**Project 1: Marginal Workers in TN Socio Economic Analysis**

**Phase 1: Problem Definition and Design Thinking**

**Project Definition:**The project involves analyzing the demographic characteristics of marginal workers in Tamil Nadu based on their age, industrial category, and sex. The objective is to perform a socioeconomic analysis and create visualizations to represent the distribution of marginal workers across different categories. This project includes defining objectives, designing the analysis approach, selecting appropriate visualization types, and performing the analysis using Python and data visualization libraries.

**Design Thinking**

**Project Objectives:**

1.Analyze Marginal Worker Demographics:

* .Understand the demographics of marginal workers, including age, gender, education level, and employment status.

2.Understand Age and Gender Distribution:

* Examine the age and gender distribution within the dataset to identify any trends or disparities.

3.Explore Industrial Categories:

* Explore the distribution of workers across different industrial categories to gain insights into the employment landscape.

**Analysis Approach:**

1.Data Collection:

* Obtain the dataset containing relevant information about marginal workers, including demographic details and industrial categories.

2.Data Cleaning:

* Clean the dataset by handling missing values, outliers, and inconsistencies to ensure data quality.

3.Data Exploration:

* Explore the dataset through descriptive statistics and visualizations to get an initial understanding of the data.

4.Demographic Analysis:

* Conduct demographic analysis by:
* Aggregating data by age, gender, education level, and employment status.
* Calculating summary statistics (e.g., mean, median, mode) for age.
* Visualizing demographic distributions using appropriate charts (e.g., bar charts, pie charts).

5.Industrial Category Analysis:

* Analyze industrial categories by:
* Aggregating data by industry.
* Calculating the distribution of workers in each category.
* Visualizing industrial category distribution using suitable visualization techniques (e.g., bar charts, pie charts).

6.Age and Gender Distribution Analysis:

* Investigate the age and gender distribution by:
* Creating age groups (e.g., 18-24, 25-34, 35-44, etc.).
* Visualizing age distribution using histograms or bar charts.
* Visualizing gender distribution using pie charts or bar charts.

7.Insights and Patterns:

* Interpret the analysis results to identify any significant patterns or trends in marginal worker demographics and industrial categories.

**Visualization Selection:**

1.Demographic Distribution:

* For analyzing demographic distributions (age, gender, education, and employment status), consider using:
* Bar charts to show counts or percentages of each category.
* Pie charts to illustrate the proportion of each category within a demographic variable.

2.Industrial Category Distribution:

* To explore the distribution of workers across different industrial categories, suitable visualizations include:
* Bar charts to compare the number of workers in each industry.
* Stacked bar charts to show the distribution of age or gender within each industry.

3.Age and Gender Distribution:

* To represent age and gender distribution effectively, consider using:
* Histograms to visualize the age distribution.
* Pie charts or bar charts for displaying gender distribution.