

## **Classification Project on German Traffic Signs**

We were provided with about 40k training examples and 12k testing examples. The problem was one of classification which aims to assign the right class to a new image of a traffic sign by training on the provided pairs of traffic sign images and their labels. The project was broken down into:

### **1. Exploratory Data Analysis:**

The provided training data was examined mainly for the distribution of the various classes. The classes were found to be highly imbalanced indicating the need for data generation for the under-represented classes.

### **2. Data Pre-processing**

The input images to the neural network went through a few pre-processing steps to help the gradient descent optimization for training the network. Pre-processing included:

#### **i. Grey Scale Conversion**

## **ARCHITECTURE:**

The model consisted of 4 convolutional layers(3x3 VGG like model) followed by two fully connected layers. Several methods were employed for preventing over-fitting including:

Max Pooling

Drop Outs

Validation data set

Training on a AWS GPU Instances. The model was trained for around 20 epochs resulting in validation accuracy of 95.1% and a test accuracy of 94.4%.