Report: Hospital Admission Trends

This report analyzes hospital admission trends using time-series data. The analysis includes formatting date columns, grouping data by different time intervals, and visualizing admission trends to identify seasonal patterns and peak periods.

Data Preparation

The dataset was loaded, and the date columns were formatted using pd.to_datetime() to ensure accurate time-series analysis. This step is crucial for grouping the data by day, week, and month.

Grouping Data

The admission data was grouped by day, week, and month to observe trends over different time intervals. This grouping helps in understanding the frequency and distribution of hospital admissions.

Visualization

Line plots were generated to visualize hospital admissions over time. These visualizations provide a clear picture of how admissions fluctuate daily, weekly, and monthly.
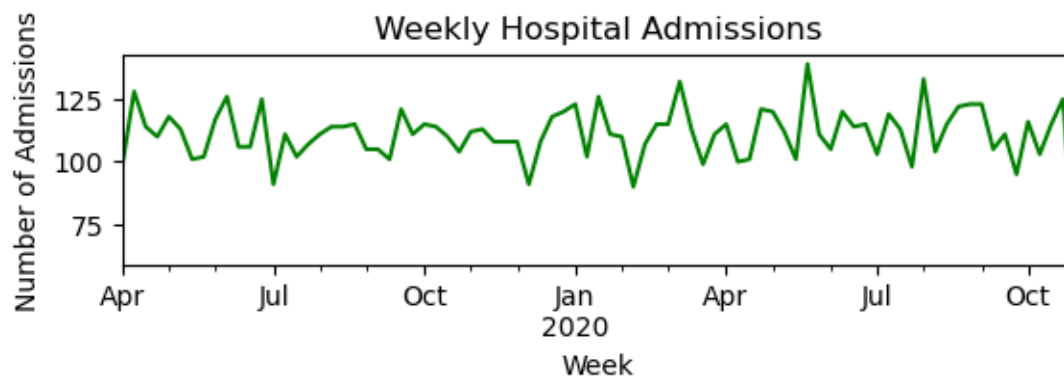
Daily Admissions

The daily admissions line plot shows the number of admissions each day. This plot helps in identifying any daily patterns or anomalies in hospital admissions.

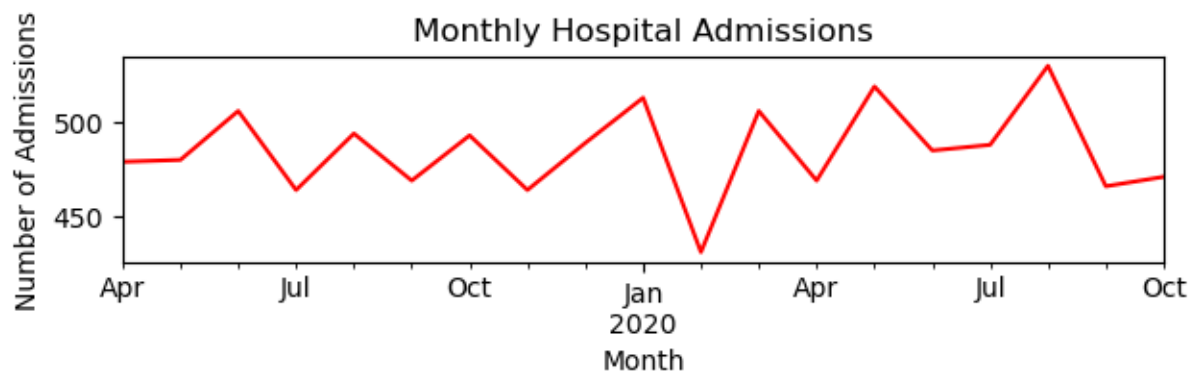## ! Daily Admissions
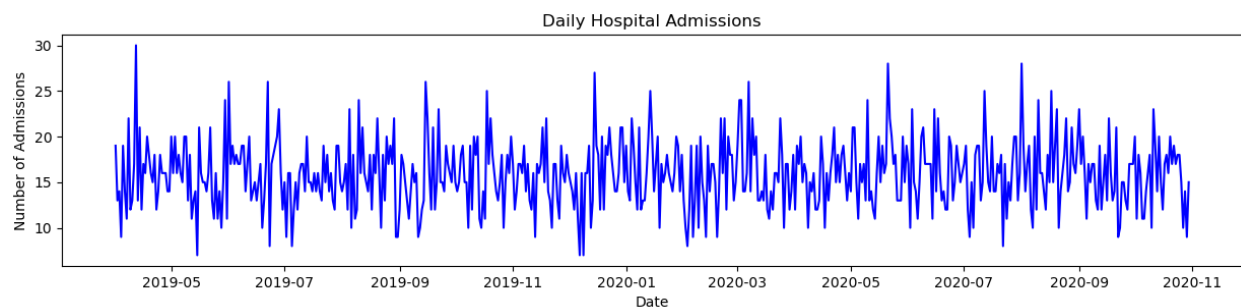
Figure 1: Daily Hospital Admissions

! Weekly Admissions

Figure 2: Weekly Hospital Admissions

Monthly Admissions

The monthly admissions line plot further aggregates the data into monthly intervals, providing a high-level view of admission trends over longer periods.

Figure 3: Monthly Hospital Admissions

Analysis of Seasonal Patterns and Peak Periods

The analysis identified peak admission periods:

Peak Daily Admission: April 12, 2019, with 30 admissions.

Peak Weekly Admission: Week of May 18-24, 2020, with 139 admissions.

Peak Monthly Admission: August 2020, with 530 admissions.

These peaks indicate times of higher demand for hospital services, which could be due to various factors such as seasonal illnesses or specific events.

In The End

The time-series analysis of hospital admissions reveals significant trends and peak periods. These insights can help hospital management optimize resource allocation and improve patient care during high-demand periods. Understanding these patterns is essential for planning and ensuring that the hospital can meet patient needs effectively.