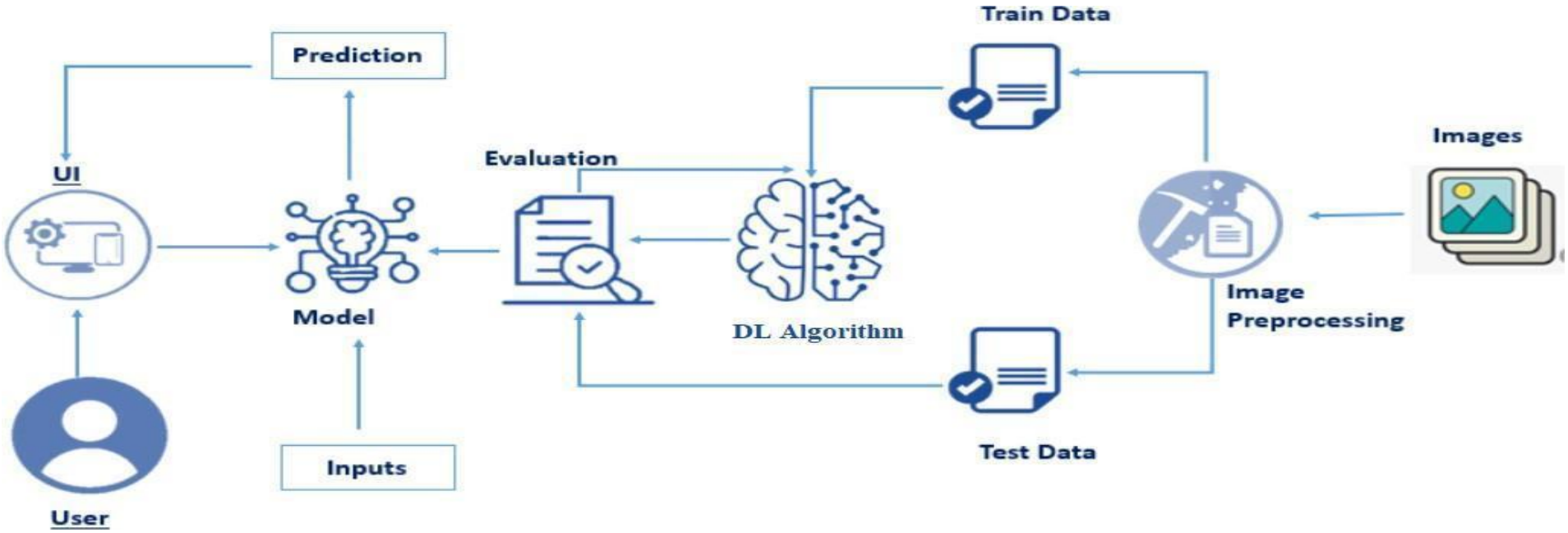
Project Design Phase-II
Data Flow Diagram & User Stories

Date	06/02/2026
Team ID	LTVIP2026TMIDS83275
Project Name	Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
Maximum Marks	4 Marks

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
Customer (Web User – Patient)	Image Upload	USN-1	As a user, I can upload a retinal fundus image for analysis	I can successfully upload image and see preview	High	Sprint-1
	Image Validation	USN-2	As a user, I can upload only valid image formats (jpg/png)	System rejects invalid file formats with error message	High	Sprint-1
	Prediction	USN-3	As a user, I can get diabetic retinopathy severity prediction after uploading image	System displays predicted class (No DR / Mild / Moderate / Severe / Proliferative)	High	Sprint-1
	Result Display	USN-4	As a user, I can clearly view my prediction result on screen	Result page loads with prediction label	High	Sprint-1
	Error Handling	USN-5	As a user, I receive an error message if prediction fails	Proper error message displayed	Medium	Sprint-1
	Multiple Uploads	USN-6	As a user, I can upload and test multiple images	System allows repeated uploads without crashing	Medium	Sprint-2
Ophthalmologist (Medical User)	Screening Assistance	USN-7	As a doctor, I can use the system to assist in early screening of DR	System provides severity classification quickly	High	Sprint-1
	Accuracy Support	USN-8	As a doctor, I want reliable predictions to support diagnosis	Model accuracy above acceptable threshold (>85%)	High	Sprint-2

	Efficiency	USN-9	As a doctor, I can analyze multiple patient images quickly	System processes images in under 3 seconds	Medium	Sprint-2
Administrator	System Monitoring	USN-10	As an admin, I can ensure the ML model loads correctly	System starts without model loading errors	High	Sprint-1
	Deployment	USN-11	As an admin, I can deploy the system to cloud platform	Application accessible via public URL	Medium	Sprint-2
	Maintenance	USN-12	As an admin, I can update the trained model if accuracy improves	New model can replace old model without system crash	Medium	Sprint-3
Customer	Report Generation	USN-13	As a user, I can download a prediction report	PDF report generated successfully	Low	Sprint-3
Customer	Cloud Access	USN-14	As a user, I can access the system online	App accessible via browser globally	Medium	Sprint-2

B. Data Flow Diagram (Level 0 – Context Diagram)

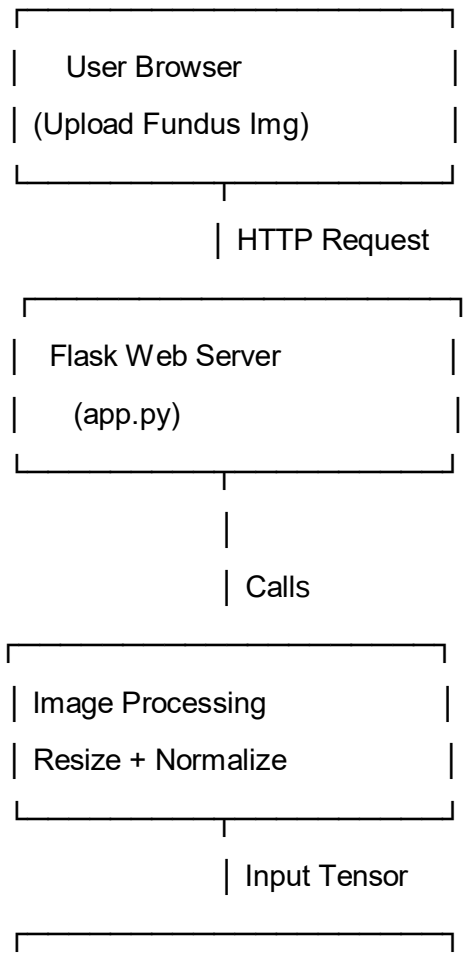
User
↓
Web Interface (Flask Application)
↓
Deep Learning Model
↓
Prediction Result
↓
User

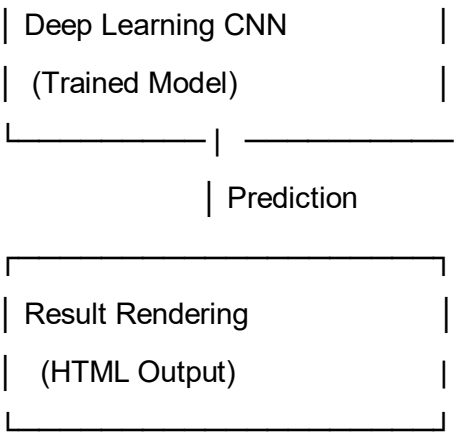
C. Level 1 DFD

1. User uploads image

2. Image preprocessing module processes image
3. Model prediction module generates classification
4. Result displayed on webpage

Architecture Diagram (Professional Format)




Deep Learning CNN
(Trained Model)
Prediction
Result Rendering
(HTML Output)