Requirements Gathering

1. Stakeholder Analysis

Identifying key stakeholders and understanding their needs and expectations.

Stakeholder	Role	Needs & Expectations
Project Team	Developers & Engineers	Clear requirements, structured tasks, access to data & tools
End Users	Analysts, Urban Planners	Accurate land classification, user-friendly dashboard
Supervisors	DEPI Mentors & Trainers	Well-documented progress, efficient model performance

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2. User Stories & Use Cases

Illustrating how different users interact with the system.

User Story Example:

As a GIS Analyst, **I want to** upload a satellite image, **so that I can** classify land types accurately.

Use Case Example:

Title: Classifying a satellite image
Actors: GIS Analyst, System
Steps:

1. User uploads a satellite image.
2. System preprocesses the image.
3. Model classifies land types and return results.
4. User views classification on the Dashboard/Result Section.

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3. Functional Requirements

List of features and functionalities required for the system.

- **Data Processing:** Upload and preprocess Sentinel-2 images.
- **Model Training & Prediction:** Train DNN/CNN models and classify land types.
- **Dashboard:** Visualize classification results in Power BI.
- **API:** Deploy the model with Flask/FastAPI for real-time predictions.

4. Non-functional Requirements

Performance, security, usability, and reliability considerations.

Category	Requirement
Performance	Model should classify images in **≤5 seconds**.
Security	Ensure API endpoints are **secured against unauthorized access**.
Usability	Dashboard should have **clear visualizations and easy navigation**.
Reliability	The system should handle **large datasets without failure**.