Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	03 October 2022
Team ID	PNT2022TMID27170
Project Name	Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Deep learning	DL refers to methods learning the mathematical representation of the latent and intrinsic relations of the data in an automatic manner. Unlike traditional machine learning methods, deep learning ones require much less human guidance, since they are not based on the generation of hand-crafted features, a task that can be very laborious and time consuming, but instead learn appropriate features directly from the data.
FR-2	Neural network	The simplest form of a neural network refers to an Articial Neural Network (ANN), which consists of 3 layers of neurons, one input layer, one hidden layer and a nal output laye
FR-3	Traditional CNN	Convolutional Neural Networks (CNN), which unlike shallow neural networks accept 2D arrays as their input, were inspired by human vision and their concept is based on a fundamental mathematical operation, namely “convolution”
FR-4	Transfer learning	Training a deep neural network is very demanding in terms of computational resources and data required. The world’s largest object

		detection database,
	Attention modules	It is well known that human vision and perception relies on attention mechanisms to focus on specic parts of a scene or an object instead of processing the whole scene at once.
	Generative Adversarial	Generative Adversarial Networks Finally, another important class of convolutional neural networks regards the Generative Adversarial Network (GAN) .

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Usability refers to the ability to use a particular product, including elements such as: *** Navigation** ***Purpose of features**
NFR-2	**Security**	To protect sensitive data, you may consider developing nonfunctional security features. For example, professionals at healthcare facilities use secure databases to store patients' medical records. The security on their databases may include firewalls to prevent unauthorized access.
NFR-3	**Reliability**	Technology that is highly reliable functions with the same or similar efficiency after extensive use.
NFR-4	**Performance**	Performance are classified into different types such as (a) response time, (b) throughput (number of operations performed per second)
NFR-5	**Availability**	Availability is defined as the Percentage of time that the system is up and running correctly
NFR-6	**Scalability**	Scalability is for large number of users or quantities of data