Project Design Phase-II
**Data Flow Diagram & User Stories**

| Date	18 JUNE 2025
Team ID	LTVIP2025TMID32471
Project Name	Enchanted Wings: Marvels of Butterfly Species
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.
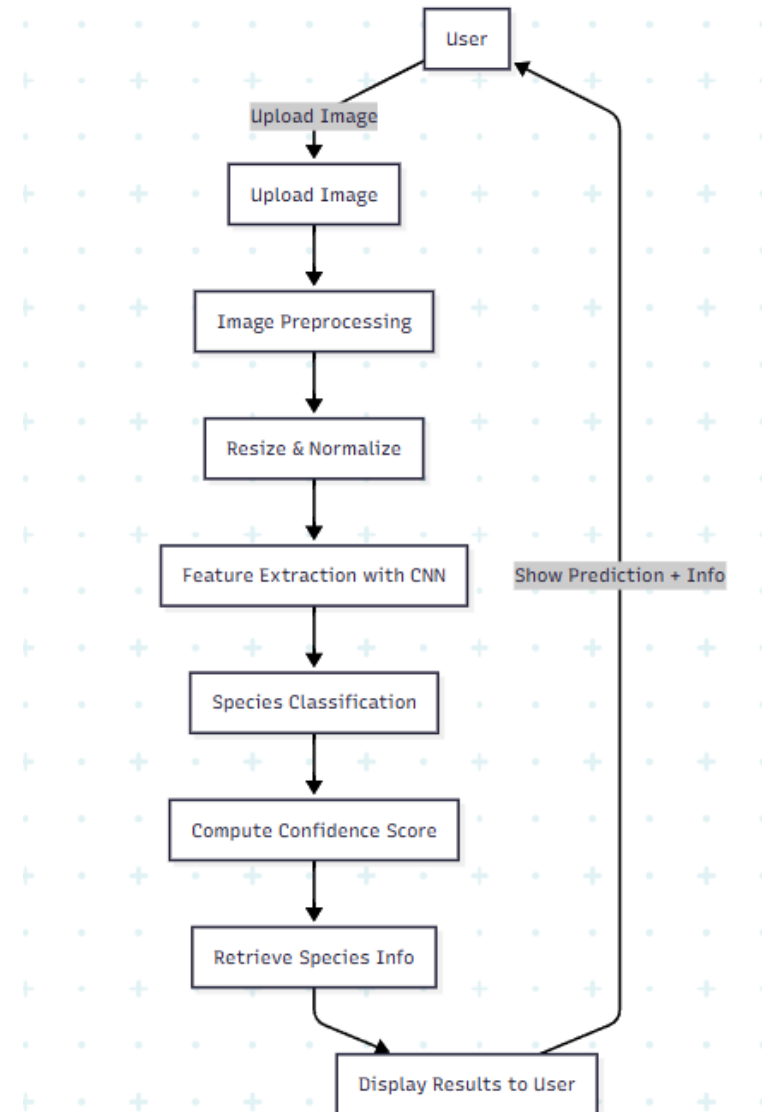
Level 0:
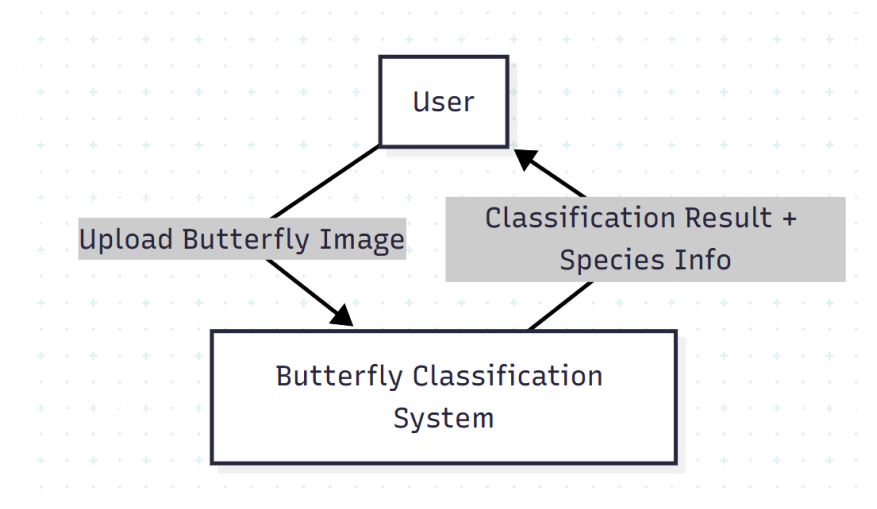
Level 1:
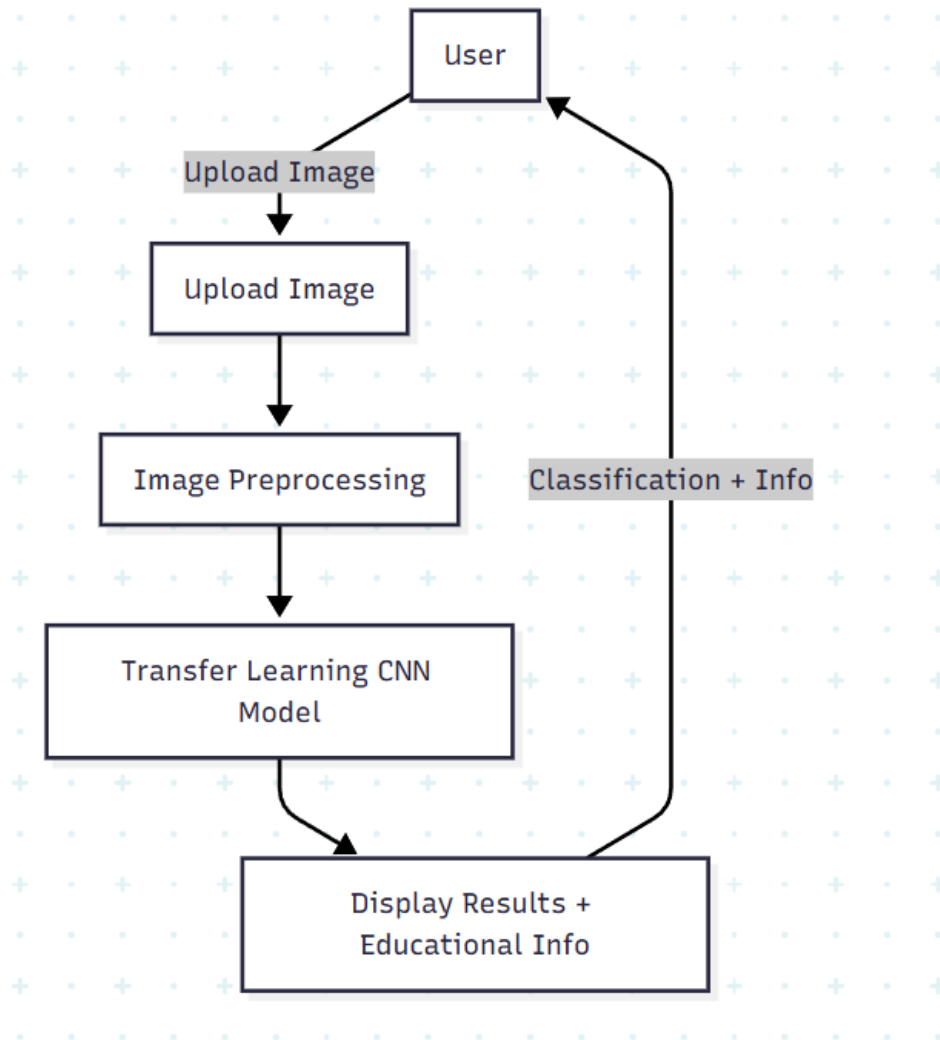
Level 2:

