



**MIDDLE EAST TECHNICAL UNIVERSITY
NORTHERN CYPRUS CAMPUS**

CNG 352: DATABASE MANAGEMENT SYSTEMS

Term Project Step – 3 “Alacritas”

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Requirement Analysis

A family getaway, self-adventure, romantic trip, expeditions or weekend run away are all have connection with traveling. Traveling to a new country involves new experience and fun adventures but sometimes it can lead to un-expectable cases like a long flight can you risk of sick, or new food can cause stomach problems and etc. That's why depending on our traveler experience we decided to make "Alacritas" application, which will be helpful for tourist abroad to find a best suitable treatment in foreign Hospitals. Our application will contain hospital information, ratings, available doctors, etc. Hospitals will divided according to theirs type like branches, public, main and research hospitals. Doctors also will be divided according their professions. System will provide comfortability and ease of usability both for clients and for hospitals.

Data Requirements

User

User will be stored in database and will control trip information that will be used for future statistical functions. System will show best suitable hospitals to user depends on his/her given information, also it will show rates and comments about given hospitals, so user will chose the best suitable hospital depends on given information. All previous trips will be stored for a statistical collection. In addition user will be allowed to rate and comment facility that he/she visited.

Necessary Attributes:

User entity will store necessary data about person who will travel. It will contain user ID, gender, number of trips, username and password. User ID will be primary key, because it should be unique for each user. Number of trips will be derived data.

Trip

Depending on users given data, trip will search for best hospital in the address and other information provided by user. Trip will be shown in specific date ranges to check availability of hospitals. Each trip data will be stored for each different user. For each trip to search best suitable facility data will be collected both from user and hospitals.

Necessary Attributes:

The data required here is trip id, starting-ending dates and location to where user will travel. Depends on location user will be allow to see which hospitals he/she can visit during the trip. Trip id will be primary key in the database table.

Country/City (Location)

Before planning a trip user will give necessary information on location he/she will visit. User will provide country and specific city where adventure will start. In case of visiting different city or countries during the trip, user will be allowed to enter multiple addresses. Depending on this data system will list suitable hospitals in the given location.

Necessary Attributes:

Trip entity will consists of countries entity, where country name will be stored. Country name will be unique here.

City entity which connected to country entity will require data like city name and city id. City id will be primary key, while city name will be normal attribute.

Hospital

Hospital will be divided on different types, depends on user choice like price, rating and comments. After visiting a specific hospital, user will rate and comment a visited facility. So, hospital here may change in ranks among another hospitals in the given location. After performing statistical function, they will be stored according their ranks.

Necessary Attributes:

Hospital entity will store data like hospital id, hospital name, and rating and foundation year. Hospital id will be unique and rating will be derived attribute which will be changed depends on user rating options.

Hospital will be divided into Branch, Research Hospital, Public Hospital and Private Hospital. Disjoint will be used here. In addition to Hospital data Public Hospital type will store department and Research Hospital entity will store research topic and number of researches

Rating

Each hospital will be have ranks. According theirs rating and comments which given by a visited customers they will be shown in the system in priority lists. Ranking will be calculated according to customer service, comfortability and another necessary information.

Doctor

System will keep track of different types of doctors depending on users' choice. Frequently visited doctors in specific hospitals will be shown in the system. In addition doctors known languages will be shown to the user, so user will be allowed easily visit specialist without any language barriers. Also user will be allowed to see doctors' years of experience, so before visiting a specific specialist user will have no doubts about it.

Necessary Attributes:

Data required here is employee id, age, first and last name, years of experiences and multivalued attribute languages that doctors know. Employee id will be primary key. Doctor will consists of two types: Practitioner or Surgeon. Disjoint diagram will be used here. In addition to doctor data, surgeon will store data like specialty and number of surgeries surgeon done.

Admin Transaction Requirements

Data Integration

- Enter data of new country
- Enter data of new city
- Enter data of new practitioner
- Enter data of new surgeon
- Enter data of new branch
- Enter data of new research hospital
- Enter data of new public hospital
- Enter data of new private hospital

Data Update/Delete

- Update/delete data of integrated trip
- Update/delete data of integrated country
- Update/delete data of integrated city
- Update/delete data of integrated practitioner
- Update/delete data of integrated surgeon
- Update/delete data of integrated branch
- Update/delete data of integrated research hospital
- Update/delete data of integrated public hospital
- Update/delete data of integrated private hospital

Admin View Queries

- List all of the trips' info according to trip dates that all user added to system.
- List all of the travelers' info according to their IDs.
- List all of the hospitals' info according to their rates.
- List all of the countries' info on the alphabetically.
- List all of the cities' info on the alphabetically.
- List all of the doctors' info on the alphabetically.
- Filter all the hospitals' info which are below than 1 point ranking which is out of 5.
 - o Delete after 50 ranking which are comes from users, if hospital's rank is still below than 1 out of 5.
- List all countries which have more than 50 hospital and average rank of these hospitals have greater than 3.

User Transaction Requirements

Data Integration

- Enter data of new user.
- Enter data of new trip.

Data Update

- Update data of integrated rate of a hospital.
- Update data of own user info.

