METHODS AND TECHNIQUES:

Step 1: Exploring the Dataset

The required libraries and packages are installed. The dataset contains images of the traffic signs, the code loads all the images, stores the pixels of each image in the form of an array and labels corresponding to the images in another array. There are about 43 classes and a folder for each of the classes is created.

Step 2: Splitting the dataset

The dataset is split into train and test data using to_categorical method.

Step 3: Building the CNN model

The architecture of the Convolutional Neural Network (CNN) are as follows:

- Conv2D layer – 2 Layers, Size: 5*5, Activation Function : Relu
- Max Pooling – MaxPool2D (2*2 layers)
- Dropout rate - 0.25.0
- 2 Convolutional layers - 64 filters and size of 3*3
- Dropout rate - 0.25
- Dense, feed-forward neural network - 256 nodes
- Dropout Layer – 0.5
- Dense layer- 46 nodes, activation function – softmax

Step 4: Training and Validating the Model

The loss function and optimiser are used and the training is done for 15 epochs. The accuracy and the validation accuracy are computed for the model.

Step 5: Test the model

The data is again loaded using pandas and resized to 30*30 pixels, then converted into a NumPy array then the accuracy of the data is checked.