📊 Health Care Analysis Dashboard Project Summary

In this project, I developed a **comprehensive Health Care Analysis Dashboard** in **Power BI** using a healthcare-related dataset.
The dashboard offers deep insights into billing, costs, service types, and department performances, helping healthcare providers understand and optimize their financial and operational metrics.

🔷 Data Modeling and Preparation:

- **Date Table Creation:**
    - Used CALENDARAUTO() to automatically generate the full range of dates.
    - Enriched the Date Table with additional columns using DAX:
        - **Year**: YEAR([Date])
        - **Month** (Short Format): FORMAT([Date],"mmm")
        - **Month Number**: MONTH([Date])
        - **Week Day**: FORMAT([Date],"ddd")
        - **Quarter**: Created as Q-1, Q-2, Q-3, Q-4 using QUARTER([Date]).
        - **Week Type**: Classified as **Weekday** or **Weekend** based on WEEKDAY([Date]).
- **Dynamic Location Switcher:**
    - Implemented a slicer-like switch (Patients Location Switch) allowing users to toggle between viewing **City** and **State** based billing analysis.

🔷 **DAX Measures and KPIs Developed:**

➔ **Total Cost Metrics:**

Metric	DAX Logic	Value
Total Billing Amount	Sum of Treatment, Medication, Room charges	**$3.4M**
Total Treatment Cost	SUM(visits[Treatment Cost])	**$2.6M**
Total Room Charges	SUMX(visits, Room Rate × Stayed Days)	**$180K**
Total Medication Cost	SUM(visits[Medication Cost])	**$546K**
Total Insurance Coverage	SUM(visits[Insurance Coverage])	**$2.2M**
Out-of-Pocket Amount	Billing Amount - Insurance Coverage	**$1.1M**

➔ **Average Metrics (Per Person or Visit):**

Metric	DAX Logic	Value
Avg Billing Amount per Visit	[Total Billing Amount] ÷ [Total Patients]	**$675**
Avg Out-of-Pocket per Visit	[Out-of-Pocket] ÷ [Total Patients]	**$227**
Avg Insurance Coverage	AVERAGE(visits[Insurance Coverage])	**$456**
Avg Medication Cost	AVERAGE(visits[Medication Cost])	**$109**
Avg Room Cost per Person	[Total Room Charges] ÷ [Total Patients]	**$36**
Avg Stay	AVERAGE(visits[Stayed])	
Avg Treatment Cost	AVERAGE(visits[Treatment Cost])	
Avg Patient Satisfaction Score	AVERAGE(visits[Patient Satisfaction Score])	

➔ **Percentage Metrics for Deeper Insights:**

Metric	Purpose
% Procedure	Billing % per procedure vs total procedures' billing.
% Department	Billing % per department vs total departments' billing.

🔷 **Visualizations and Categories Included:**

➔ **Billing Breakdown by Procedure:**

Procedure	Billing Amount	% Contribution
X-Ray	**$1,053,529**	**31.39%**
CT Scan	**$805,508**	**24.00%**
MRI Scan	**$600,739**	**17.90%**
Ultrasound	**$481,347**	**14.34%**
Blood Test	**$414,952**	**12.36%**

➔ **Billing Breakdown by Department:**

Department	Billing Amount	% Contribution
Cardiology	**$846,925**	**25.2%**
Orthopedics	**$813,253**	**24.2%**
General Surgery	**$783,247**	**23.3%**
Neurology	**$478,200**	**14.2%**
Pediatrics	**$434,450**	**12.9%**

➔ **Service Type Analysis (for Each Procedure):**

- Divided billing based on **Emergency**, **Inpatient**, and **Outpatient** categories.
- Each procedure's service type was broken down further showing different percentages for more granular insights.

➔ **Design and User Experience Enhancements:**

- Implemented **Dark Mode** and **Light Mode** versions of the dashboard for visual flexibility.
- Integrated **dynamic filters** for cities, states, and procedures to allow quick slicing and analysis.
- Embedded map links for potential geographic visualization (though maps weren't fully shown in the PDF).

🏆 **Key Achievements and Insights Delivered:**

- Clearly identified **high revenue-generating procedures** and **departments**.
- Highlighted the **gap between insurance coverage** and **out-of-pocket payments**, providing insight into patient financial burdens.
- Provided **average cost metrics** for better financial planning and forecasting.
- Designed an **interactive**, **professional**, and **dynamic** dashboard enabling healthcare providers to easily explore their data from multiple angles.

✅ This project showcases my strong skills in:

- Data modeling and DAX formula writing,
- KPI and metric development,
- Financial analysis specific to healthcare,
- Advanced dashboard designing for business intelligence.
