# Healthcare No-Show Dashboard Project Report

## 1. Introduction

Missed medical appointments, or "no-shows," pose a major challenge to healthcare systems, leading to wasted resources and decreased care quality. This project analyzes patterns of no-shows using historical appointment data and presents insights in a Power BI dashboard.

## 2. Abstract

The goal of this project is to identify key factors that influence patient no-shows. By examining variables like age, gender, weekday, and medical conditions, the project delivers visual insights to help healthcare administrators optimize scheduling and communication.

## 3. Tools Used

- Power BI: Dashboard creation, visualization, interactive filters.
- DAX: Custom KPIs and calculations.
- Python (pandas, numpy, scikit-learn): Data cleaning and training a Decision Tree model to predict no-shows.

## 4. Steps Involved in Building the Project

- Data Preparation: Cleaned dataset using Python libraries, handled missing/inconsistent data.

- Data Exploration: Analyzed trends based on SMS reminders, age groups, weekdays, gender, and medical conditions.
- Key Metrics:
    - Total Appointments
    - Total No Shows
    - No Show Rate (%)
    - Average Wait Time
    - Average Patient Age
- Dashboard Development:
    - Designed clean layout with cards, slicers, and visuals (bar, clustered, donut, line charts).
    - Applied custom dark theme, grouped metrics, and organized pages for clarity.
- Modeling: Trained a Decision Tree using scikit-learn to predict no-show probability based on patient data.

## 5. Conclusion

- The dashboard effectively highlights key insights into patient no-shows. It enables healthcare providers to identify patterns and make informed decisions that may reduce missed appointments. The integration of a predictive model adds proactive decision support.