IBM-EPBL/IBM-Project-54108-1661597230 PROBLEM STATEMENT: Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy.

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AIM: To write the problem statement for Deep Learning Fundus Image Analysis for Early Detection of Diabetics Retinopathy.

PROBLEM STATEMENT:

Diabetic Retinopathy (DR) is a common complication of diabetes mellitus, which causes lesions on the retina that affect vision. If it is not detected early, it can lead to blindness. Unfortunately, DR is not a reversible process, and treatment only sustains vision. DR early detection and treatment can significantly reduce the risk of vision loss.

WHAT? The manual diagnosis process of DR retina fundus images by ophthalmologists is time, effort and cost-consuming and prone to misdiagnosis unlike computer-aided diagnosis systems.

WHY? Diabetic retinopathy is a complication of diabetes, caused by high blood sugar levels damaging the back of the eye. Which may loss the vision permanently.

WHEN? The early stages of DR does not have any symptoms, the later stages may cause the vessels to leak small amount of blood into your retinas.

WHERE? Vision disorder, Blureed vision, Distorted vision will occur.

WHO? This problem occurs commonly for Diabetic patient.

HOW? The detection of this DR in early stages manually is a difficult task.

OBJECTIVES

The main objective is to detect the Diabetic Retinopathy in early stages by processing the Retinal images, Transfer learning has become one of the most common techniques that has achieved better performance in many areas, especially in medical image analysis and classification. We used Transfer Learning techniques like Inception V3,Resnet50,Xception V3 that are more widely used as a transfer learning method in medical image analysis and they are highly effective.