Project 3 High-resolution Images

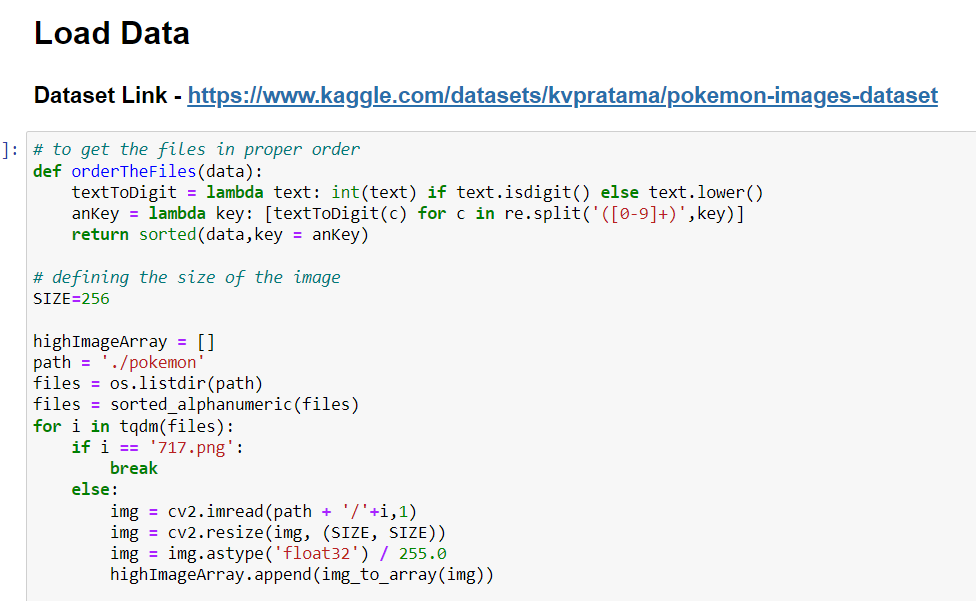
**Introduction** –

In this project, we use machine learning to train and evaluate Low Resolution Images to High Resolution Images. We will be using keras library of python for making the model.

**Data Collection** –

We are taking data from open website named Kaggle. The link for the dataset is: <https://www.kaggle.com/datasets/kvpratama/pokemon-images-dataset>

We loaded the data using the os library in python.



We took the data and saved a copy of low resolution data. Size of high resolution images is 256px and the size of low resolution images is 128px.

**Preparing data for Training,Testing and Validation-**

1. First we will reduce the size of the images. So that we have two sets of images, low and high resolutions. We made two arrays of images, one for high resolution images and other for low resolution images.

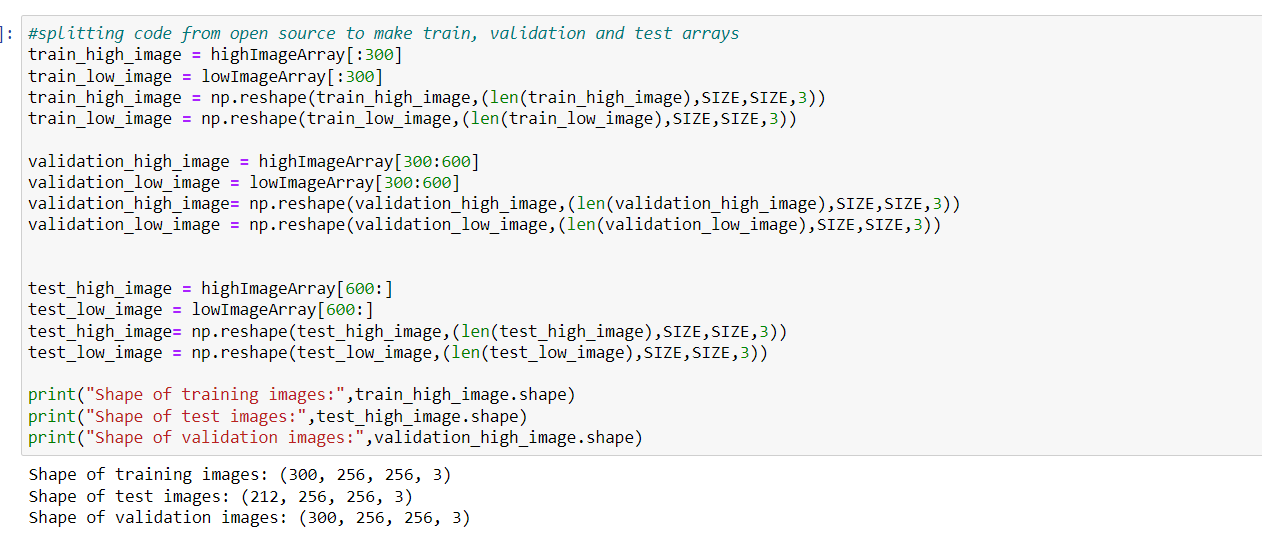


We can see the difference in the high resolution and low resolution images data by plotting them.

