Ideation Phase
Enchanted Wings: Marvel Of Butterfly species project Template

Date	27th june 2025
Team ID	LTVIP2025TMID42332
Project Name	Enchanted Wings: Marvel of Butterfly species
Maximum Marks	4 Marks

Step 1: Team Gathering, Collaboration & Select the Problem Statement

Problem Statement:
In the face of biodiversity loss and ecological degradation, identifying butterfly species manually is time-consuming and prone to error. Our goal is to develop an AI/ML-based system that can automatically classify butterfly species from images with high accuracy, supporting conservation efforts, scientific research, and educational outreach.

Step2: Brainstorm, Idea Listing and Grouping

During team brainstorming, we explored various approaches and grouped ideas under key themes:

- **Data Collection:**

  - Use Kaggle or UCI datasets of butterfly images.
  - Collaborate with butterfly sanctuaries or research bodies.
  - Augment datasets using image transformation techniques.

- **AI/ML Model Development:**

  - Train CNN-based deep learning models (e.g., ResNet, VGG, MobileNet).
  - Leverage transfer learning to enhance performance with fewer resources.
  - Evaluate models using precision, recall, and F1 score.

- **Application & User Interaction:**

  - Create a web/mobile application for image input and prediction.
  - Display species name, description, and conservation status.
  - Add feedback options to improve predictions over time.

- **Educational & Research Use:**

  - Add a learning module for users (fun facts, quizzes).
  - Use output data for scientific research or tracking biodiversity.

- **Innovative Features:**

  - Include AR visualization of butterfly species.
  - Develop a multilingual interface.
  - Introduce offline prediction mode for field researchers.

Step3: Idea Prioritization

Priority Level	Key Ideas to Implement
High Priority	CNN with transfer learning, dataset curation, prediction app
Medium Priority	UI/UX features, educational module, multilingual text
Innovative/Future	AR visualization, gamification, offline access