# Hospital Admissions Data Analysis – Problem Statements & Description

## A. Exploratory Data Analysis (EDA)

### 1. Database Selection
**Problem Statement:**
To determine the total number of records in the dataset and identify the number of unique patients admitted to the hospital
**Description:**
This step makes sure that all our queries run on the right database which has the hospital admission data.

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### 2. Dataset Size and Patient Coverage
**Problem Statement:**
To find the total number of records and how many unique patients are admitted.
**Description:**
This tells us how big the dataset is and whether patients come multiple times. It's important for readmission analysis.

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### 3. Missing Values Analysis
**Problem Statement:**
To check for missing values in important columns like age, gender, department, and admission date.
**Description:**
Finding missing values helps us know if the data is complete and reliable for analysis.

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### 4. Patient Age Statistics
**Problem Statement:**
To find the minimum, maximum, and average age of admitted patients.
**Description:**
This gives an overview of patient ages and shows which age group comes most often.

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### 5. Age Group Classification
**Problem Statement:**
To classify patients into Child, Adult, and Senior and see their admission numbers.

**Description:**
Grouping patients by age helps us understand which age group needs more care.

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### 6. Gender-wise Admission Analysis
**Problem Statement:**
To study hospital admissions based on patient gender.
**Description:**
This shows if there is a difference in hospital visits between males and females.

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### 7. Department-wise Admission Distribution
**Problem Statement:**
To see how admissions are spread across different departments.
**Description:**
This helps know which departments are busiest and how resources are needed.

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### 8. Discharge Status Distribution
**Problem Statement:**
To study patient discharge outcomes like home discharge, transfer, or death.
**Description:**
This gives an overview of what happens to patients when they leave the hospital.

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### 9. Time-based Admission Trends
**Problem Statement:**
To study admission trends over months and years.
**Description:**
Looking at trends over time helps us see seasonal patterns and changes in hospital demand.

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### 10. Length of Hospital Stay Analysis
**Problem Statement:**
To find minimum, maximum, and average hospital stay for patients.
**Description:**
This helps understand how long patients stay and how hospital beds are used.

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### 11. Doctor Workload Analysis
**Problem Statement:**
To see how many patients each doctor handles.

**Description:**
This helps check if the doctors' workload is balanced.

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# B. Core Data Analysis Problem Statements

### 12. Total Hospital Admissions
**Problem Statement:**
To calculate the total number of hospital admissions.
**Description:**
This gives an overall idea of how busy the hospital is.

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### 13. Gender-based Patient Count
**Problem Statement:**
To count patients admitted based on gender.
**Description:**
This helps in analyzing admissions based on male and female patients.

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### 14. Department Admission Comparison
**Problem Statement:**
To compare departments based on admission numbers.
**Description:**
This helps identify which departments have high or low patient volume.

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### 15. Discharge Status Analysis
**Problem Statement:**
To study discharge outcomes of all patients.
**Description:**
This helps understand how many patients go home, are transferred, or die.

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### 16. Average Patient Age by Department
**Problem Statement:**
To find average age of patients in each department.
**Description:**
This shows which departments have younger or older patients.

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### 17. Blood Group Distribution
**Problem Statement:**
To see the distribution of patients' blood groups.
**Description:**
This tells us which blood groups are most common in admitted patients.

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### 18. Monthly Admission Trend Analysis
**Problem Statement:**
To study monthly admission trends across years.
**Description:**
This helps see if certain months are busier than others.

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### 19. Department-wise Discharge Outcomes
**Problem Statement:**
To find the number of home discharges, transfers, and deaths in each department.
**Description:**
This helps know how patients leave from each department.

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### 20. Department-wise Average Length of Stay
**Problem Statement:**
To calculate average stay of patients in each department.
**Description:**
This helps compare how long patients stay in different departments.

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### 21. Most Common Diagnosis
**Problem Statement:**
To find the most frequent primary diagnosis among patients.
**Description:**
This tells which diseases are treated most in the hospital.

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### 22. Age Group and Diagnosis Analysis
**Problem Statement:**
To study which diseases are common in which age groups.
**Description:**
This helps understand disease patterns for different age groups.

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### 23. Doctor-wise Successful Discharges
**Problem Statement:**
To find how many patients each doctor discharged successfully to home.
**Description:**
This helps compare doctors based on patient outcomes.

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### 24. Readmission Pattern Identification
**Problem Statement:**
To find patients who were admitted multiple times.
**Description:**
This helps study patients who come back for treatment again.

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### 25. Department-wise Mortality Rate
**Problem Statement:**
To calculate death rate in each department.
**Description:**
This helps evaluate risk in different departments.

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### 26. Day-wise Admission Analysis
**Problem Statement:**
To find which day of the week has most admissions.
**Description:**
This helps know daily patient inflow patterns.

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### 27. Departments with Above-average Stay Duration
**Problem Statement:**
To compare department stay length with overall hospital average.
**Description:**
This shows which departments have patients staying longer than average.

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### 28. Doctor Performance Categorization
**Problem Statement:**
To classify doctors based on successful discharge rates.
**Description:**
This helps evaluate doctors' performance using patient outcomes.

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## 29. High-risk Department Identification
**Problem Statement:**
To find departments with higher death rates and longer stays.
**Description:**
This identifies departments handling critical cases.

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## 30. Quarterly Admission Trend Analysis
**Problem Statement:**
To study admission trends across quarters (Q1–Q4) for each department.
**Description:**
This helps see seasonal demand in departments.

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## 31. Doctor Efficiency Analysis
**Problem Statement:**
To find doctors whose patients have shorter stays than hospital average.
**Description:**
This helps evaluate treatment efficiency of doctors.