DIABETIC RETINOPATHY

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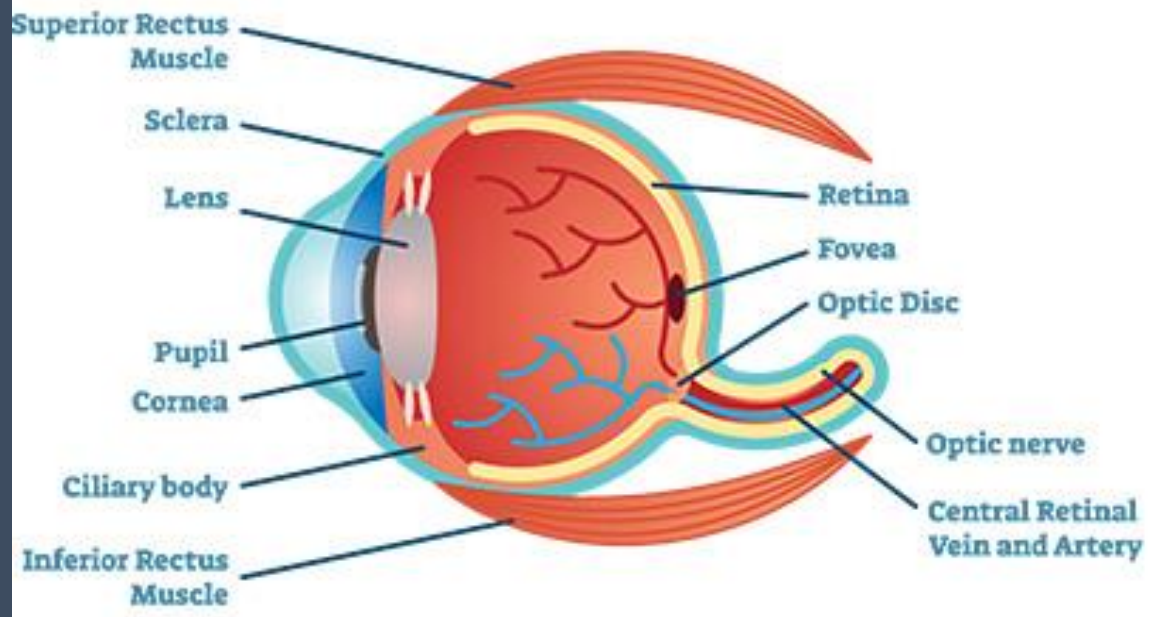
Diabetic retinopathy:

- Diabetic retinopathy is a diabetes complication that affects eyes.
- It may cause no symptoms or only mild vision problems.
- You might not have symptoms in the early stages of diabetic retinopathy. As the condition progresses, diabetic retinopathy .

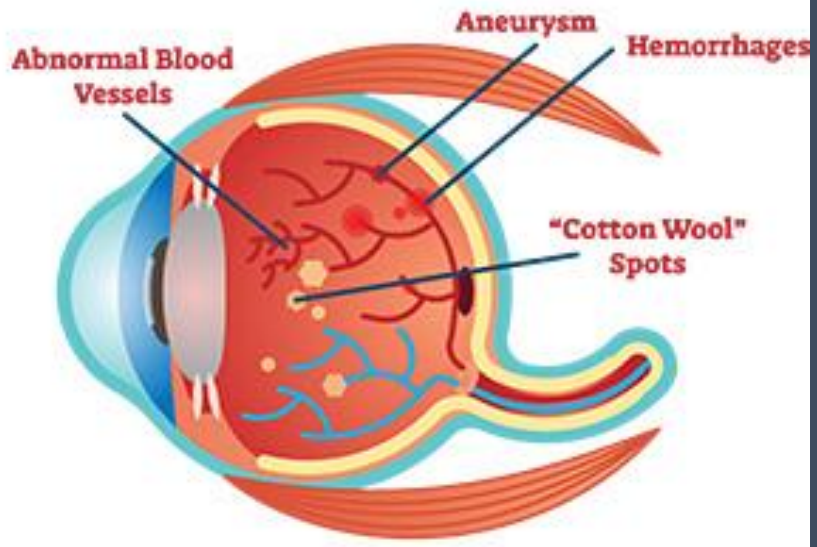
symptoms may include:

- Spots or dark strings floating in your vision (floaters)
- Blurred vision
- Fluctuating vision
- Impaired color vision
- Dark or empty areas in your vision
- Vision loss
- Diabetic retinopathy usually affects both eyes.

