🩺 MediTrack: Interactive Dashboard for Patient Care and Diagnostics

📖 Overview

MediTrack is an interactive data analytics dashboard built using **Streamlit** for visualizing patient health insights, prescription patterns, and chronic disease burdens.
The tool enables healthcare professionals, pharmacists, and researchers to explore key performance metrics and clinical data for informed decision-making and improved patient outcomes.

🚀 Features

🔹 Home Page

- Displays a summary of key metrics:
    - Total patients
    - Average age
    - Average BMI
    - Average adherence %
- Includes a **Patient Lookup** tool for quick patient-specific details.
- Footer with contact information.

🔹 Dashboard Page

- Interactive visualizations with **filters for city, state, and gender**.
- Includes:
    - **Age & Drug Analysis** (bar charts showing patient demographics vs. prescribed drug categories)
    - **Patient Distribution & Demographics** (state vs. city heatmap and gender ratio donut chart)
- Customizable visualization themes (Plotly, Seaborn, Simple White).

🔹 Prescription Insights

- Insights into prescribing trends with:

    - Top 10 prescribed drug categories
    - Branded vs Generic distribution (donut chart)
    - Doctor vs Prescription volume (heatmap)
    - Adherence percentage trend over time
    - Refill completion vs missed statistics
- Filter options for **Doctor** and **Drug Category**.

🔹 **Lab & Chronic Insights**

- Focused view on chronic disease and lab metrics:
    - Chronic disease prevalence (stacked bar)
    - Average HbA1c trends (for diabetic monitoring)
    - Hypertension control rate (% controlled vs uncontrolled)
    - Lab turnaround time (gauge meter)
    - Pareto chart for most frequently ordered tests
    - Key performance indicators (e.g., HbA1c > 7%, LDL > 130 mg/dL)

🔹 **About Me**

- Displays developer details:
    - **Name:** A. Sirisha
    - **Reg No:** 321002
    - **College:** Shri Vishnu College of Pharmacy
    - **Contact:** 321002@svcp.edu.in
- Brief overview of the MediTrack project purpose and functionality.

🧰 **Tech Stack**

Component	Technology
Frontend	Streamlit

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Backend	Python
Data Visualization	Plotly, Matplotlib, Seaborn
Data Handling	Pandas
Environment	Jupyter / Streamlit Cloud / Localhost

⚙️ **Installation & Setup**

🪜 **Prerequisites**

- Python 3.8+
- pip (Python package manager)

📦 **Required Libraries**

Install all dependencies:

pip install streamlit pandas matplotlib plotly seaborn

create the folder structure by downloading the files

FOLDER STRUCTURE:

MediTrackApp/

|

├── app.py # Main entry point for the Streamlit app

├── utils.py # Helper functions and configurations

|

├── pages/ # Contains different dashboard modules

| ├── home.py # Home page with overview and patient search

| ├── dashboard_page.py # Visual analytics dashboard

| ├── prescription_insights.py # Prescription analytics and trends

| ├── lab_chronic_insights.py # Lab and chronic disease data visualization

```
|   └── about.py              # Developer and project information page
|
├── requirements.txt
|
└── README.md                 # Project documentation file
```

▶️ Run the Application

```
streamlit run app.py
```

🌐 Access

After launching, open your browser at:

http://localhost:8501

📊 Data Inputs

MediTrack uses de-identified patient data for:

- Demographics (Age, Gender, City, State)
- Prescription records (Drug category, Branded/Generic type)
- Lab results (HbA1c, LDL, BP readings)
- Chronic condition tracking

(Sample datasets can be integrated in CSV format for demonstration or research use.)

🧩 Dashboard Modules Summary

Page	Key Visuals	Purpose
Home	KPI cards, Patient search	Overview & quick lookup
Dashboard	Age vs Drug, Demographics heatmap	Population-level analysis
Prescription Insights	Drug trends, Branded vs Generic, Adherence	Prescribing behavior insights

Page	Key Visuals	Purpose
Lab & Chronic Insights	Lab KPIs, Control rates, Pareto chart	Disease monitoring & operational efficiency
About Me	Profile and project info	Project background

🧠 Insights Generated

- Identify **most prescribed drug categories**.
- Compare **Branded vs Generic** usage patterns.
- Monitor **chronic disease control metrics** (e.g., BP, HbA1c).
- Evaluate **doctor performance** via prescription heatmaps.
- Track **patient adherence trends** and **lab efficiency**.

👷 Author

A. Sirisha
Pharm. D Student
Shri Vishnu College of Pharmacy
📧 Contact: 321002@svcp.edu.in