

# 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.

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## 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.

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#### Tech Stack

| Component | Technology |
|-----------|------------|
| Frontend  | Streamlit  |

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

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## 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
|
| └─ assets/          # Folder for static files and media
|   └─ my_pics.jpg     # Copy your profile image here
|
└─ README.md          # Project documentation file
```

### Run the Application

```
streamlit run app.py
```

### Access

After launching, open your browser at:

<http://localhost:8501>

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### 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.)*

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### Dashboard Modules Summary

| Page      | Key Visuals                       | Purpose                   |
|-----------|-----------------------------------|---------------------------|
| Home      | KPI cards, Patient search         | Overview & quick lookup   |
| Dashboard | Age vs Drug, Demographics heatmap | Population-level analysis |

| Page                              | Key Visuals                                | Purpose                                     |
|-----------------------------------|--|---|
| <b>Prescription Insights</b>      | Drug trends, Branded vs Generic, Adherence | Prescribing behavior insights               |
| <b>Lab &amp; Chronic Insights</b> | Lab KPIs, Control rates, Pareto chart      | Disease monitoring & operational efficiency |
| <b>About Me</b>                   | Profile and project info                   | Project background                          |

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### 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**.
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### Author

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