W.H.N.D.M.S.

Windsor Hospital Network Database Management System

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Introduction

- Our project in essence is a Hospital Database Management System
- Focused on intricately designing and implementing a database that successfully manages a hospital network and its different locations with each location having medical specializations
- Purpose of this project is to produce optimal efficiency in patient care management, healthcare system administration and Hospital network logistics
- Our database is meant to make it easier to provide a multitude of scalable solutions to healthcare and its issues

Database Design

- Primarily allows for the Windsor Hospital Network to have three locations to operate with multiple patients categorized based on their health condition within each department/branch
- Branches have designated healthcare providers composed of a set number of doctors and nurses with their own specializations of practice
- Each tables uses attributes and some foreign attributes to keep track and update the information about each table.
- Every table has the foreign key of Hospital_ID as everything exists within the hospital.

- The following are the primary components within our design:
    - Hospital
    - Pharmacies
    - Patients
    - Doctors
    - Nurses
    - Billing
    - Payment
    - Locations

Technology

- We utilized two different technologies
- SQLite as our primary DBMS
- Flask as the backend for the website

Flask

Hospital

- Table for that serves as the Windsor Hospital network's foundation
- Primarily identifies the 3 distinct Hospital locations
- contains the attributes of:
  - hospital_ID → Uniquely identifies each Windsor Hospital location of the network
  - hospital_name → Name of specific Windsor Hospital location
  - hospital_location → The physical address of each Hospital location
- Primarily referenced by other tables in the database as mentioned

Pharmacies

- Pharmacy table is used to identify the different pharmacies available.
- It uses ID, Name and Location for its entity
- There are 3 different pharmacies one for each hospital.
  - pharmacy_ID → Uniquely identifies each pharmacy location
  - pharmacy_name → Name of specific Windsor pharmacy
  - pharmacy_location → The physical address of each pharmacy location

Doctors

- Doctor table is used to identify the different doctors working at the hospital.
- It used doctor_ID, doctor_firstname, doctor_lastname, hospital_ID for its entity
- There are multiple different doctors and they have a M:N relationship with patients.
  - doctor_ID → Uniquely identifies each doctor
  - Doctor_firstname, doctor_lastname → first name of doctor and last name of doctor respectively
  - hospital_ID → used to identify the hospital the doctor is working at
- References location_ID to check which branch the doctor is working at

Patients

- Patient table is used to identify the different patients at a hospital.
- It used patient_ID, patient_firstname, patient_lastname, patient_address, patient_DOB and many more for its entity.
- There can be multiple patients in one hospital but one patient can only be in 1 hospital. 1:M relationship
  - patient_ID → Uniquely identifies each patient
  - Patient_firstname, patient_lastname → keeps track of patients first and last name respectively
  - patient_DOB → holds the date the patient was born
  - patient_address → keeps track of the patient's address
- References hospital_ID to check which branch the patient is located at

Nurses

- Nurse table is used to identify the different nurses working at the hospital.
- It used nurse_ID, nurse_firstname, nurse_lastname, hospital_ID for its entity
- There are multiple different nurses and they have a M:N relationship with patients.
  - nurse_ID → Uniquely identifies each nurse
  - nurse_firstname, doctor_lastname → first name of nurse and last name of nurse respectively
  - hospital_ID → used to identify the hospital the nurse is working at
- References location_ID to check the branch the nurse is working at

Billing

- Billing table is used to identify the different amounts of money owed to the hospital.
- It used billing_ID, billing_amount, billing_date, patient_ID, hospital_ID for its entity.
- There can be multiple payments made towards one bill.
  - billing_ID → Uniquely identifies each bill tab
  - billing_amount → keeps track of money owed to the hospital
  - billing_date → holds the date the bill was created for the person
  - patient_ID → keeps track of which patient owes the money
  - hospital_ID → used to identify the hospital the payment is made to
- References patient_ID, hospital_ID for which patient and branch is billed

Payment

- Payment table is used to identify the different amounts of money paid towards a bill to the hospital.
- It used payment_ID, payment_amount, payment_date, billing_ID for its entity.
- There can be multiple payments made towards one bill.
  - payment_ID → Uniquely identifies each payment made
  - payment_amount → keeps track of money received by the hospital for a bill
  - payment_date → holds the date the payment was made by the patient
  - billing_ID → Identifies which bill the payment is made to
- References billing_ID to check which bill the payment is made towards

Locations

- Used to identify the different branches at a hospital location
- The following are its attributes:
  - location_ID → Uniquely identifies each branch of the hospital
  - branch_name → keeps track of the name of the specific branch being referenced
- References hospital_ID to show which branches belong to which hospital location

End of our Presentation

GitHub link: https://github.com/angelohoeung/comp3150-hospital-database