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

Date	27th January 2025
Team ID	LTVIP2025TMID36392
Project Name	Enchanted Wing: Marvels of Butterfly Species
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	Image Upload	Upload butterfly image through file uploader
FR-2	Prediction	Predict butterfly species using trained MobileNetV2 model
		Show top predicted class name
		Show top-3 predictions (optional feature)
FR-3	Output Display	Display uploaded image preview
		Display predicted label with confidence score
FR-4	Error Handling	Handle non-image file uploads gracefully
		Handle image preprocessing failures (if any)
FR-5	Deployment	Deploy Streamlit app via GitHub or public hosting
		Ensure model loads properly at runtime
FR-6	Label Management	Load label mapping (`class_indices.pkl`) for class decoding
FR-7	Documentation & Accessibility	Provide project documentation (README, GitHub)
		Ensure app UI is clean and user-friendly

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The web app provides a clean and intuitive interface for users to upload images and view results easily.
NFR-2	Security	The app only accepts image files; there is no storage of personal user data, ensuring data privacy.
NFR-3	Reliability	The model consistently produces predictions when valid images are uploaded, with minimal failure rate.
NFR-4	Performance	The model predicts results in real-time (within seconds), offering fast response even on low-resource systems.
NFR-5	Availability	The app is accessible 24/7 via public deployment (e.g., GitHub or Streamlit Cloud), assuming proper hosting.
NFR-6	Scalability	The architecture can be extended to classify more butterfly species or adapted for other insects/plants.