Project

Business Problem Statement

- The hospital management seeks to answer several critical questions related to patient flow, operational efficiency, and satisfaction levels to optimize hospital performance.
- They aim to improve the overall patient experience while balancing resource allocation across different departments.
- Key concerns include understanding the factors driving patient wait times, analyzing department efficiency, predicting high-wait periods, and identifying the root causes of varying patient satisfaction.

Objectives:

Measure Patient Volume and Flow:

Determine the total number of visitors over time, broken down by department and time of visit.

Analyze visitor patterns to identify peak visiting days and the distribution of visitors across different age groups and demographics.

Optimize Wait Times:

Identify average patient wait times and wait time distribution across departments and days of the week.

Conduct a detailed wait time analysis by department and demographic factors such as age and gender.

Predict factors leading to high wait times and identify patients most likely to experience longer wait times.

Enhance Patient Satisfaction:

Explore the correlation between patient wait time and satisfaction scores.

Determine which department is most effective in achieving high patient satisfaction.

Identify key drivers that predict high patient satisfaction, such as age, race, and wait time.

Analyze the differences in satisfaction scores between different patient groups (e.g., by department, gender, or age).

SQL Hospital Analysis

- What are the number of visitors
- What are the number of visitors per department
- What is the Average Patient Wait Time*/
- How many people visit per day
- Wait Time Analysis according to different Department
- Correlation Analysis between age and sat score
- Trend Analysis Overtime
- Which is the most common patient race that visits the hospital frequently
- Which department is more effective in patient satisfaction
- Predictive Analysis of high waiting time
- Patient Segmentation for Cluster Analysis
- What is the average time patients spend in each department?
- What is the age distribution of patients visiting different departments?

SQL Hospital Analysis

What is the correlation between patient wait time and satisfaction score?

Is there a difference in average wait time between male and female patients?

How many total visits have occurred over time

What are the different percentiles of patient wait times?

Who are the patients with the longest wait times?

What is the average wait time by different age groups?

Which days of the week have the highest patient visits?

What factors predict high patient satisfaction scores?

Find the average wait time for patients who visited each department and had a satisfaction score recorded. Write a query to return department name, average wait time, and the number of patients with recorded satisfaction scores.

Write a query that determines the patient with the highest satisfaction score for each department. Return the department name, patient name, and satisfaction score. If the top satisfaction score is shared, provide all patients who have that score.

Conclusion

- By conducting a comprehensive data analysis of patient visits, wait times, and satisfaction scores, the hospital will be empowered to make informed decisions that significantly enhance patient experience and operational efficiency.
- The insights gained from understanding patient flow, departmental performance, and demographic patterns will allow for better resource allocation, optimized staffing during peak periods, and targeted strategies to reduce wait times.
- Moreover, through correlation and predictive analysis, the hospital can identify the key factors contributing to patient satisfaction, allowing for targeted interventions aimed at improving care quality.
- Patient segmentation will also help the hospital to offer personalized care to different clusters of patients based on their unique characteristics and needs.
- Ultimately, the hospital's ability to monitor trends, forecast future demand, and address operational inefficiencies will result in improved patient outcomes, higher satisfaction rates, and a stronger reputation for delivering timely and effective healthcare services.
- This data-driven approach will be a cornerstone for continuous improvement in the hospital's performance.