Diabetic Retinopathy



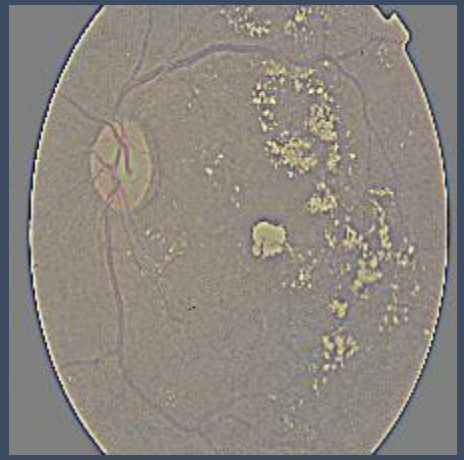
Healthy Eye



Diabetic Eye

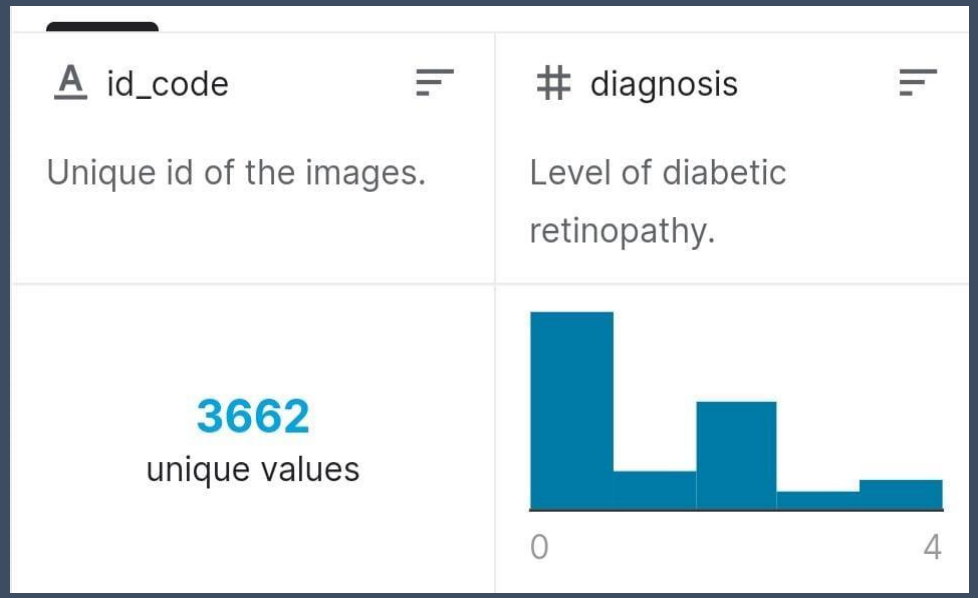
About Data set

- The original data set is about 80gb of high resolution images but we have used its resized version which are about 433mb total
- this images consist of gaussian filtered retina scan images to detect diabetic retinopathy
- These images are resized into 224*224 pixel so they can be used directly in pre-trained model .
- Also contains an export.pk1 file which is trained dataset using fastAI library
- You find 5 directories with respective images:
    - 0-NO_DR
    - 1- MILD
    - 2-MODERATE
    - 3-SEVERE
    - 4-PROLIFERATE



