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Hospital System

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# **Introduction of Hospital Database**

The database gives general information about a certain hospital. It keeps the records of employees and patient information. Also, it keeps track of locations in the hospital and who is in that area. All the information is kept in a database and is maintained manually. The database makes it efficient for a hospital to keep track of records and saves them a lot of time.

The development of the database began in around February of 2020 by three students. The database will be made in SQL that is provided by Amazon Web Services, and Python will be used to create the user interface. The purpose of the project was for a Database Management System class and it was to show the students’ knowledge on databases and software development that will be taught in class during the semester.

# **Hospital System Profile**

Hospitals are institutions that help provide medical attention for patients of many diseases and diagnoses. They are also critical for further research and knowledge. There is combination of non-profit, profit, federal and government hospitals. They play a huge part in the healthcare system and local communities by providing services and treatments for patients.

Everyone has access to hospitals and are eligible to receive timely and proper care. Patients can make appointments for checkups or get into urgent care for more serious matters. Information and data of patients are saved into different database that keep track of their visits, medical records, lab test results, and referrals. This is useful for the doctors and caretakers to have access to the patient's health record.

As the hospital system is steadily increasing daily, it becomes a priority to keep track and maintain all of the patients' information so that tracing is easier for the hospital workers.

# **Hospital System Process Description**

Hospitals are generally classified as independent or part of a system or network. This also results in how large or small their capacity is. Hospitals are also categorized in teaching or non-teaching institutions because some are associated with medical schools. Teaching hospitals can perform medical research and treatments which are best for medical students.

There is no structure or planning at a federal or state level for healthcare. Hospitals can determine their decision based on their available resources. In most cases, hospitals are owned by private nonprofit institutions who have sufficient resources. On the other hand, hospitals who aren't supported by private providers lack resources and have limited primary care services.

The hospital system provides services for patients, hospital staff and management. Hospitals are essential in our day to day life, especially now with the global pandemic of covid-19. The most important feature of Hospital of hospital system is keeping records for both patients and hospital workers. Doctors and Nurses can use the system to check patient’s medical history, receptionists can use the system to look up any unpaid bills or upcoming appointments for the patient. The system can also be used to check whether a patient has insurance or not Overall, the goal of hospital system database is to store different medical records along with employee record to make sure that the hospital is running smoothly.

# **User Requirements**

# **Process Modeling Requirement**

The database will be one of the hospitals. It needs to keep track of the PATIENTS in the hospital.  The patients are described by their FIRST\_NAME, LAST\_NAME, DATE\_OF\_BIRTH and PATIENT\_ID. Each patient has their own BED, in their own ROOM\_#. Each bed has a specific SIZE (small, medium or large). There is only one bed per room and there are three types of rooms (Small, medium, large). The rooms have EQUIPMENT which is maintained by TECHNICIANS. The EQUIPMENT has a name, manufacturer and a unique room number. The ROOMs are located in WARDS (cardiology, intensive care unit, oncology, etc.). The JANITOR cleans a specific WARD. There are employees in STAFF that have their NAME, SALARY, DOB, EMPLOYEE\_ID and SCHEDULE (PT/FT). DOCTOR, NURSE, TECHNICIAN, RECEPTIONIST and JANITOR are all types of STAFF. NURSES have at a station. TECHNICIAN’s have an area of expertise. JANITORS and RECEPTIONISTS have a ward. RECEPTIONISTS create APPOINTMENTS which has the test procedure, appointment time, patient id and employee id.

The PATIENT is treated by DOCTORS. The DOCTORS orders TESTS for the patients and prescribes MEDICINE to treat the patients. NURSES are assigned to patients. Patients are given an ACCOUNT. The ACCOUNT holds RECORDS, BILL and APPOINTMENTS. Records have a file with their medical history, patient id and account number. The BILL has the amount, when it’s due, how much the copay is and the account number.

# **b. Data Modeling Requirements**

Allow user to manually add new patient, alter an appointment, change bill, look up patient or hospital workers info.

1. Allow user to manually update all the above information.
2. Allow user to generate list of patients, nurses, doctors, receptionist etc.
3. Allow user to delete or change an appointment.
4. Allow user to update bill after a payment has been made

# **c. Expected Database Queries**

1. Find patients according to their specific ID
2. Find detail of each patients
3. Find detail of each hospital workers.
4. Find patient account info
5. Find patients appointment info.
6. Find patient record
7. Find patient bill
8. Update account info such as bill and appointments.

# **ERD**

A close up of a map

Description automatically generated

# **Assumption:**

* There should be at least one staff in each hospital employee departments (Doctor, Nurse, Receptionist, Janitor, Tech).
* Each ward might have more than one nurse working

# **Task List**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task Name** | **Duration** | **Start** | **Finish** | **Member Names** |
| Research Possible Organization | 3 days | 2/1/20 | 2/3/20 | ALL |
| Analyze the requirements | 1 day | 2/5/20 | 2/5/20 | ALL |
| List possible Entities & Attributes | 2 days | 2/7/20 | 2/8/20 | ALL |
| AWS to MySQLWorkbench setup | 1 day | 2/8/20 | 2/8/20 | Prabhat |
| Draw ERD | 2 days | 2/12/20 | 2/13/20 | Trevor |
| Create Tables to match the ERD | 7 days | 2/17/20 | 2/22/20 | Trevor, Vince |
| Connect the tables using keys | 1 day | 2/25/20 | 2/25/20 | Trevor, Vince |
| Insert Data into the tables | 3 days | 2/29/20 | 3/2/20 | Prabhat |
| Research possible interfaces | 2 days | 3/10/20 | 3/11/20 | Vince |
| Create the interface | 7 days | 3/22/20 | 3/28/20 | ALL |
| Test the interface | 2 days | 4/5/20 | 4/6/20 | ALL |
|  |  |  |  |  |
| Create various documents | 7 days | 4/17/20 | 4/23/20 | ALL |
| Create PowerPoint | 1 day | 4/24/20 | 4/24/20 | Vince |
| Practice Presentation | 1 day | 4/28/20 | 4/28/20 | ALL |
| Submit Final Project & Documents | 1 day | 5/1/20 | 5/1/20 | ALL |
| Present in class | 1 day | 5/8/20 | 5/8/20 | Vince |