**Project Literature**

**Causation Stack Model:**

We are following a logical model called Causation Stack model. This model tries to arrange all the collected information and datasets into different levels/stacks which causes the information to change/alter in the level just above it.

Dataset(s)

Level +N

Link Resolution

Link Resolution

Target

Target Relationship

Increases

Decreases

Causation Stack

Dataset(s)

Dataset(s)

Dataset(s)

Dataset(s)

Effects of Target

Causes of Target

Level -N

Level -1

Level 0

Level +1

Fig1.1: Causation Stack Model

The target dataset(s) are placed at level 1. This level is the focus of the whole model. As we go towards level 0 from bottom, the relationship with level 0 datasets increases. If we move upwards from level 0 the relationship with level 0 decreases. We can also say all the levels below the level 0 have some contribution in causing or altering values in level 0 datasets. Similarly, moving upwards from level 0 signifies the effects of the datasets in level 0.

Each level also tries to explain the effects with each other using link resolution. Link resolution is the relationship between each level of dataset(s). It can be either 1 or N, where N is a whole number between 2 and positive infinity. If 2 levels have link resolution of 1, it means that the dataset in the lower level is assumed to be strongly related to the upper-level dataset. For a link resolution of N, we can say there might be a relationship between 2 levels, but the model is note clear on the missing levels.

The link resolution helps us define the resolution of the model as well. It helps to see where the data is strongly related and where it isn’t.

**Viewports:**

These are basically the “view” of a dataset. Viewports are created to change and merge different datasets.

There are different types of viewports:

1. Global Viewports: These viewports are the ones that can be used to merge more all datasets in a collection of datasets. Essentially, these viewports are more fundamental, like time, location, etc. These viewports should already have a predefined space on which all the datasets can be represented.
2. Local Viewports: These viewports help to change the “view” of the dataset to concentrate on any one entity. Any categorical column which is not shared by all the datasets can be a local viewport.