Data Collection and Preprocessing Phase

Date	05 February 2026
Team ID	LTVIP2026TMIDS65516
Project Title	AutoSage App Using Gemini Flash
Maximum Marks	6 Marks

Preprocessing Template

In the **AutoSage** project, vehicle images uploaded by users are preprocessed before analysis. The images are resized and normalized to maintain consistency. Basic noise handling and color processing are applied to improve image clarity. The complete image is used without heavy modifications to retain important vehicle details. These preprocessing steps help the AI model generate accurate and reliable vehicle information.

Section	Description
Data Overview	The data used in this project consists of vehicle images uploaded by users through the Streamlit interface. These images include two-wheelers and four-wheelers. No external dataset is used.
Image Validation	Uploaded images are checked to ensure they are in supported formats such as JPG, JPEG, or PNG before processing.
Image Handling	The uploaded image is loaded using the Pillow library and passed directly to the Gemini Flash model for analysis.
Prompt Formatting	A structured prompt is combined with the uploaded image to guide the AI model in generating organized vehicle details.
Model Input Processing	The image and prompt are sent to the Gemini Flash model, which internally handles feature extraction and image understanding.

Data Preprocessing Code:

Loading Data	Vehicle images are collected directly from users through the Streamlit file uploader.
Input Validation	The application ensures an image is uploaded before sending the request to the AI model.
Prompt Creation	The validated image is paired with a predefined automobile-specific prompt.
Model Invocation	The combined image and prompt are sent to the Gemini 2.5 Flash model for content generation.
Output Handling	The generated vehicle details are received from the model and displayed clearly on the Streamlit interface.