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

In this part you will need to understand the problem statement and create a document on what have you understood and how will you proceed ahead with solving the problem. Please think on a design and present in form of a document.

**Problem 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:**

Here we need to analyze age, gender and industrial categories of the Marginal workers

**Analysis Approach:**

For analyze the dataset we must follow the following steps based on that steps we will analyze our data effectively

1. Prerequisites and Environment Set up
2. Importing Libraries
3. Loading the Dataset
4. Data Preprocessing
5. Data Filtering and Basic Data Visualization
6. Interactive Data Visualization
7. Conclusion
8. **Prerequisites and Environment Set up**

* This project is carried out in Google colab
* The following libraries are used in this project . Make sure to install them before moving to the code.
* Pandas
* Numpy
* Matplotlib

To install these packages using the command line, just type

**pip install package-name or conda install package-name**

1. **Importing libraries**

First we need to import necessary libraries

1. **Loading dataset**

Upload our dataset into the google colab and copy the path of the dataset

1. **Data preprocessing**

We need to process our data in our convenient structure

Here we also use grid

1. **Data Filtering and Basic Data Visualization**

filter our data that means the necessary data is taken from large dataset

1. **Interactive data Visualization:**

Finally we need to visualize our data by using bar chart

**Visualization selection:**

For visualization we use Bar chart