IDEATION

Diabetic retinopathy is a common complication that occurs to people who suffer from diabetes mellitus of all types. It causes lesions in the retina which will ultimately lead to vision loss. To prevent this, early detection and treatment will help. Even though we can predict, it is an irreversible process, so we can only sustain vision. Here, the model proposes will analyze the fundus image and generate whether it is normal or infected with the use of deep learning technique – convolutional neural network. Transfer learning is actually a way to speed up deep learning techniques. The main usage behind transfer learning is that if a model is trained on a large and general enough dataset, this model will effectively serve as a generic model of the visual world. The manual diagnosis is slow and cost consuming, an easy and faster approach is come over by the usage of deep learning technique.

Traditional system challenges:

- Early stage of DR is formation of microaneurysm. So, the detection of microaneurysm is quite difficult to identify.
- This is due to different features, including texture, colour, and size on fundus images.
- The manual diagnosis is not so fast and it may even be wrong.
- The approach was considered to be computationally expensive.
- failure to identify the microaneurysms pixel in the case of poor contrast and faint retinal fundus images.

Top Three Ideas

- A deep learning technique which is “convolutional neural network” is used to analyze the presence of microaneurysm in the fundus image since it is the first stage of Diabetic Retinopathy.
- Frequent examination of eye images may help the patients. Since the disease is uncertain.
- Classify the analyzed fundus images by the use of machine learning algorithms.
- Notify the patients results through the UI, So that they can know and get treatment as soon as possible.