Age Detection By Building CNN From Scratch

.Age detection is applied in various domain like psycology,marketing domain,advertising .In this project we are trying to create our own Convolutional Neural Network with the help of keras tuner to predict the age given any image .

Dataset

- We have taken this dataset from Kaggle . Here is the link to the dataset https://www.kaggle.com/datasets/trainingdatapro/age-detection-human-faces-18-60-years
- This dataset contain images of people from various age groups ranging from18 to 60 years.
- This dataset consists of two folders one is train folder and the other is test folder.
- Each folder consists of subfolders which are labelled according to different age groups.
- There are total five categories of age groups **18-20, 21-30, 31-40, 41-50, 51-60.**
- The images in this dataset is mostly selfies .

Neural Network Architecture

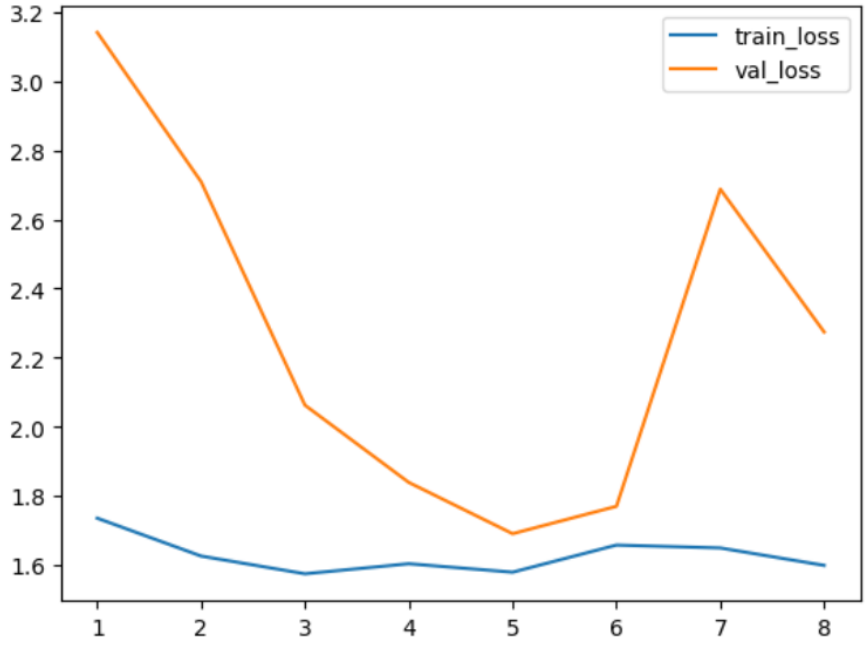
- The convolutional neural network consists of 4 layers.
- Each layer consists of one Convolutional layer and one MaxPooling layer.
- In the convolutional layer there are 14 filters applied where size of each filter is 3x3.Here same padding is used.
- In the MaxPooling layer the Pooling kernel of size 2x2 is used with stride of 1 and no padding is used here.
- After this Flattening layer is applied .
- The output obtained above is given to the Dense layer which consist of 100 neurons and activation is relu.
- Batch Normalization is applied
- After this another dense layer is there with 50 neurons and activation is relu.
- In the final output layer there are total 5 neurons with activation softmax.

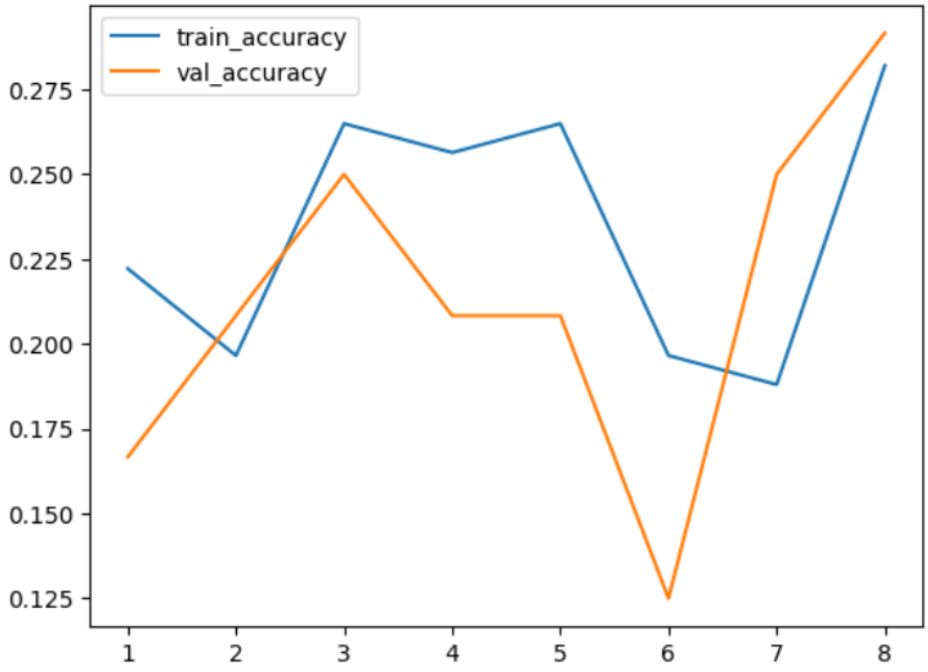
Compilation: we have used sparse categorical cross entropy as loss and adam as optimizer
Early stop: early stopped is applied here to reduce the chance of overfitting

Total Parameters: 67771531
Total Parameter: 67771331
Non-Trainable Parameter:200

Loss And Accuracy Plots

Here loss and accuracy graphs are shown with respect to the epochs in training time.





Model Evaluation

The accuracy score of the model is 24% and the confusion matrix display is shown below.