Project Design Phase-II
Technology Stack (Architecture & Stack)

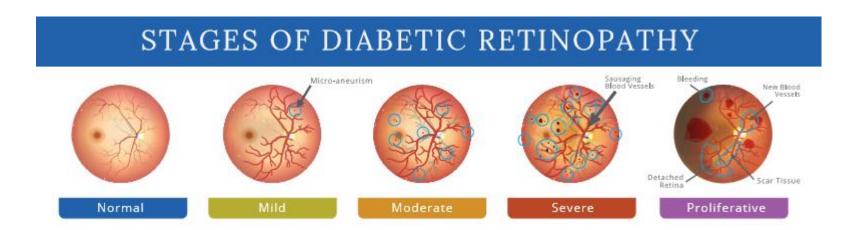| Date	16 October 2022
Team ID	PNT2022TMID36688
Project Name	Deep Learning Fundus Image Analysis for Early Detection Of Diabetic Retinopathy
Maximum Marks	4 Marks

Technical Architecture:

STAGES OF DIABETIC RETINOPATHY

Normal — Mild — Moderate — Severe — Proliferative

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI	HTML, CSS, Java, Python
2.	Application Logic-1	Image processing	Keras, TensorFlow, Numpy
3.	Application Logic-2	CNN Model	Keras, TensorFlow, Numpy
4.	Application Logic-3	Web UI Application	Flask
5.	Database	DR images	Uploads Folder
6.	File Storage	File storage requirements	IBM Block Storage or Google drive
7.	External API-1	Keras	Image Processing API
8.	Machine Learning Model	Inception V3 Architecture	Pretrained CNN
9.	Infrastructure (Server)	Application Deployment on web server	Flask-A Python WSGI HTTP Server

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-source frameworks	Flask	Flask frameworks
2.	Security Implementations	CSRF Protection	Flask-WTF, Session Cookie secure
3.	Scalable Architecture	Micro-services	Micro Web application framework by Flask
4.	Availability	Built-in development server and Fast debugger Integrated support for unit testing RESTful request dispatching jinjia2 Templating Unicode based	Sinatra Ruby framework, Jinja2
5.	Performance	Web framework, Http request handling functionality, Flexible	Sinatra ruby framework, SQLAlchemy, Jinja2