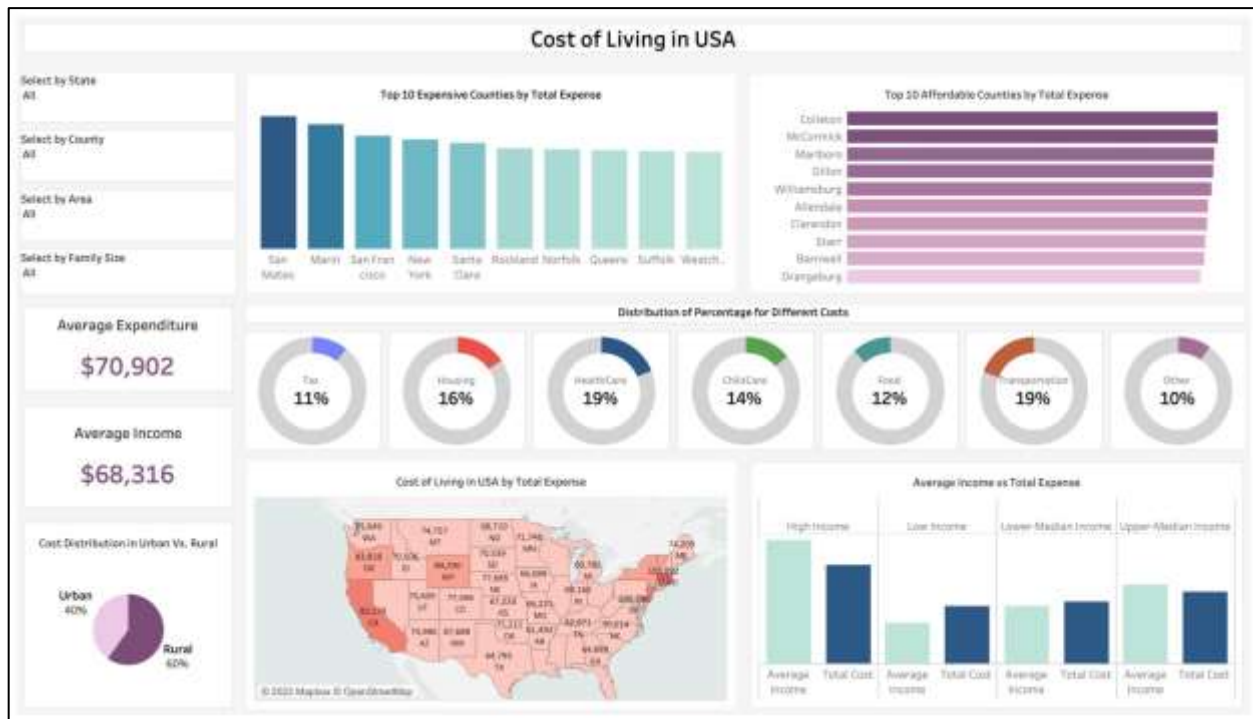# 5. Interactive Dashboard:

Overview:

The Cost of Living in the USA dashboard offers a comprehensive analysis of financial dynamics across states and counties. The user-friendly interface on the left side provides four filters—State, County, Area, and Family Size—enabling users to tailor their analysis. Two key performance indicators (KPIs), Average Expenditure and Average Income, are prominently displayed, highlighting the prevalent scenario where expenses exceed income in the USA. Cost Distribution is depicted through a pie chart, revealing that rural areas generally experience higher overall expenses compared to urban areas. On the right side, two charts showcase the Top 10 most expensive and affordable counties, allowing users to discern the financial landscape at a granular level. Donut charts provide a detailed breakdown of expenditure percentages for different categories, such as Tax, Housing, Healthcare, Childcare, Food, Transportation, and Other Necessity Costs. These charts offer valuable insights into spending patterns, with Healthcare and Transportation emerging as the predominant expense categories. Geographical insights are conveyed through a Geo Map, emphasizing the cost of living across states. The Average Income vs Total Expense bar chart unveils nuanced findings, indicating that higher-income groups tend to have higher expenses, but their income levels are also correspondingly higher.

We've added additional filters to elevate user interaction, facilitating exploration of the percentage distribution of costs for specific counties. Users can distinguish cost distributions between Urban and Rural areas and gain insights into how high-income and low-income groups allocate their expenses. Furthermore, users can effortlessly extract specific details from the geo map by selecting

a state, offering a seamless way to access comprehensive information throughout the entire dashboard.

Methodology:

In generating insights for the "Top 10 Expensive Counties" and "Top 10 Affordable Counties" charts, we employed a ranking methodology. Calculated fields named "Rank Expensive Total Cost & Rank Affordable Total Cost" were created for both charts respectively, calculating the county's rank based on total expense. For the "Top 10 Expensive Counties," the ranking was done in descending order, while for the "Top 10 Affordable Counties," the ranking was in ascending order as depicted in the screenshot below.

This systematic approach ensures accurate representation and easy identification of counties with the highest and lowest total expenses.

For each donut chart, two additional calculated fields were created to determine the percentage of each category. For instance, the "% of Food" field calculates the food percentage out of the total expense, while the "% of Not Food" field illustrates the remaining portion, as shown in the screenshot below. The same approach was followed for other categories.
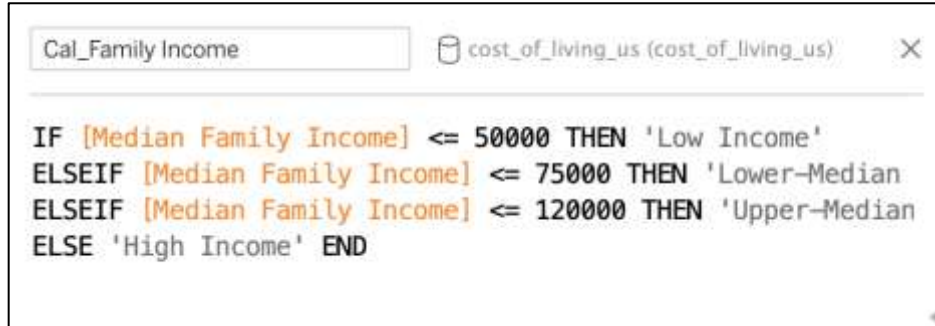

This approach provides a detailed and clear breakdown of cost distribution within each category, enhancing the precision and interpretability of the dashboard.

To analyze the relationship between average income and total expense, we created a calculated field based on our assumptions, named "Cal_Family Income." This field classified family incomes into four distinct groups based on the provided median family income data.

- **Low Income:** For family incomes up to $50,000.
- **Lower-Median Income:** For family incomes between $50,000 and $75,000.
- **Upper-Median Income:** For family incomes between $75,000 and $120,000.
- **High Income:** For family incomes exceeding $120,000.

Here, you can observe how we created the calculated field, as shown in the screenshot below.

```
Cal_Family Income                    cost_of_living_us (cost_of_living_us)    X

IF [Median Family Income] <= 50000 THEN 'Low Income'
ELSEIF [Median Family Income] <= 75000 THEN 'Lower-Median
ELSEIF [Median Family Income] <= 120000 THEN 'Upper-Median
ELSE 'High Income' END
```

The assumption of these income groups allowed us to create a clearer visual representation of how total expenses vary across different income brackets. This grouped bar chart not only illustrates the average income and total expense but also provides a comparative analysis, demonstrating the financial dynamics for each income group. By categorizing family incomes, users can discern patterns, helping to understand how varying income levels correlate with overall expenses in the USA.