



**OPEN ACCESS MEDICAL CENTER
(OAMC)**

**COMP 353 PROJECT
DATABASE DESIGN DOCUMENT**

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Introduction

The database design provides a structured and efficient way for the OAMC to access, view and manage important data regarding their units, staff, shifts, supplies, rooms, patients and schedules. Relational diagrams are first created to provide an organized view of several tables with their respective attributes and keys(primary and foreign). Additionally, this diagram indicates how different tables are related to one another. The database is designed to handle numerous entries as required by the OAMC. The type of data accessible depends on the permissions given to different types of staff, doctors and patients.

Assumptions

The following are the assumptions made during the design phase of the database.

- The database is utilized by only one hospital (in this case, the OAMC).
- The security issues are addressed by a different group.
- The database can be accessed using different operating systems, provided that the user has a web browser and a working internet connection.
- Since each facility is a separate physical site, staff assigned to a unit will remain in that unit.
- Each unit has its own storage units.
- Each staff member is associated with only one unit.
- The list of positions and titles will not change.
- The list of services provided by each unit does not change.
- Permissions vary with the position.
- Each staff member can hold only one position.
- A service can only be offered in a room that is available.
- A patient can use only one service at any given time.
- There is a finite capacity for supplies.
- Each vendor sells only one type of supply.
- A director or administrator can only order supplies for his/her respective unit.

Design Choices

The following are major design choices:

- Doctors and staff are put in different tables: Doctors are not included in the Staff table since they possess various attributes that the other titles (doctors, nurses, technicians, etc.) do not. First of all, doctors are paid per visit. Second, interns and residents (types of doctors) must always have a supervising physician. Finally, senior doctors can adjust their own hours. Unlike all the other positions, they can modify their assigned shift. Hence, the design will consider doctors and staff as two different types of employees.
- The creation of the table "Employeeids": Since doctors and staff are in different tables, this table is used to identify all personnel working at the hospital. There will always be a NULL result

in either the attribute “StaffID” or “DoctorID” since an employee cannot be both a staff and a doctor. Also, this table contains the password of every employee.

- The creation of the table “StaffServiceAssignments”: This table provides a way to identify a service and its respective patient, doctor, and schedule. This allows doctors or staff to see a scheduled service and its respective patient.
- The creation of the table “PreviousVisits”: This table contains past appointments belonging to a certain patient. Note that the table “ServiceSchedules” contains future appointments.
- The attributes that sets the tables “ServiceSchedules” and “PreviousVisits” apart: Since the table “ServiceSchedules” is used for future appointments, it has attributes not present in the table “PreviousVisits”. These attributes are: “RoomID”, “Start”, and “Finish”. The attribute “RoomID” exists because a future service can only be performed in an available room at a certain time. The attributes “Start” and “Finish” defines the time when the service will be taking place. These attributes also exist because a staff member or doctor requires knowledge of when a scheduled service will be taking place. For past visits, these attributes are not necessary.

Diagram

To view the ER diagram, please [click here!](#)

Sample Outputs

The following are screenshots of the interface:

[Administrator Director 1](#)
[Administrator Director 2](#)
[Administrator Director 3](#)
[Administrator Director 4](#)
[Administrator Director 5](#)
[Administrator Director 6](#)
[Administrator Director 7](#)
[Resident Interns](#)
[Senior Doctor 1](#)
[Senior Doctor 2](#)
[Senior Doctor 3](#)
[Senior Doctor 4](#)
[Senior Doctor 5](#)
[Senior Doctor 6](#)
[Supervisor Nurse](#)