Rationale of Shiny Dashboard

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1. Dashboard Overview:

The dashboard will allow users to visualize and analyze data related to unemployment insurance filings, focusing on a specific industry and state. The two key components of the dashboard are a table and a line chart.

2. Dataset Overview:

The two datasets are cleaned ones from original datasets: final_data.csv for the table, and insurance_data_long.csv for the line charts

3. Data Table for a Selected State:

The first page of the dashboard will display a table that summarizes key metrics related to unemployment, employment, and unemployment insurance filings in a specific state over the selected time period (July 2019 – July 2020).

Rationale:

- The table will have 12 columns representing each month from July 2019 to July 2020, giving the user a monthly breakdown of the metrics.
- The table will have 3 rows: one for each metric:
  - **Unemployment**: The number of unemployed individuals in the selected state for each month.
  - **Employment**: The number of employed individuals in the selected state for each month.
  - **Unemployment Insurance Filings**: The number of unemployment insurance claims filed in the selected state for each month.
- Users will be able to select the state from a dropdown menu or input box. Upon selection, the corresponding data will populate the table.

4. Line Chart for Unemployment Insurance Filings:

The second page of the dashboard will feature a line chart that shows the trend of unemployment insurance filings in a selected industry within the selected state.

Rationale:

- The **X-axis** will represent the months from July 2019 to July 2020, showing the progression of data over time.
- The **Y-axis** will represent the number of unemployment insurance filings, providing a clear visual of trends in filings over the year.
- Users will also be able to select the industry from a **dropdown menu. A table of NAICS** codes to their defined industries would provide reference for clients' choice. Upon selection, the line chart will display the trend of unemployment insurance filings specifically for that industry in the chosen state.

5. Technology and Implementation:

- The dashboard will be built using **R Shiny**, which will handle both the backend and frontend components of the application.
  - **Shiny Inputs**: For selecting the state and industry.
  - **Shiny Outputs**: For displaying the table and the line chart.
  - **Data Processing**: Necessary presprocessing (e.g., filtering the data by state and industry, aggregating monthly data) will be done in the server function of the Shiny app.
  - **ggplot2**: These libraries will be used to generate interactive line charts to ensure a smooth user experience.