User View Queries

- List all of the trips' info according to trip dates that he/she added to system. List all of the hospitals' info according to their rates.
- Filter hospitals according to their rates or departments. (Example).
 - o Filter all of the hospitals according to the rate which is greater than 4.
 - o Filter all of the hospitals according to department which is cardiology.
- List all of the countries' info on the alphabetically.
- List all of the cities' info on the alphabetically.
- List all of the doctors' info on the alphabetically.
- Filter all of the surgeons' info according to their specialty. (Example).
 - o Filter all the surgeons according to their specialty which is cardiologist.

Enhanced Entity Relationship Diagram

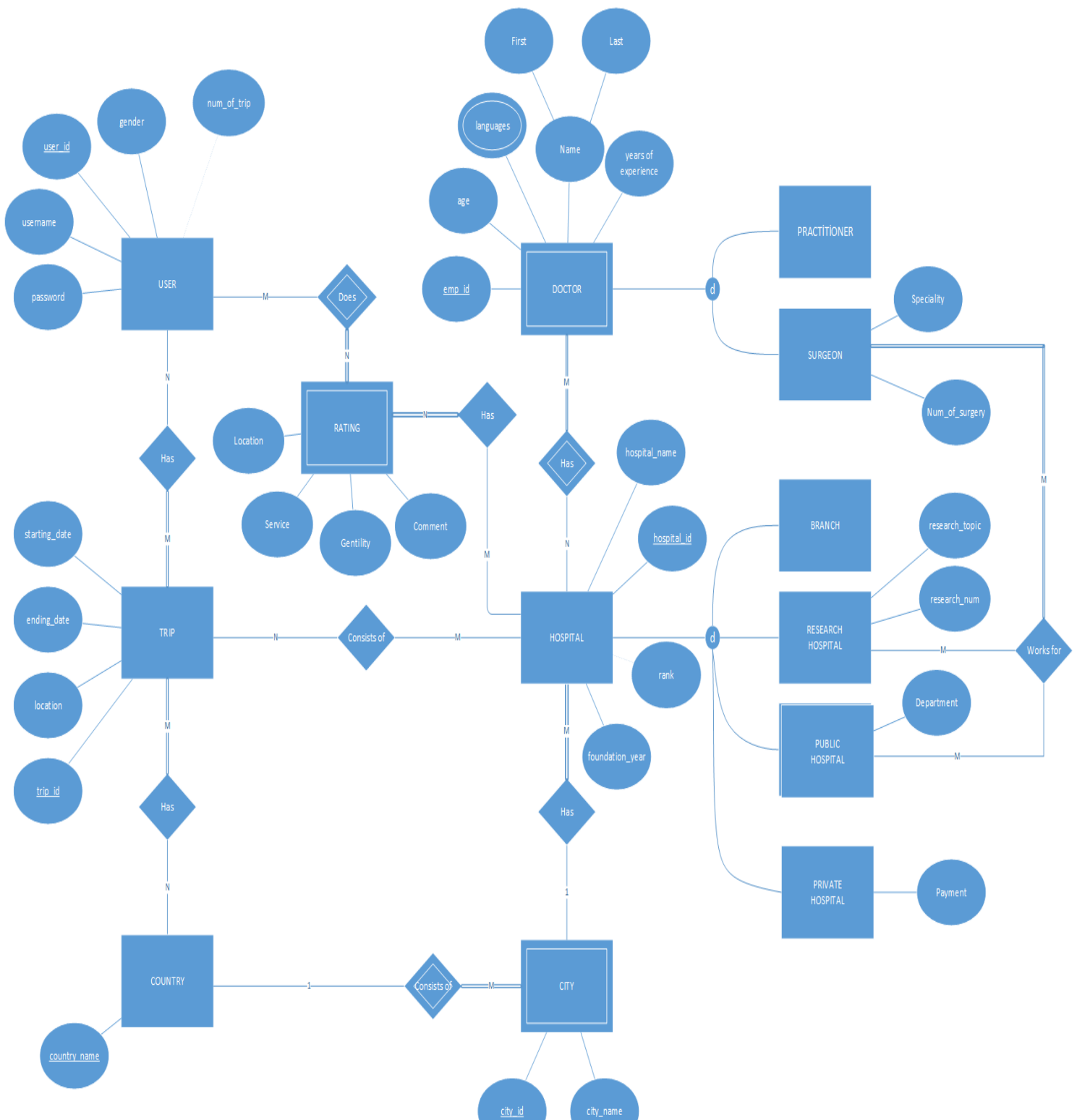


Figure 1: EER Diagram

Assumptions:

- 1) Number of trips attribute in User entity is derived data. All new trips will added automatically.
- 2) Country entity has name which is primary key. No another countries with same name allowed.
- 3) City entity has city id which is primary key. Name of cities in different countries can be same.
- 4) Hospital will have rank which is derived attribute. Rank will be counted depends on rating attributes.
- 5) Doctor entity will have language multivalued attribute. Customer will be allowed to know if doctor knows his/her language.
- 6) Rating is weak entity, cannot exists without user and hospital
- 7) Private Hospitals will have own payment methods
- 8) Practitioner doctors' difference with surgeon, in that practitioner don't have any special area of specialty.