Project Planning Phase
Project Planning Template

Team ID	LTVIP2025TMID38181
Project Name	Enchanted Wings :Marvels Of butterfly Species
Maximum Marks	4 Marks

Project Overview:

- **Title:** Enchanted Wings – Marvels of Butterfly Species
- **Duration:** 2 Weeks
- **Objective:** To build and deploy a butterfly classification system using transfer learning (VGG16), and demonstrate its application in biodiversity, research, and citizen science.
- **Tools/Technologies:** Kaggle API, Python, Keras, TensorFlow, Flask, HTML/CSS, Matplotlib

Condensed 2-Week Schedule

Day	Task	Tools/Tech	Deliverable
Day 1	Dataset download and cleaning (resizing, normalizing, labeling)	Kaggle API, NumPy, Pandas	Preprocessed dataset
Day 2	Data augmentation + train-test split	Keras `ImageDataGenerator`, `sklearn`	Augmented & split dataset
Day 3	Model setup using VGG16 (transfer learning)	Keras, TensorFlow	Transfer learning model ready
Day 4	Model training (initial) + monitoring	Adam/SGD, accuracy/loss graphs	Initial model results
Day 5	Hyperparameter tuning + final training	Keras, visualization tools	Tuned final model
Day 6	Model evaluation + confusion matrix	`sklearn.metrics`, Matplotlib	Evaluation metrics and visualizations
Day 7	Save trained model (`.h5`) + start Flask app	Keras, Flask	Saved model + basic UI
Day 8	Build frontend (HTML/CSS) + connect to backend	Flask, HTML/CSS	Functional web app
Day 9	Final testing and validation with new images	Flask app testing	Working real-time app
Day 10	Documentation, report writing, presentation prep	Word, PowerPoint	Final report and slides

Milestone Tracker

Milestone	Target Day	Status (☐/✓)
Dataset prepared	Day 2	☐
VGG16 model ready	Day 3	☐
Model trained and tuned	Day 5	☐
Model evaluated	Day 6	☐
Web app built	Day 8	☐
Final submission materials	Day 10	☐

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

https://www.visual-paradigm.com/scrum/scrum-burndown-chart/

https://www.atlassian.com/agile/tutorials/burndown-charts

Reference Links

1. https://keras.io/guides/transfer_learning/
2. https://www.kaggle.com/datasets/gpiosenka/butterfly-images
3. https://www.analyticsvidhya.com/blog/2021/06/vgg16-model-architecture-with-code-in-keras/
4. https://blog.keras.io/building-a-simple-keras-deep-learning-rest-api.html
5. https://www.tensorflow.org/api_docs/python/tf/keras/preprocessing/image/ImageDataGenerator
6. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4744274/

7. https://www.frontiersin.org/articles/10.3389/fevo.2021.711743/full