## Project 02 | Part 2 | Domain: Insurance

You have a sample dataset of insurance.

You have to use MS Excel to analyze the data and visualize various insights on this dataset.

You can implement these insights using Excel's various charting and data analysis tools, such as pivot tables, histograms, scatter plots, and regression analysis tools. These visualizations will provide valuable insights into the relationships between different variables in the dataset and help in understanding the factors influencing insurance charges.

1. **Age Distribution**: Visualize the distribution of ages in the dataset using a histogram to understand the age demographics of the insured individuals.

2. **BMI Distribution**: Create a histogram to display the distribution of BMI (Body Mass Index) among the insured individuals.

3. **Gender Distribution**: Use a bar chart to represent the gender distribution of the insured individuals.

4. **Effect of Age and Charges**: Create a scatter plot to analyze the relationship between age and charges, which can help identify any trends or patterns.

5. **Effect of BMI and Charges**: Similarly, create a scatter plot to analyze the relationship between BMI and charges.

6. **Effect of Number of Children and Charges**: Create a bar chart or box plot to see how the number of children affects the insurance charges.

7. **Smoker vs. Non-Smoker Charges**: Use a box plot to compare the distribution of insurance charges between smokers and non-smokers.

8. **Region-wise Charges**: Create a bar chart or box plot to visualize the distribution of charges across different regions.

9. **Average Charges by Age Group**: Calculate the average charges for different age groups and visualize it using a bar chart to see how charges vary with age.

10. **Average Charges by BMI Category**: Categorize BMI into groups (e.g., underweight, normal, overweight, obese) and calculate the average charges for each category. Visualize this using a bar chart.

11. **Correlation Matrix**: Generate a correlation matrix to see the correlation between different variables such as age, BMI, number of children, and charges.

12. **Regression Analysis**: Perform a regression analysis to predict insurance charges based on variables like age, BMI, number of children, smoker status, and region. Visualize the results using a scatter plot with the actual and predicted charges.