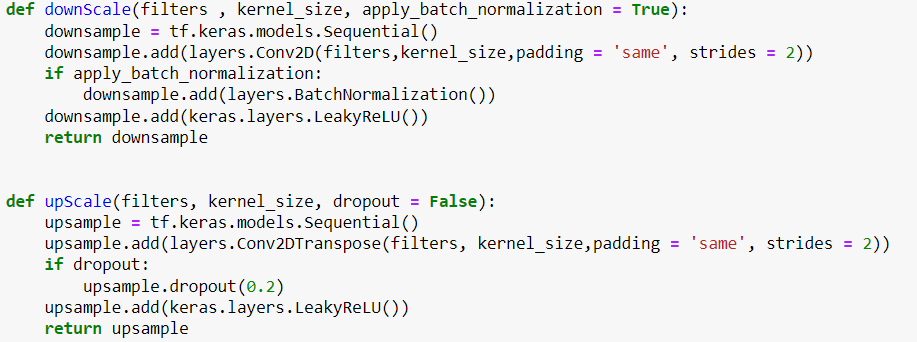


1. Creating arrays of train, validation and test

In this we performed slicing and reshaping of data.



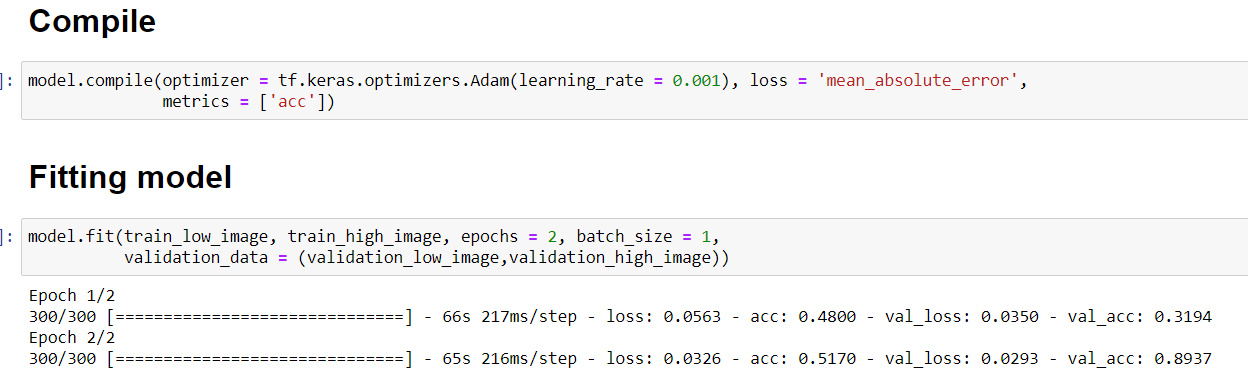
Then, we defined functions for upsampling and downsampling



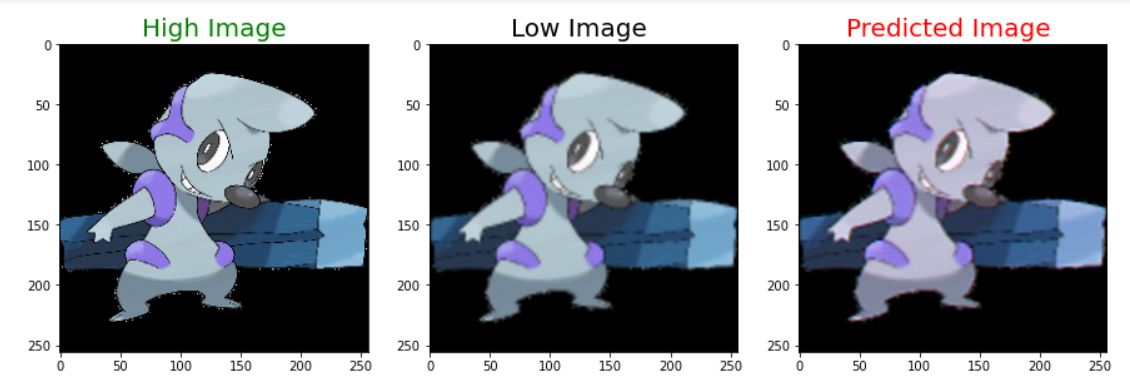
Then, we defined our model



Then we compile and fit the model.



Then, the model predicts the high-resolution images and we compare the original high-resolution images with the predicted images.



References:-

1. <https://medium.com/swlh/generating-high-definition-image-from-low-quality-images-404b3b1f238e>
2. <https://learnopencv.com/super-resolution-in-opencv/>
3. <https://www.kaggle.com/datasets/kvpratama/pokemon-images-dataset>