train.csv

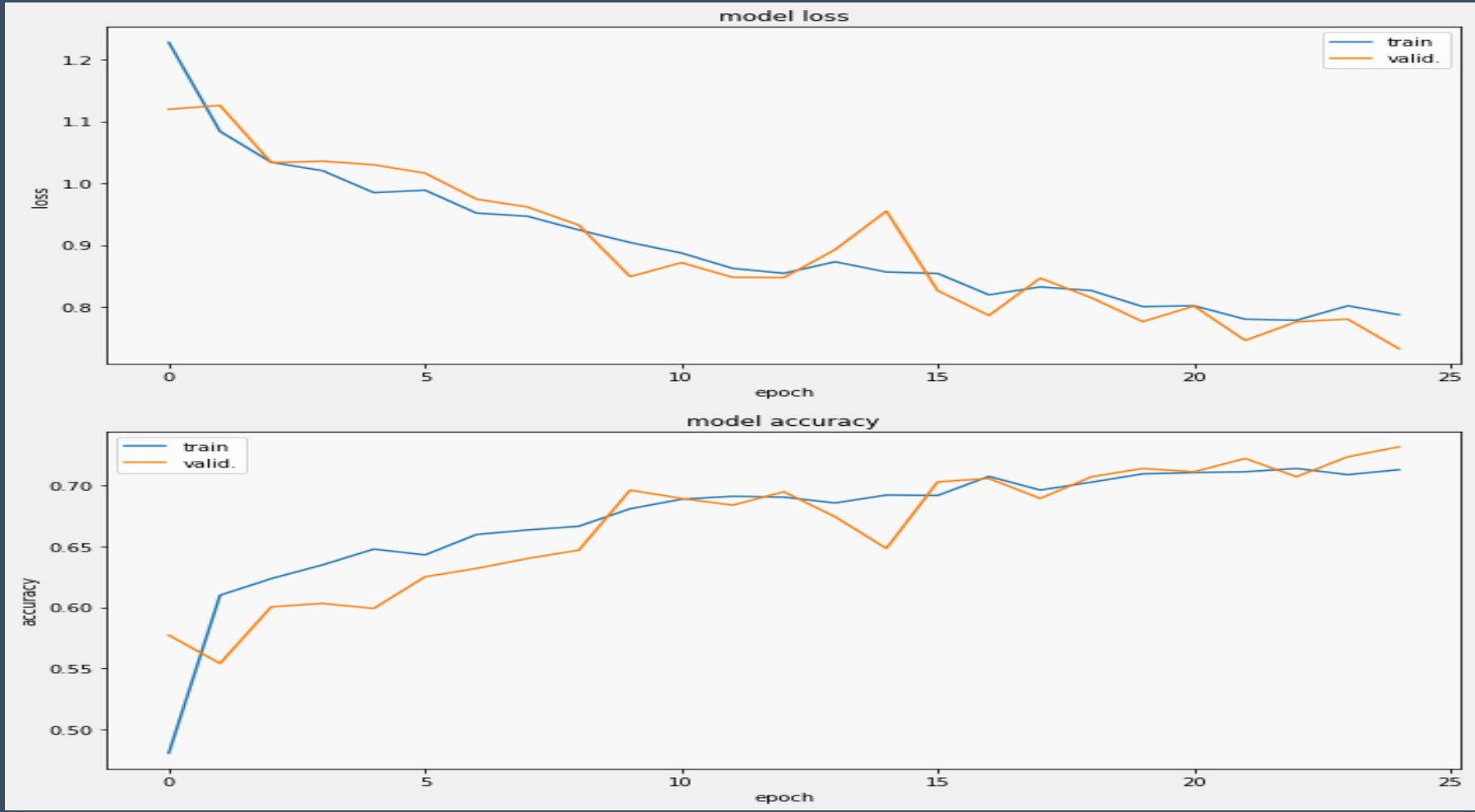
- It contains the level of diabetic retinopathy ranging from 0 to 4 with the id values corresponding to the images in the gaussian_filterd_images directory



- The pictures shows the columns of file. There are 3662 unique values and the above is the bar diagram shows the distribution of data.

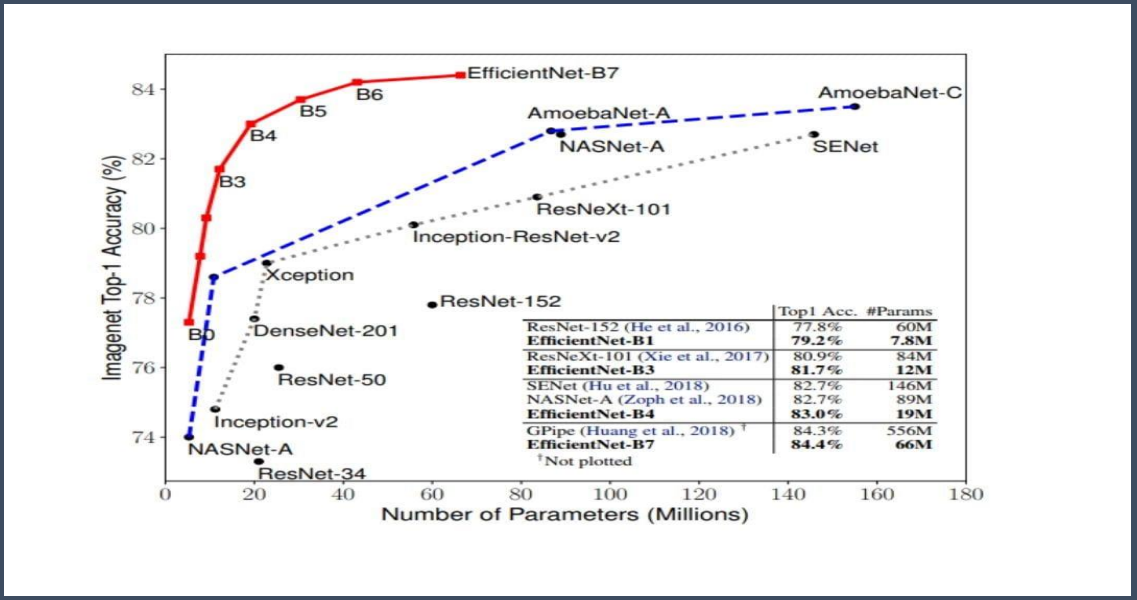
- First we used normal CNN model with “softmax” activation function.

