CIS 560 Group 7

**Project Proposal**

**Project Summary:**

We will be designing an application for a hospital to provide logistical information for patients and their families, doctors, hospital administrators, medical researchers, and anyone else who might be interested in the details of the hospital for legitimate purposes. This application will include information about the patients, about the doctors, about the condition(s) of the patient, and about the treatment plan(s) the doctor has prescribed. Uses of this application will be to find basic doctor and patient information, link patients based on their doctor, their treatment, their condition, etc., find a specific patient or a list of rooms a doctor might be visiting his patients at, and other such connections between the patients, the doctors, the conditions, and the treatments.

**Technical Details:**

We will be using Azure Data Studio for our database development and integration and C# and Windows Forms for the application and GUI development. The beginning of the application will be password protected to ensure the user has the right accessibility to see all of the data provided.

**Data Interactions:**

Our patient and doctor relations will support SELECT, INSERT, and UPDATE functions because the doctors and patients need to be able to be selected for data analytics and queries, added, and modified if some aspect of their data has changed. However, the DELETE function will *not* be supported in the effort of preserving data. The conditions and treatments tables will support SELECT and INSERT because they both need to be able to be selected for processing as well as added to in the event of a new disease or treatment being discovered. However, in the efforts of maintaining complete records, the treatments and diseases, even if outdated and irrelevant, will not be removed because that information might prove valuable at some future time.

**Report Queries:**

Our four initial report queries are as follows:

1. A query to find all patients throughout the history of the hospital (or at least the data we have) who have a specific condition partitioned by year, useful for disease tracking over time or potentially for hospital improvements, such as if a specific condition is prominent in the hospital and there is a unique piece of equipment that would help with that, the query could provide info to make a decision about that improvement. The user would input a condition and the program would return all patients who had that condition by ID number, admittance date, release date, and their doctor’s name and field of study.
2. A query to list all of the conditions a doctor has treated. This search could be used to show qualifications of a doctor or be useful in determining what promotions are in order. The user would input a doctor’s name and the program would return the condition, treatment, and the patient’s length of stay.
3. A query to list all patients with a specific condition by doctor, which could be used to assess a potential outbreak, in medical research to find the spread of a certain condition (i.e. how widespread is heart disease among the patients of this hospital), or by clinical trials to find potential entrants to their trial. The user will input a condition and the program will provide a patient ID number, room number, phone number, and doctor name.
4. A query to find the most common treatments prescribed for a given condition by doctor. This could be used to assess if doctors need training on new treatments, if they are being risk-prone or risk-averse, or other tests of care of that manner. The user would input a doctor’s name and a condition’s name and the program would return the most common treatment for every patient who had that doctor, or if no condition is provided, the treatments for all conditions the doctor has treated.

A proviso with all of these queries is that the hospital would be responsible for ensuring that the user has the proper authorities and permissions to use the software and access the information the program provides.

**Initial Database Design:**