Final Project Brief: Team 5

Kaggle Competition:

APTOS 2019 Blindness Detection

1. Problem Statement

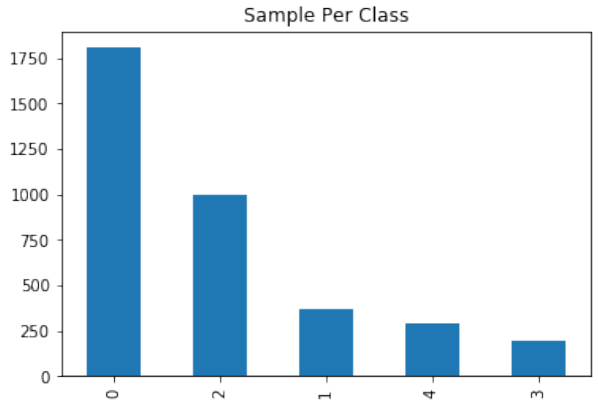
Millions of people suffer from diabetic retinopathy, the leading cause of blindness among working aged adults. In this Kaggle Competition, we helped Aravind Eye Hospital in India to detect and prevent this disease among people living in rural areas where medical screening is difficult to conduct. In specific, we'll build a deep learning model, working with thousands of images collected in rural areas to help identify diabetic retinopathy automatically. This will not only help to prevent lifelong blindness, but these models may be used to detect other sorts of diseases in the future.

2. Data Wrangling

The data size is 5,590, in which contains 3,662 train data and 1,928 test data.

Each image for the severity of diabetic retinopathy was rated on a scale of 0 to 4:

0	No DR
1	Mild
2	Moderate
3	Severe
4	Proliferative DR



Severity of diabetic retinopathy distribution for each scale

Load Image → Crop Image → Resize Image → Add Noise

3. Models

Model Name	Model Layers	Deal with overfitting	Model Accuracy
CNN	4 conv layers, 2 fc layers, 175K parameters	Dropout layer, Batch normalization, data augmentation	0.694
Resnet50	49 conv layers, 1 fc layers, 36M parameter	Dropout layer, Batch normalization, data augmentation	0.8428