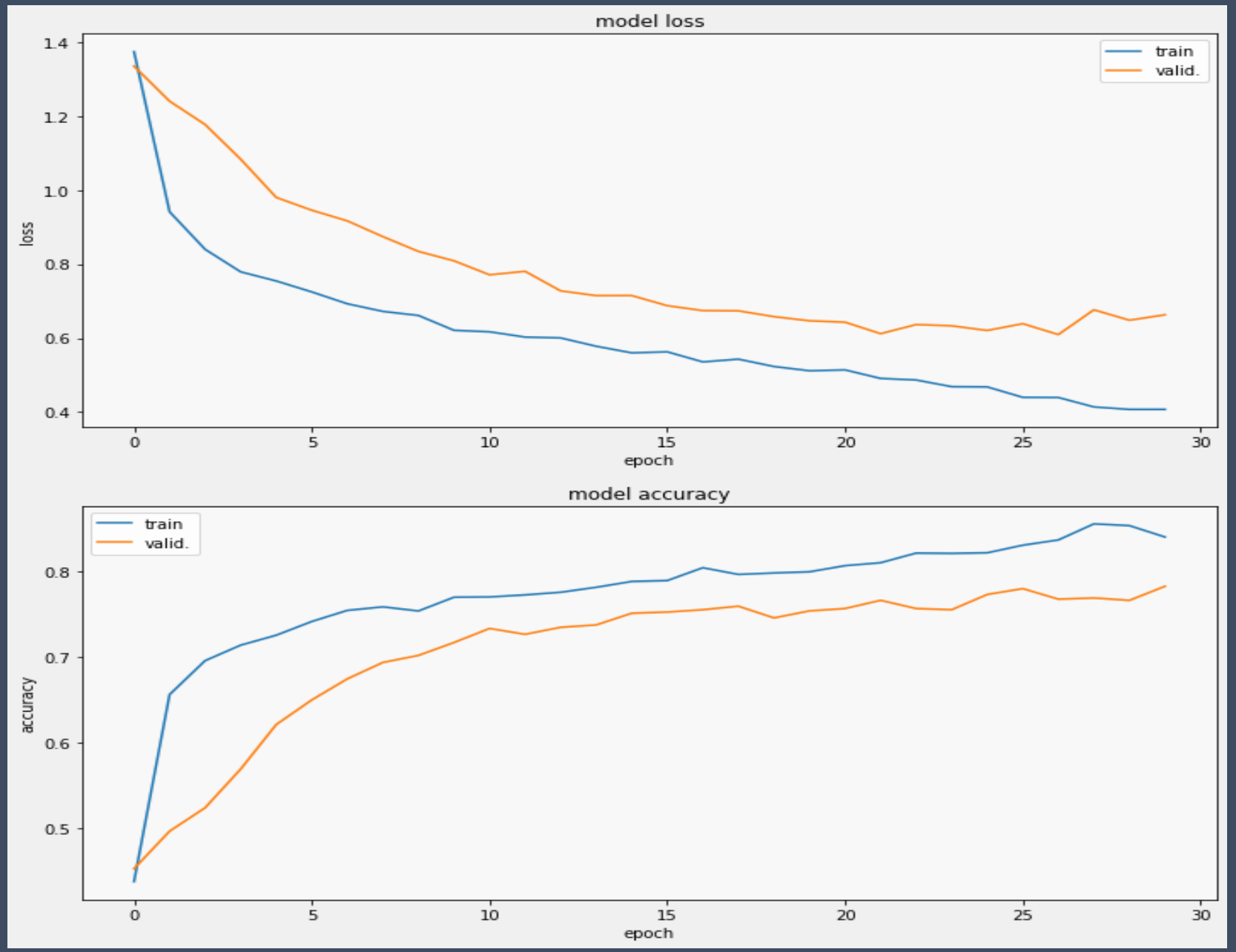
  Which gave the accuracy of around 70%



Efficient Net:

- Efficient net adds a boost to normal CNN model upto 10-15% accuracy.
- This is major improvement upto 6% while on the order of 5-10x more efficient than most current CNN's.




model loss
train
valid.
loss
epoch
model accuracy
train
valid.
accuracy
epoch


Thank You!