Smart No-Show Insights (Project Report)

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Abstract

Missed appointments in healthcare, commonly known as no-shows, lead to reduced operational efficiency, wasted resources, and poorer patient outcomes. This project uses a machine learning model to predict patient no-shows and builds a Power BI dashboard to visualize the trends behind them. Insights from the dashboard can help hospitals and clinics make informed scheduling decisions, especially by focusing on high-risk groups and factors such as SMS reminders, age, and weekday patterns.

1.Introduction

Healthcare systems often suffer due to patients not showing up for scheduled appointments. Predicting and analyzing such no-shows helps improve patient care and optimizes hospital resources. This project explores historical appointment data to build a predictive model and visualize key patterns that influence no-show rates.

2.Tools Used

- Python (Google Colab, Pandas, Sklearn) – for data cleaning and building a decision tree model.
- Power BI – for creating an interactive dashboard to analyze no-show trends.
- Jupyter Notebook / Colab – for writing and executing Python code.

3.Steps Involved in Building the Project

1. Import and clean the appointment dataset using Python.
2. Build and train a decision tree model to predict no-show behavior.
3. Analyze important features such as age, SMS reminders, and weekdays.
4. Load the cleaned dataset into Power BI.
5. Design an interactive dashboard with bar charts, donut charts, slicers, and cards.
6. Interpret insights and suggest scheduling optimizations.

Conclusion

This project successfully demonstrates how data science and business intelligence can be combined to address real-world problems like healthcare appointment no-shows. The predictive model and Power BI dashboard provide actionable insights that can help reduce missed appointments and improve hospital efficiency.

- **ScreenShot Of Smart No-Show Insights Dashboard**