Scenario: To reduce wait time in emergency department of a hospital

Step 1: Understanding the Business Goal

Business Goal:

A local hospital wants to reduce patient wait times in the emergency department by 30% over the next 6 months - Recovery Hospital

Key Objectives:

>Identifying the rates of emergency cases

>Understanding the need for increase in equipment

>Understanding the need for professionals –nurses and doctors

>Collecting the data on time for individual tasks like –check in, treatment and checkout

>To prioritize different cases efficiently to reduce delays

>Develop a dashboard to monitor KPI's in peak hours

>collect feedback from patients, staff and monitor the progress

>Make sure you keep a track on work to make implicit changes whenever needed

Step 2: Q&A b/w Data Analyst vs Client

Data Analyst	Client
1)What is the current average wait time in the emergency department?	Our average wait time is 45 minutes, measured from check-in to seeing a doctor.
2) When do you experience the highest patient volume, and how does this affect wait times?	Wait times are highest on weekends and evenings, especially during the winter months.
3)What is the staffing situation like during peak hours, and is there flexibility in schedules?	We have limited staff during peak periods and rely on part-time staff, which can be inconsistent.

4)Do you have any current initiatives in place to reduce wait times, and have they been effective?	We've tried streamlining triage, but it hasn't significantly reduced wait times."
5) What are the main barriers to reducing wait times (e.g., budget, staffing, technology)?	The biggest barriers are budget constraints and a shortage of skilled medical staff.
6) What types of cases contribute most to longer wait times, and how are they managed?	Non-urgent cases contribute to delays, and we are considering improving the triage system to prioritize critical cases.

Step 3: Sample Data Collection

Table 1: Wait Times and Patient Volume

Time Period	Average Wait Time (min)	Peak Patient Volume	Day of Week	Month (Season)
Weekdays	45	150	Monday	winter
Weekends	60	200	Saturday	winter
Evening	55	100	Any	winter
Off peak	30	80	Thursday	spring

Table 2: Staffing Levels During Peak Hours

Shift Type	Staffing(doc)	Staffing(nurse)	Staffing(others)	Staffing issues
Day	3	5	2	yes
Evening	2	4	1	yes
Night	1	3	1	yes

Table 3: Types of Cases and Their Impact on Wait Times

Case Type	No.of cases	AVG wait time	Impact on wait times
Non-urgent	40	50	High
Urgent	25	30	Medium
Critical	10	15	Low

Step 4: Next Steps

>data cleaning

>EDA

>feature engineering

>Building insights

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