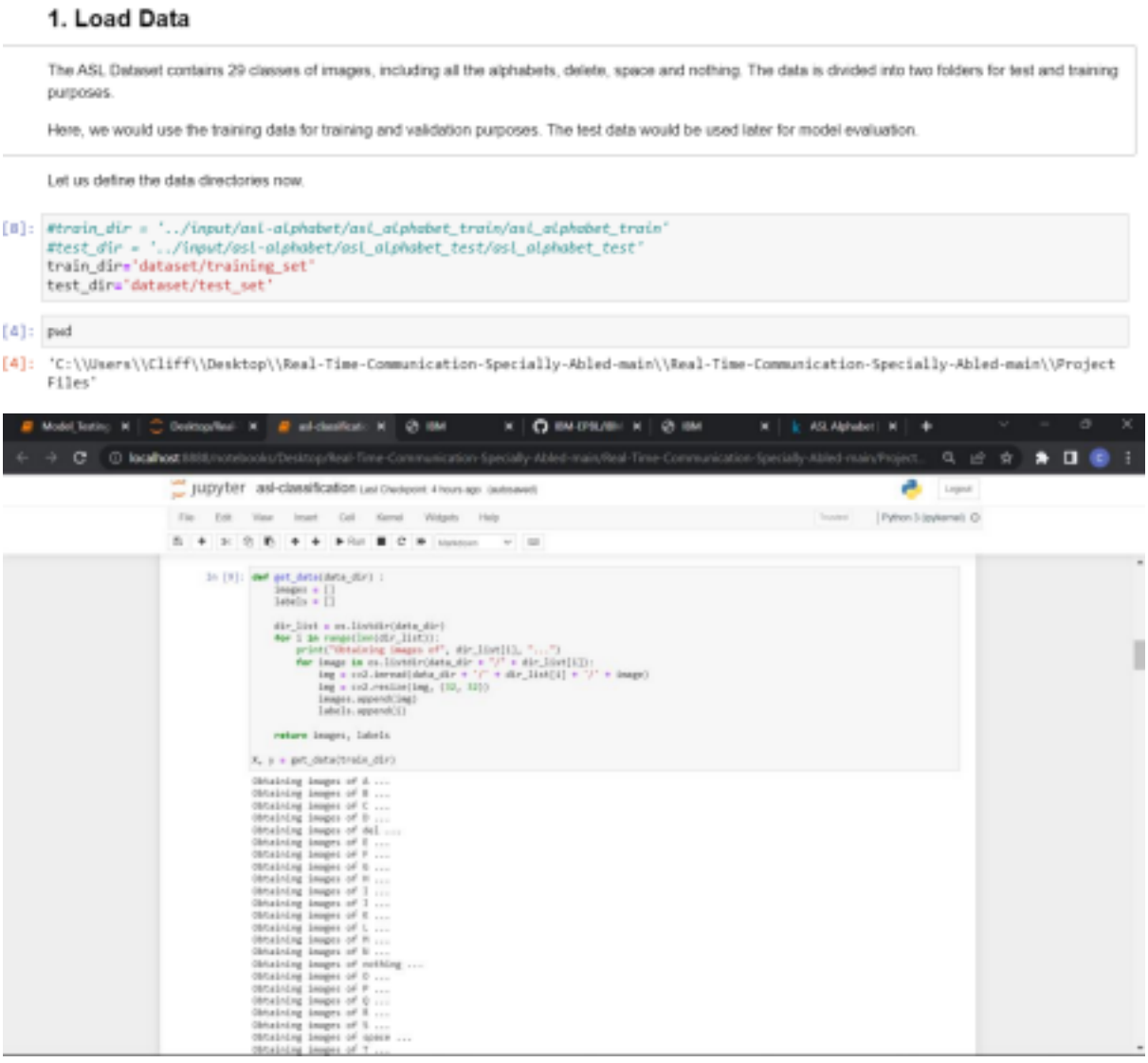
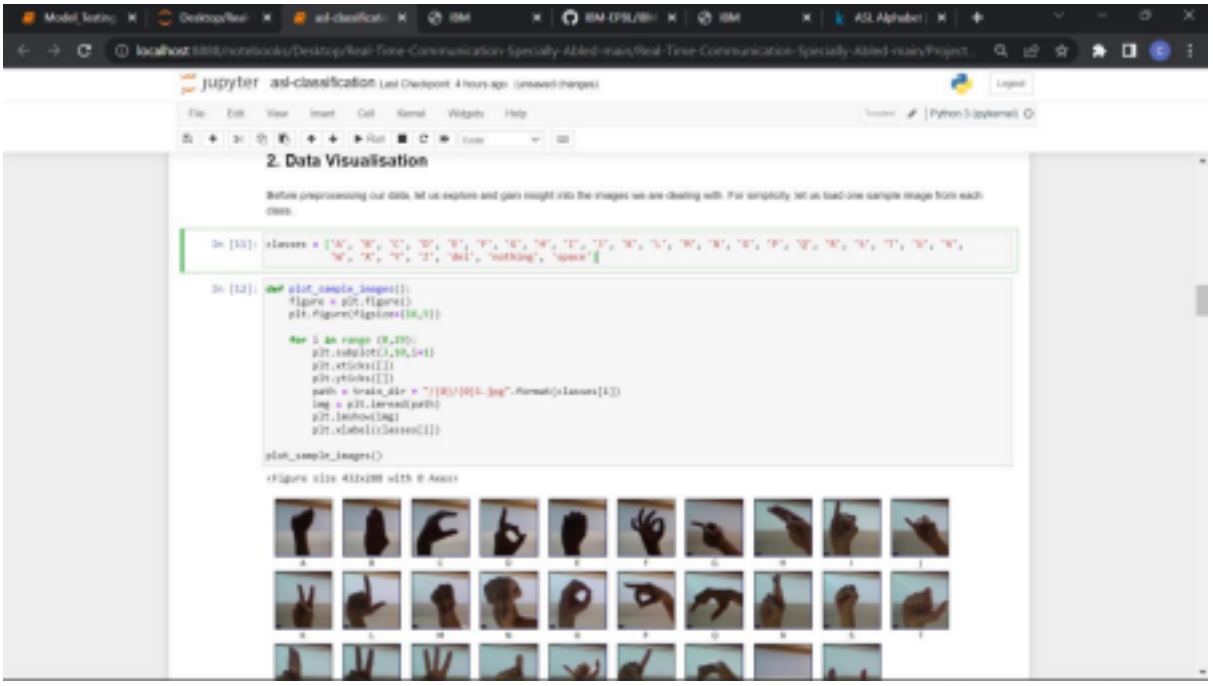
Team ID	PNT2022TMID45340
Project Name	Real-Time Communication System Powered by AI for Specially Abled

Import ImageDataGenerator Library And Configure It

Import ImageDataGenerator and create an instance for which include shearing, rescale, zooming, etc to make the model robust with different types of images.





3. Data Preprocessing

Before feeding the data to our model, we convert into numpy arrays and normalise the values by dividing the image pixel values by 255.

Then, we divide our training data into training and testing sets to be used by the model.

In [13]:
```
def preprocess_data(X, y):
    np_X = np.array(X)
    normalised_X = np_X.astype('float32')/255.0

    label_encoded_y = utils.to_categorical(y)

    x_train, x_test, y_train, y_test = train_test_split(normalised_X, label_encoded_y, test_size = 0.1)

    return x_train, x_test, y_train, y_test

x_train, x_test, y_train, y_test = preprocess_data(X, y)
```

Let us confirm the size of training and testing data.

In [14]:
```
print("Training data:", x_train.shape)
print("Test data:", x_test.shape)
```

```
Training data: (78300, 32, 32, 3)
Test data: (8700, 32, 32, 3)
```