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Patient Disease Tracking & Analytics System (PDTAS)

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1. Project Overview

Healthcare facilities often rely on manual or poorly structured digital systems to track patient diseases, treatments, and statistics. This results in delayed reporting, missing patient records, and weak decision-making support.

This project proposes a **PL/SQL-based Patient Disease Tracking & Analytics System (PDTAS)** that allows healthcare staff to register patients, classify diseases, track treatments, and generate real-time analytical summaries. The system improves accuracy, efficiency, and public health monitoring through database automation.

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2. Project Idea

The system stores patient and disease information in a structured Oracle database.
PL/SQL procedures, functions, triggers, and packages automate core tasks such as disease classification, validation, statistics updates, and report generation.

Core Features:

- Register patient and disease details
- Automatically classify diseases
- Track laboratory tests and treatments
- Update disease statistics automatically
- Generate real-time summary reports

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3. Database Schema

The system uses the following main tables:

1. RECEPTION

- patient_id (PK)
- first_name
- last_name

- gender
- date_of_birth
- phone_number
- disease_name
- visit_date

2. MAIN_DISEASES

- disease_id (PK)
- disease_name

3. OTHER_DISEASES

- other_disease_id (PK)
- disease_name
- description

4. LAB_TECHNICIAN

- lab_test_id (PK)
- patient_id (FK)
- test_type
- test_result
- test_date

5. TREATMENT

- treatment_id (PK)
- patient_id (FK)
- medication
- dosage
- date_given

6. DISEASE_STATS

- stats_id (PK)
- disease_name
- total_cases
- date_recorded

This schema ensures consistent and connected data across patient registration, disease tracking, laboratory testing, treatments, and analytics.

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4. Innovation / Improvement

Key innovations of the system include:

1. **Automated Disease Classification (PL/SQL Function):**
   Automatically categorizes diseases into priority and non-priority groups for better analytics.
2. **Automated Statistics Update (Trigger):**
   Updates total disease cases automatically when new records are inserted.
3. **Standardized Registration Procedure:**
   Validates data before insertion, reducing errors and improving data quality.
4. **Advanced Analytics:**
   Uses SQL window functions to generate rankings, trends, and time-based comparisons.
5. **Security and Auditing:**
   Restricts database operations on weekdays/holidays and logs all actions.

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5. Conclusion

The Patient Disease Tracking & Analytics System (PDTAS) demonstrates practical problem-solving using PL/SQL automation, triggers, procedures, functions, and auditing. It improves data accuracy, accelerates reporting, and supports better healthcare decision-making.

"Good health starts with proper tracking and care."
