INFO 6210 Data Mgt and Database Design

Group 6:

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Database Topic:

COVID-19 hospitalization management system

Mission statement:

Due to the unexpected COVID-19 pandemic, the amount of COVID-19 patients requiring hospitalization dramatically increased, thus, the medical resources are becoming extremely scarce. With the massive amount of COVID-19 patients occupying the hospital, the purpose of the database is to predict the disease prognosis, modify the treatment strategy, and adjust the admission standard in order to manage the COVID-19 patients more efficiently. This database will be used by both administrative staff and physicians.

Mission Objectives:

- To determine examination and treatment that patient needs based on clinical symptoms.
- Allow physicians to identify the severity of disease through clinical symptoms and examinations, give appropriate inpatient treatment, and further reduce the COVID-19 death rate.
- Easily collect and analyze patients and treatment-related information that allows administrative staff to generate descriptive patients reports, which further helps to understand this disease.
- Allow medical care providers to compare different treatment results, which helps to further improve and modify the treatment strategy.
- Allow physicians to distinguish high-risk patients based on several specific risk factors represented in parameters (e.g., Age > 60, BMI > 28, medical history), leading to reconsideration and adjustment of existing admission standards.
- Provide information to improve the scheduling of the admission and discharge, and to make use of medical resources appropriately and efficiently.
- Track the distribution of patients' addresses to send alerts and prevent community spread.

Functions:

- To maintain (*CRUD) data on patients.
- To maintain (*CRUD) data on patients' addresses.
- To maintain (*CRUD) data on physicians.
- To maintain (*CRUD) data on clinical symptoms.
- To maintain (*CRUD) data on admission.
- To maintain (*CRUD) data on examinations.
- To maintain (*CRUD) data on medical history.
- To maintain (*CRUD) data on treatment.
    *CRUD: create, read, update, and delete.

- To execute queries on patients.
- To execute queries on patients' addresses.
- To execute queries on physicians.
- To execute queries on treatments.
- To execute queries on admission.
- To execute queries on treatment completion by physicians.
- To execute queries on medical history.
- To execute queries on discharge results.
- To execute queries on clinical symptoms.

- To visualize patients' age distribution.
- To visualize death distribution based on patients' age/sex/medical history.
- To visualize severe cases distribution based on patients' age/sex/medical history.
- To visualize clinical symptoms distribution.
- To visualize treatment results based on treatment.
- To visualize treatment results based on physicians.
- To visualize examination results based on the severity of diseases.
- To visualize the length of stay based on patients' severity.
- To visualize the geographic distribution of COVID-19 patients.