowest.
   (m) Find the people whose licenses expired.
   (n) Find the number of accidents caused by people whose licenses expired.
   (o) Find the license holders who were not involved in any accident so far.
   (p) Find the number of deaths due to any accident for each division.
   (q) Find the name of the people who got their license before the age of 22 or after the age of 40.
   (r) Find the list of citizens who were admitted to the hospital on the same day they got into an accident.
   (s) Find the hospital where people from Dhaka division were admitted the most.
   (t) Find the list of people who caused an accident outside their own district.