**Title:** Healthcare Cost Analysis Across the U.S.

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**Project Description/Outline**:

This project aims to analyze and compare healthcare rates across different states in the U.S. and the types of insurance coverage. By examining the relationship between types of insurance coverage and healthcare expenditure, the project seeks to uncover patterns and insights that may inform healthcare policy and economic planning.

**Research Questions:**

1. How does the amount of coverage of public vs private insurance impact how all citizens in a state spend on healthcare in a year?
   1. Null Hypothesis: The amount of coverage provided by public or private insurance has no significant impact on the annual healthcare spending of the state.
   2. Alternative Hypothesis: The amount of coverage provided by public or private insurance has a significant impact on the annual healthcare spending of the state.
2. How has the yearly trend in insurance coverage varied by state from 2011 to 2020?
   1. Null Hypothesis: There is no significant variation in the yearly trend of insurance coverage across states from 2011 to 2020.
   2. Alternative Hypothesis: There is a significant variation in the yearly trend of insurance coverage across states from 2011 to 2020.
3. What are the trends in private insurance enrollment by state from 2011 to 2020?
   1. Null Hypothesis: There is no significant trend in private insurance enrollment by state from 2011 to 2020.
   2. Alternative Hypothesis: There is a significant trend in private insurance enrollment by state from 2011 to 2020.
4. What are the trends in public insurance enrollment by state from 2011 to 2020?
   1. Null Hypothesis: There is no significant trend in public insurance enrollment by state from 2011 to 2020.
   2. Alternative Hypothesis: There is a significant trend in public insurance enrollment by state from 2011 to 2020.
5. What does the rate of coverage for public insurance vs private insurance look like?
   1. Null Hypothesis: There is no significant difference in the rate of coverage between public and private insurance.
   2. Alternative Hypothesis: There is a significant difference in the rate of coverage between public and private insurance.
6. What is the relationship between the number of insured people and the total healthcare expenditure for each year from 2011 to 2020?
   1. Null Hypothesis: There is no significant relationship between the number of insured individuals and the total healthcare expenditure for each year from 2011 to 2020.
   2. Alternative Hypothesis: There is a significant relationship between the number of insured individuals and the total healthcare expenditure for each year from 2011 to 2020.
7. How has healthcare expenditure changed from 2011 to 2020 across different states?
   1. Null Hypothesis: Healthcare expenditure has not significantly changed from 2011 to 2020 across different states.
   2. Alternative Hypothesis: Healthcare expenditure has significantly changed from 2011 to 2020 across different states.

**Additional Hypotheses**:

* Higher insurance coverage rates correlate with reduced total healthcare expenditure per state, as insured individuals are more likely to engage in preventive care, reducing long-term healthcare costs.
* Public insurance coverage rates correlate with higher total healthcare expenditure per state, as insured individuals are more likely to engage in preventive care, reducing long-term healthcare costs.
* States with a higher proportion of private insurance coverage may experience higher healthcare expenditures due to potentially higher costs associated with private healthcare services.
* Healthcare expenditures have risen consistently over the years.
* Health insurance coverage rates have shown an upward trend over time.

**Datasets**:

* Government Health Expenditure Data: To analyze healthcare costs across states.
* Insurance Coverage Data: To evaluate the changes in insurance coverage rates across different states.
* Types of insurance rates by state.
* Example dataset: <https://1drv.ms/x/c/f12522726470ea74/ETVwB4ygY6lKpRLz97K8Sd4B_rz2xYm6ipL16JqNuJu3Yg>

**Rough Breakdown of Tasks**: We recommend focusing your analysis on multiple techniques, such as aggregation, correlation, comparison, summary statistics, sentiment analysis, and time-series analysis. Don’t forget to include plots during both the exploration and analysis phases.

* Data Collection: Gather datasets from reliable government sources.
* Data Cleaning and Manipulation: Prepare the data for analysis, ensuring consistency and accuracy across variables and timeframes.
* Data Visualization: Create visualizations to illustrate healthcare cost disparities, trends in insurance coverage across states.
* Statistical Analysis: Conduct statistical analyses to test hypotheses and identify significant trends.
* Reporting: Summarize findings and insights in a clear, concise report, supported by visualizations.