Project Name: **Migrator**

Class: **Senior Project I (CI 491)**

Team members: **Junaid Asim, SM Pantho, Devam Patel, Parth Patel, Ayaz Rathod & Sneh Vyas**

**Customer** **Requirements**

**Project Background:**

Internal migration in the United States is increasing day by day. Migration within the United States plays an important part in understanding population trends. Internal migration is the movement of households from one address to another address within the same town, county, state, or between states without leaving the country. The goal of this project is to show the past data in a human-friendly visualization form. This will help different industries such as real estate, food, and different local and state governments to look at the past trends to make better decisions. They can also use our predicting model that will help predict future trends.

**Users:**

**Administrator**:

The role of the administrator is to maintain and troubleshoot the website. Make sure the website is in good running condition without any issues. If there are any issues, the administrator should be able to look into them and solve them. For this administrator will have access to both the source code of the front-end and back-end. This user can make additional access for users like Data Quality Operator and any future user.

**Data Quality Operator:**

The role of the Data Quality Operator is to make sure that the data available for the website is updated occasionally to make sure the website has access to the latest data. This role has limited access when it comes to front-end and back-end code. DQO can only update data files and can’t manipulate any of the written code.

**Customer:**

The role of the customer is to look at the different past trends through the visual dashboard. Click at different options available such as state-wise or county wise to better understand trends. This user needs access to stable internet and a device capable of opening web browsers to get to the website.

**Features to be implemented:**

**Interactive United States Geo Map:**

The functionality of this feature is to provide its potential user customer with an interactive map. Customers will be able to zoom in and out of the map. This feature provides users with the ability to visualize the migration data with the help of different markers on the map and a detail box containing different types of information. This is going to be one of the main features of the website with the most functionality for the customer.

**Filter Options:**

The functionality of this feature is to be able to let the user select from different options to see their desired output on the interactive map. The options will include choosing the year of datasets, selecting the type of flow, state and county. The potential user for this feature is the customer. To be able to see the output to the map, customers need to follow certain steps to make sure all the filters that are required are selected.

**Time Interval Chart:**

The functionality of this feature is to show an interactive bar graph that shows time intervals of the flows based on the feature filter options. The potential user of this feature customer needs to select filter options to be able to see the time interval bar chart of flows. The chart is going to be empty until there are options selected from the filter option feature which makes it totally dependent on the ‘Filter Option’ feature.

**Dashboard Charts:**

The functionality of this feature is to display an interactive dashboard that contains different charts on the migration data. Charts that provide visualization like top counties with the inflow or outflows, top states with the most movers etc. This feature is used by customers to look at different datasets in a better visual way to make decisions and look at past trends.

**Predict Model Dynamic Box:**

Main functionality of this feature is to show future trends based on over the years. This will show an estimated number of inflow and outflow from a specific state depending on the customer selected state from the option box. This will show two different boxes, each box containing an estimated number of inflow or outflow over the years. The potential user of this feature is going to be a customer. To use this feature all that a customer's need to do is provide the model with the state that the customer is looking to get the trends for.

**Features not to be implemented:**

**Display Raw Dataset:**

This feature will not be implemented as the goal of the migrator is to provide its end users with the visuals of the data and showing raw data is to confuse users.