Project Design Phase-I Solution Architecture

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| **Date** | **30 September 2022** |
| **Team ID** | **PNT2022TMID20647** |
| **Project Name** | **Project - Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy** |
| **Maximum Marks** | **4 Marks** |

Solution Architecture:

By processing retinal fundus images, it is possible to detect diabetic retinal retinopathy in its early stages. We used Transfer Learning techniques like Inception V3, Resnet50, XV3, which are widely widely used as a transfer learning method in medical image analysis. They are highly effective. A significant part of our project's development will be the use of Deep Learning, Machine Learning, Neural Networks, and Python skills. Convolutional neural networks are the best type of neural network for our needs because we use images as data. A pre-processing step will be performed before any classification can be carrying order to reduce the impact of outliers, the aforementioned techniques were used in order to identify and "bold" the intensity of anomalous areas and pieces.utliers. Some of the images have abnormal structures. Using grey-scale images, for instance, reduces the effects of abnormal optic disks and vessels. Consequently, better accuracy will be achieved After doing pre-processing and normalizing, appropriate features will be extracted for the neural network to be trained on. We will train the deep NN over this period, and we will evaluate the results by varying the hyperparameters.

A GUI (website) will be developed for the same. The user will be able to give his fundus image as the input, the output will be displayed as the level of severity or the stage of the disease.