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Project Name: Emergency Response and bed Availability Tracker

1. Project Idea / Problem Statement
In many hospitals, emergency patients often face delays due to poor tracking of available beds across wards. When critical cases arrive, staff must manually check which ward or unit has space, which wastes valuable time and can risk patient lives.
This project aims to solve that problem by developing a PL/SQL-based Emergency Response and Bed Availability Tracker that keeps real-time records of hospital beds, patients, and admissions. It will automatically update bed status when patients are admitted or discharged and send alerts when beds are nearly full or all occupied.

2. Proposed Solution
The system will use PL/SQL procedures, functions, and triggers to manage and automate hospital bed allocation and emergency admissions.

Key features include:
• Automatic bed status updates: When a patient is admitted, the corresponding bed is marked as 'Occupied'.
• Instant alerts: A trigger sends a notification (stored message or log entry) when a ward reaches full capacity.
• Emergency priority logic: Patients labeled as 'Emergency' are prioritized for available beds.
• Daily reports: A stored procedure generates a daily summary of available beds and admissions.
• Error handling: The system prevents double-booking of the same bed.
This system will assist hospital administrators and emergency response units to make quick and accurate decisions during critical situations.

3. Database Schema Design
- Table: WARDS

Column Name	Data Type	Description
ward_id	NUMBER	Unique ID for each ward
ward_name	VARCHAR2(50)	Name of the ward (ICU, General, etc.)
total_beds	NUMBER	Total number of beds in the ward

- Table: BEDS

Column Name	Data Type	Description
bed_id	NUMBER	Unique ID for each bed
ward_id	NUMBER (FK)	Linked to WARDS
status	VARCHAR2(10)	‘Available’ or ‘Occupied’

- Table: PATIENTS

Column Name	Data Type	Description
patient_id	NUMBER	Unique patient identifier
full_name	VARCHAR2(100)	Patient’s full name
category	VARCHAR2(20)	‘Emergency’ or ‘Regular’

- Table: ADMISSIONS

Column Name	Data Type	Description
admission_id	NUMBER	Unique admission record
patient_id	NUMBER (FK)	Linked to PATIENTS
bed_id	NUMBER (FK)	Linked to BEDS
admission_date	DATE	Date of admission
discharge_date	DATE	Date of discharge (nullable)

4. PL/SQL Components

• Trigger: Updates bed status automatically on admission/discharge.
• Procedure: Generates daily availability and occupancy report.
• Function: Checks ward capacity and returns the number of available beds.
• Exception Handling: Prevents assigning an occupied bed to a new patient.

5. Innovation / Uniqueness

Unlike traditional manual hospital systems, this project integrates real-time emergency prioritization and automatic status tracking through PL/SQL logic. It minimizes human error, saves time, and ensures critical patients are admitted without delay.