**ELEVATE LABS- INTERNSHIP PROJECT**

**PROJECT SELECTED: HEALTHCARE APPOINTMENT NO SHOW PREDICTION**

**INTRODUCTION:**

This project analyzes medical appointment data to predict and understand patient no-show behavior.  No-shows represent a significant challenge for healthcare providers, leading to wasted resources and potential disruptions in service delivery. By examining patient demographics, appointment characteristics, and other relevant factors, we aim to build a predictive model that can identify patients at higher risk of not attending their scheduled appointments.  The insights derived from this analysis can help healthcare facilities ultimately improve resource allocation and patient care.

**ABSTRACT:**

This project analyzes medical appointment no-show data to identify factors contributing to missed appointments.  The goal is to develop a predictive model that can identify patients at high risk of not attending their scheduled appointments.

**DATASET USED:** <https://drive.google.com/file/d/1bv0Uo1dy8zsybgYAUmN37TOoRHADB-lN/view?usp=drive_link>

Above .CSV File was obtained from:

<https://www.kaggle.com/datasets/joniarroba/noshowappointments>

**Tools Used:**

**1.For Carrying out Exploratory Data Analysis (EDA) and Model building, following tools were used in Colab notebook**:

pandas, numpy, datetime, time, sklearn.model\_selection, sklearn.preprocessing, sklearn.tree, sklearn.ensemble, sklearn.metrics, matplotlib.pyplot, seaborn, %matplotlib inline

**2.FOR BUILDING DASHBOARD: POWER BI**

**Steps Involved for carrying out Exploratory Data Analysis (EDA) and Model building:**

Data Loading and Preparation,Feature Engineering,Exploratory Data Analysis (EDA),Data Preprocessing,Model Building, and Model Evaluation.

**Steps involved for creating POWER BI DASHBOARD**:

We first enhanced the csv dataset by adding derived columns like Show, ScheduledDate, and AgeBand for grouped analysis. A DateTable was created using the ScheduledDate, along with additional time columns like Year, Month, and YearMonth to support time-based visualizations and forecasting. Custom DAX measures such as % NoShow, Total Show, and Total NoShow were created.

**CONCLUSIONS**:

By Prioritizing reminder calls and transport support for elderly patients, ensuring valid phone numbers are collected and automate timely SMS reminders (24–48 hrs before appointments), limiting appointment booking windows or overbooking slightly for long-wait patients to offset expected dropouts, assigning care coordinators to follow up with the patients suffering from Diabetes, Hypertension, or Alcoholism by offering flexible slots (e.g., late afternoons), identifying patients who missed more than once and creating outreach cohorts with tailored messaging and incentives (e.g., transport, loyalty points), we can reduce no show rates.