Intro
Hi, everyone, we are group6, the topic of our project is COVID-19 hospitalization and management. Today's presentation will be presented by all members of our group.

Content
This is the agenda of today's presentation. First, we will introduce the background and mission objective of our project. Then we will provide details about our implementation, including ERD, stored procedure, and etc. Finally, we will conclude today's presentation by summarizing our findings in a visualized report.

Background
Here is a brief introduction about our team's design idea. The database is mainly related to the current issue on COVID19 pandemic. Under the circumstances of the mass amount of COVID 19 patients occupying the hospital, our team built a database to manage the situation more effectively.

Mission Objective
Our mission objective is to track patients' information to send alerts, prevent community spread, improve admission and discharge scheduling. Moreover, the treatment related info can help understand the disease, further modify treatment strategies and so forth.

ERD
In our ERD, we have 15 entities in total which 9 are primary entities. Patient works as the core entity to record all information about one patient. Address is created for observing community spread of covid-19. ClinicalSymptom is used for recording all symptoms covid-19 patients may have. MedicalCondition is created because patients with certain medical conditions could have higher risk suffering severe illness from COVID-19. Admission is used for tracking patients' admission and discharge. Bed represents the hospital capacity. Physician and Treatment are used for recording who gives a certain treatment for a patient. Examination is designed to track what examination a patient has done. And the result of examinations will follow the standard of WHO's guidance. We can classify patients' severity and give them appropriate medical care. We also have 6 associative entities, which are created for solving many-to-many relationships.

Insertion
After reviewing the ERD. The next step is to insert data in our database. According to the requirement, at least 10 rows of data needed to be inserted. We plan to have 12 patients, 12 physicians, 12 kinds of examinations (including Radiology, blood test, coronavirus test and so on), 12 types of medical condition (including previous disease and health behavior), 12 kinds of treatment and 14 beds which are classified according to the level of care.

As we know there are three ways to insert data into a database: Using ETL tool, Stored procedure, and Creating table. The data is made up by ourselves. We use Data Import Wizard for importing Patient, ClinicalSymptom and PatientSymptom data.
We create a stored procedure named addPhysician for inserting Physician data

Other data we create tables and use inserting statements to do it. we also add table level check constraint by the way. We will talk about it later

Table level constraint
One of our business rules is that the hospital does not provide care for kids less than 12 years old due to lack of specific equipment and tools, so we need to check the patient' s age before admission.

This table level constraint based on the "CheckAge" function is used to enforce this business rule. We can look up patients' age in the patient table with patientID, the insertion of a Patient < 12 years old into the admission table will be terminated based on this constraint.

Computed columns
We have two computed columns based on function.
The first is to calculate the LengthOfStay. We use AdmissionID in the admission table to lookup the admissionDate and DischargeDate/or CurrentDate to calculate the Length of hospital stay for this patient. This column can provide the intuitive information to observe and analyze the length of hospital stay.
The second is to calculate the age of the patient. We use patientID in the patient table to look up the birthdate and calculate the age of this patient. This information can provide data for analysis of the age distribution.

Views

We created 4 views in the database. For example, one of the views could help the local government to set alerts and prevent the spread of the virus. In this slide, we put another interesting example here, which is the fourth view table. It can show the unoccupied beds in the system, so the hospital could arrange the patients efficiently.

Encryption

Next. We use a symmetric key to encrypt the current condition of the patients' medical history for some security and privacy purposes. As you can see, there are some random numbers in the result. Also, we can use the key to decrypt the data for the authorized personnel to see the patients' medical condition.

Report
In this section, we analyzed our outcome through power BI and Tableau, which has been presented in the graphs on the right. We retrieve the data from our database, from which, we can see that cough, fever and headache are the most commonly reported symptoms for COVID-19 pandemic. And the most affected cities in our data points are Seattle, Bothell and Issaquah. So we may need to pay more attention to symptoms like cough, fever and headache reported in these three cities.

That's all for our presentation, thank you, any questions?