CAPSTONE FINAL PROJECT PROPOSAL REPORT – WEEK 7

Project Goal:

The primary goal of this project is to analyze the quality of care in Medicare Advantage (MA) plans by examining key screenings and vaccinations using HEDIS measures and CMS Star Ratings. Specifically, this project focuses on analyzing colorectal cancer and breast cancer screening performance across different Medicare Advantage plans. By merging and analyzing data from 2023 and 2024, we aim to identify trends in the performance of these screenings and assess the impact of rating cut points on plan rankings.

Data Merging and Analysis:

For this project, we merged data from the 2023 and 2024 CMS Star Ratings, focusing on colorectal cancer and breast cancer screenings. These screenings were selected due to their significant role in preventive healthcare and their impact on Medicare Advantage plan ratings. The data was loaded into our analytical environment after performing a **hex check** to ensure data completeness and integrity.

Steps Taken:

1. **Data Merging:**
    o   We combined datasets from the 2023- and 2024-Star Ratings data tables.
    o   The focus was on breast cancer and colorectal cancer screenings, two crucial preventive measures that directly influence plan ratings.
    o   Both datasets were cleaned and standardized to ensure consistency in variables and formats across the years.
2. **Data Loading and Validation:**
    o   The merged data was loaded into the analysis environment, and a **hex check** was performed to ensure that no data was missing or corrupted during the merging process.
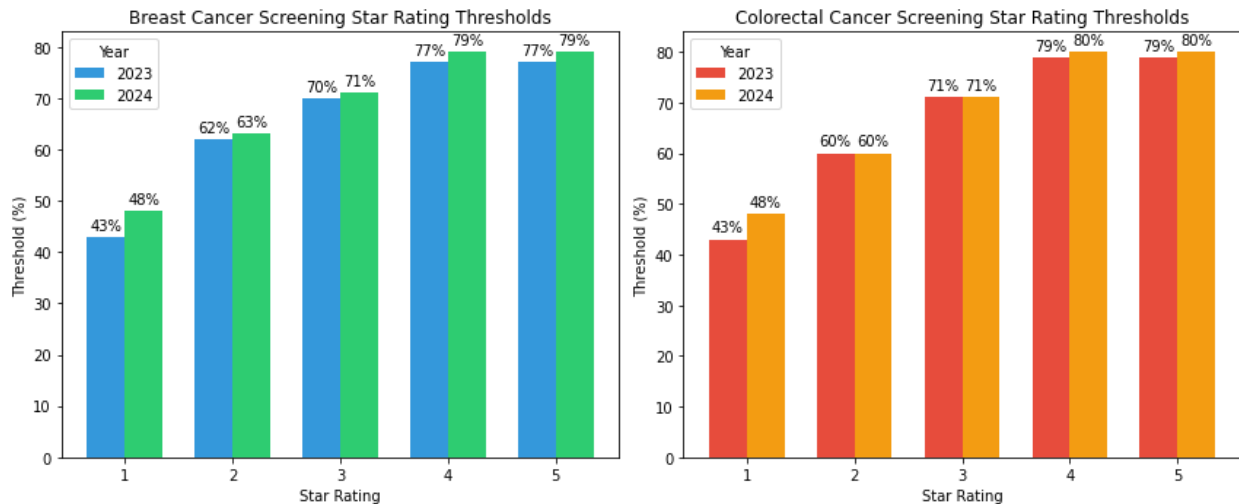   o   The integrity and consistency of the dataset were validated before proceeding to analysis.
3. **Graphical Representation:**
    o   The data was visualized to understand the trends and variations in breast cancer and colorectal cancer screening rates across the two years.
    o   We created graphs that highlight changes in screening performance between 2023 and 2024, providing insight into the impact of the updated cut points for CMS Star Ratings.

Preliminary Findings:

*   The analysis revealed that the cut points for both breast cancer and colorectal cancer screenings were adjusted in 2024, resulting in higher thresholds for achieving certain star ratings.

- The graphical representations showed noticeable improvements in screening rates across most plans, but some plans experienced challenges in meeting the new, higher cut points.
- Further analysis will focus on understanding the implications of these changes and how they affect plan rankings, enrollment, and overall quality of care.

Breast Cancer Screening Star Rating Thresholds / Colorectal Cancer Screening Star Rating Thresholds

Next Steps:

1. **Exploratory Data Analysis (EDA):**
   - Continue analyzing trends in breast and colorectal cancer screening performance.
   - Investigate the relationship between the adjusted cut points and plan performance.
2. **Advanced Analysis:**
   - Use Python for deeper statistical analysis to assess the impact of the new cut points on enrollment and plan quality.
3. **Visualization and Reporting:**
   - Develop interactive dashboards to present the findings in an easily understandable format for stakeholders.

Conclusion: We have successfully merged and cleaned the data for 2023 and 2024, focusing on colorectal cancer and breast cancer screenings. Initial findings indicate significant changes in screening rates and star rating thresholds. Moving forward, we will refine our analysis to better understand how these adjustments affect overall plan performance and quality outcomes.