CAPSTONE PROJECT WEEK 5

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CAPSTONE FINAL PROJECT PROPOSAL REPORT

Project Overview: The primary goal of this project is to analyze the quality of care in Medicare Advantage (MA) plans using HEDIS measures and CMS Star Ratings. We aim to identify trends in HEDIS performance, examine CMS Star Rating cut points and their impact on plan rankings, assess the relationship between plan quality and enrollment trends, and provide data-driven recommendations to improve MA plan quality. This analysis will generate insights for policymakers, insurers, and healthcare providers, helping to improve Medicare Advantage plan quality and patient outcomes.

Data and Preliminary Work: We began by gathering datasets on HEDIS measures, CMS Star Ratings, and enrollment data for various Medicare Advantage plans. The datasets included key metrics such as preventive care screenings, chronic disease management, patient outcomes, and other factors influencing HEDIS performance. At this stage, we have focused on checking the datasets for consistency and gathering relevant data for further analysis.

Data Cleaning & Preprocessing: So far, we have gathered and examined the data for any inconsistencies or issues that need to be addressed. Our initial steps involved:
- Checking for missing values: We identified and noted any incomplete data points.
- Reviewing the relevance of columns: We assessed the columns to ensure they are useful for the analysis.
- Ensuring data consistency: We verified that all datasets align in terms of formatting and variables.

HEDIS scores contribute significantly to **CMS Star Ratings**, which range from **1 to 5 stars** and influence **Medicare Advantage plan reimbursements, bonuses, and enrollment trends**.

Factors Affecting Medicare Advantage Performance

Several factors influence how well a Medicare Advantage plan performs in HEDIS measures and CMS Star Ratings:

1. **Preventive Care & Patient Engagement:** Higher screening rates improve scores.
2. **Care Coordination & Chronic Disease Management:** Strong primary care networks lead to better HEDIS outcomes.
3. **Member Satisfaction (CAHPS Scores):** Provider communication and access to care impact ratings.
4. **Health Equity & Social Determinants of Health (SDOH):** Low-income and rural populations face disparities.
5. **CMS Policy & Star Rating Cut Points:** Annual adjustments in rating thresholds affect plan performance.

Next Steps:
1. **Exploratory Data Analysis (EDA):**
   o Analyze HEDIS performance trends across different plans.

- o Examine Star Ratings distribution and historical cut point changes.
  - o Assess the relationship between enrollment and plan quality scores.
2. **Python Programming for Analysis:**
   - o We plan to use Python for further data analysis, including advanced data manipulation, visualization, and statistical modeling.
3. **Interactive Dashboards:**
   - o **Visualization:** We will develop interactive dashboards using tools like Plotly or Streamlit to visualize key trends in HEDIS measures, Star Ratings, and enrollment patterns. These dashboards will provide dynamic, real-time insights for policymakers, insurers, and healthcare providers.

Conclusion: We have successfully gathered and reviewed the data in preparation for the next phase. Moving forward, we will leverage Python programming to conduct deeper analysis and produce interactive visualizations, providing valuable insights for stakeholders in the Medicare Advantage space.