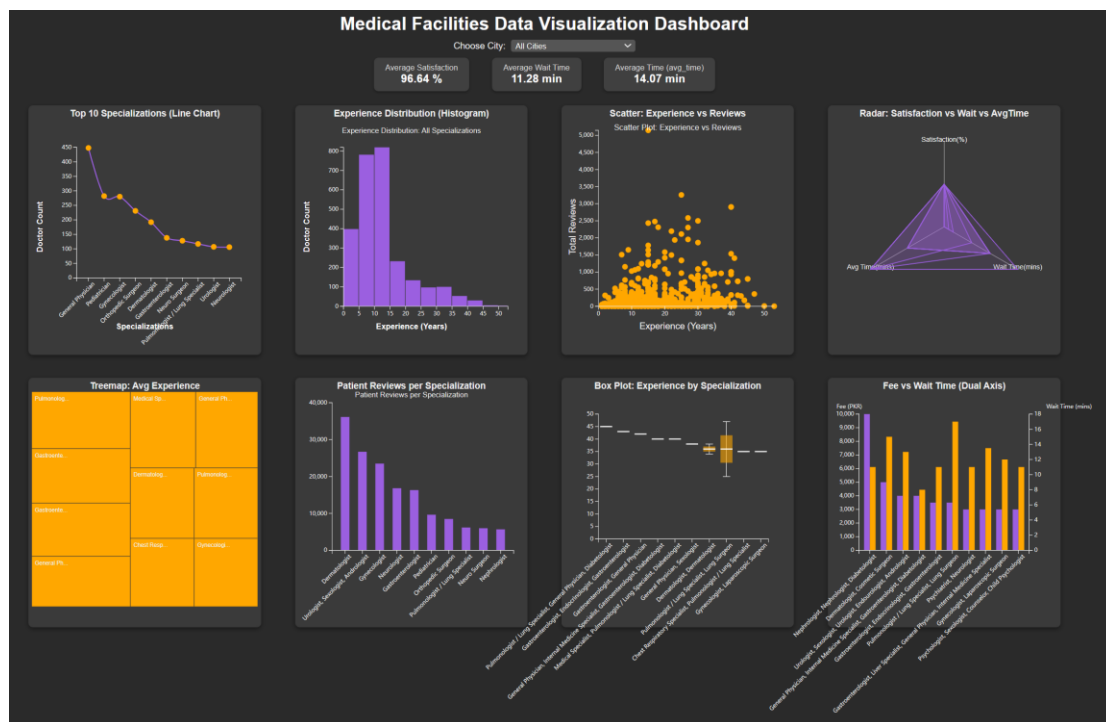# Medical Facilities Data Visualization Dashboard

1. Project Overview

This dashboard analyzes a dataset of medical facilities and provides insights into key performance indicators and trends.

2. Dataset

File: facilities_data.csv

Description: The dataset includes information on doctors' experience, specialization, patient satisfaction, wait time, average time to patients, fees, and reviews.

Columns Used:

- ❖ Specialization: Type of medical practice.
- ❖ Experience (Years): Years of doctors' experience.
- ❖ Patient Satisfaction Rate (%age): Patient satisfaction percentage.
- ❖ Wait Time (mins): Average wait time in minutes.
- ❖ Avg Time to Patients (mins): Average consultation time.
- ❖ Fee (PKR): Consultation fee in PKR.

- ❖ Total Reviews: Number of reviews per specialization.
- ❖ City: City of the medical facility.

3. Features Implemented

Dynamic Filtering: A city filter allows users to explore data specific to a selected city or all cities.

Display average metrics for:

- ❖ Patient Satisfaction.
- ❖ Wait Time.
- ❖ Avg Time to Patients.

Interactive Charts: Each team member was responsible for implementing one chart:

Line Chart: Top 10 specializations by doctor count.

Histogram: Distribution of doctors' experience.

Treemap: Average experience per specialization.

Waterfall Chart: Patient reviews per specialization.

Scatter Plot: Relationship between doctors' experience and total reviews.

Box Plot: Experience distribution for top specializations.

Radar Chart: Comparison of satisfaction rate, wait time, and avg time across top specializations.

Grouped Bar Chart (Dual Axis): Comparison of average consultation fees and wait times.

Tooltips and Interactivity:

- ❖ Hovering on chart elements reveals specific details.
- ❖ Clicking on line chart points filters the histogram.

4. Technologies Used

HTML5: Layout structure.

CSS3: Styling for responsive and clean design.

JavaScript (ES6): Dynamic functionalities and interactivity.

D3.js v7: Data visualization library for all interactive charts.

5. User Experience

Interactive Interface: Users can interact with visualizations to gain insights.

Clear Visual Representation: Charts are designed to ensure clarity and accessibility for users.

Insights: The dashboard helps identify trends such as:

Most common medical specializations.

Distribution of doctors' experience.

Specializations with high patient reviews and satisfaction.

6. **Visualization Contributions**

Line Chart: Visualizes the Top 10 medical specializations by the number of doctors.

Histogram: Displays the distribution of years of experience across doctors.

Treemap: Displays average experience of doctors per specialization, with area size reflecting experience.

Waterfall Chart: Visualizes patient reviews per specialization, showing a clear comparison of review counts.

Grouped Bar Chart (Dual Axis): Compares average consultation fees (left axis) and wait times (right axis) for top specializations.

Box Plot: Shows the distribution of years of experience across top specializations (min, Q1, median, Q3, and max).

Scatter Plot: Correlates years of experience with total patient reviews, identifying patterns between experience and review counts.

Radar Chart: Compares patient satisfaction rate, wait time, and average consultation time across top medical specializations.

7.Key insights

The dashboard allows users to:

❖ Identify the most common medical specializations.

❖ Analyze the experience distribution of doctors.

❖ Compare patient reviews and satisfaction rates by specialization.

❖ Observe correlations between doctors' experience and patient feedback.

❖ Evaluate waiting times and consultation fees to locate high-performing medical facilities.

Key Achievements:

❖ Successful integration of eight interactive charts using D3.js v7.

❖ Dynamic city-based filtering and KPIs.

❖ Consistent design, interactivity, and performance testing.