



**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





# 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



thank you

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