Patient Health Information Analysis

Project Overview:

The goal of this project was to analyze patient health information from various datasets using both Power BI and a Python-based Streamlit web application. The analysis focused on understanding readmission rates, average hospital stays durations, average costs per visit, and procedures covered by insurance.

Data Sources:

- Encounters Data
- Patients Data
- Organizations Data
- Payers Data
- Procedures Data

Tools Used:

- Power BI
- data cleaning and preprocessing in Visual Studio.
- Python (Streamlit)

Project Steps:

1. Data Loading and Preparation:

Data was loaded from CSV files into respective dataframes using Python. This is a Python script with functions for automated data cleansing and pre-processing used in the process.

2. Analysis in Power BI:

- Developed visualizations to explore readmitted patient trends over time.
- Calculated average costs per visit using Power BI's DAX language.

3. Python Application (Streamlit):

- Created a Streamlit web application to offer interactive insights into patient data.
- Implemented features for filtering data based on encounter class, patient ID, and patient name.
- Calculated metrics such as readmitted patients, average length of stay, average cost per visit, and procedures covered by insurance using Pandas.

5. File Outputs:

- Generated a file of anomalies detailing specific patient encounters and anomalies detected.
- Preprocessed files and scripts to clean and merge datasets for analysis.
- Provided a Power BI file (.pbix) displaying visualizations and calculated metrics.
- Created a Python application (app_ Streamlit.py) using Streamlit for interactive data exploration.

Future Recommendations:

- Implement real-time data updates for better decision-making.
- Enhance visualizations with more interactive features.
- Incorporate machine learning models for predictive analytics.