User Stories

User Type	Functional Requirement (Epic)	User Story ID	User Story / Task	Acceptance Criteria	Priority	Release
Developer	Data Preparation	USN-1	As a developer, I can load and preprocess the butterfly dataset into training, validation, and test sets.	Dataset splits are correctly created and balanced across classes.	High	Sprint-1
Developer	Model Integration	USN-2	As a developer, I can integrate a pre-trained CNN architecture for feature extraction on butterfly images.	Model loads successfully and extracts feature maps for input images.	Medium	Sprint-1
Developer	Model Training	USN-3	As a developer, I can train a butterfly classification model using transfer learning.	Model achieves acceptable accuracy and converges during training.	High	Sprint-2
Developer	Model Evaluation	USN-4	As a developer, I can evaluate the trained model and produce metrics like accuracy and confusion matrix.	Evaluation reports accurate metrics and confusion matrix visualization.	Medium	Sprint-2
Tester	UI Testing	USN-5	As a tester, I can upload butterfly images via the UI and receive classification results.	System classifies uploaded images and displays predicted species correctly.	High	Sprint-3
Developer	Deployment	USN-6	As a developer, I can containerize the butterfly classification app for deployment.	Docker image builds and runs correctly with exposed endpoints.	High	Sprint-3
Researcher	Biodiversity Monitoring	USN-7	As a researcher, I can identify butterfly species in real-time to aid biodiversity monitoring.	System provides species predictions from field images accurately and quickly.	High	Sprint-3

Ecologist	Ecological Research	USN-8	As an ecologist, I can monitor butterfly behavior using automated cameras and classification.	System processes images from cameras and logs species observations over time.	Medium	Sprint-4
Citizen Scientist	Citizen Science & Education	USN-9	As a citizen scientist, I can upload butterfly images and learn about species via the app.	System displays species name, educational info, and conservation status.	High	Sprint-4