Project Vision Statement

Project Title: Planet Story Explorer
Team Name: Gaucho Planet

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Company Overview

Planet Labs is a leading Earth observation company that provides the highest frequency satellite imagery and a powerful web-geo platform to make global change visible, accessible, and actionable. Founded with the mission to take images of the Earth daily, Planet Labs has transformed the Earth observation industry by expanding access past traditional sectors like agriculture and defense. Its data and analytic tools provide businesses, governments, and research institutions the power to make timely, informed decisions enhancing efficiency, mitigating risks, and driving innovative solutions to global challenges in an ever-changing world.

Planet Stories (https://www.planet.com/stories) is a web application from Planet Labs that allows users to quickly browse, compare, and share collections of Planet satellite imagery. Users can generate timelapse videos or comparison images using Planet's imagery archive, and then share these stories via links, social media, or by embedding them on websites.

Problem Statement

Currently, Planet Stories are presented as a static gallery. This makes searching for specific events, locations, or trends much harder for users to find.

The goal of this project is to build an interactive web portal that allows users to explore stories by topic and location, while also enhancing these stories with AI-generated captions and geospatial context. Our finished product will:

- Update with new stories daily
- Streamline the user experience
- Enable stories to turn from a simple showcase to an essential tool for discovery for journalists, researchers, and the public

Our primary goal is to transform the Planet Stories gallery into an intelligent, interactive, and contextualized atlas of global change. We will achieve this by:
Developing an Interactive Web Portal: Building a polished, public-facing application that allows users to explore stories by topic, location, and date through an interactive map and a filterable gallery.
Automating Content Enrichment: Implementing a daily data pipeline that automatically ingests new stories, analyzes them with a Visual Large Language Model (VLLM) to generate captions and tags, and enriches them with deep geospatial context.
Providing Actionable Insights: Turning the gallery from a simple showcase into an essential tool for discovery, enabling journalists, researchers, and the public to gain a multi-layered understanding of global events.

Expected Outcome

The project will shift the Planet Stories gallery from a simple showcase to an immersive tool for discovery. It will provide journalists, researchers, and the public with a comprehensive resource for understanding global change. The automated enrichment process ensures the platform remains perpetually current, while the enhanced geospatial context provides a multi-layered understanding of each event.

Key Deliverables will include:

- **The Planet Story Explorer Web Portal:** A live, responsive web application serving as the primary user interface for exploring the enriched data.
- **Automated Content Enrichment Pipeline:** A complete, deployable set of scripts for the entire data lifecycle: fetching stories, processing with a VLLM, and enriching with geospatial context from external APIs.
- **A Robust, MCP-Compliant API:** A RESTful API built with FastAPI to serve all enriched data to the frontend. The API will also feature endpoints compliant with the **Model Context Protocol (MCP)**, making the data an interoperable resource for the wider LLM community.

The Projected Impact is a paradigm shift for Planet Stories, from a static showcase to a dynamic tool for discovery and analysis. By providing rich, searchable, and contextualized data, the platform will empower journalists, researchers, and the public to uncover trends and understand the significance of planetary changes, directly furthering Planet's mission to make change visible, accessible, and actionable.

Technical Approach

List of Technologies:

- **Frontend:** React, Shadcn, Leaflet (or Mapbox GL JS), Recharts, Zustand
- **Backend:** Python with the FastAPI framework
- **AI/ML:** Pre-trained VLLMs via API (e.g., Gemini, GPT-4o) for content analysis
- **Database:** PostgreSQL with the PostGIS extension for efficient geospatial querying.
- **DevOps/Automation:** GitHub Actions for continuous integration and running the scheduled daily ingestion pipeline.

Process Model: Agile (Scrum) We will employ the Agile development methodology to achieve our milestones. Agile is an iterative approach to project management that focuses on delivering value in small, digestible increments. This is ideal for an open-ended project as it allows us to adapt to new ideas and feedback from our mentor.

- **Sprints:** We will work in 2-week cycles called "sprints." Each sprint will have a specific goal (e.g., "Implement user filtering" or "Integrate the VLLM").
- **Sprint Planning:** At the start of each sprint, we will meet to decide which tasks from our backlog we will complete.
- **Daily Stand-ups:** Our frequent meetings will serve as "stand-ups." In these meetings, each member will briefly state:
    1. What I did yesterday.
    2. What I will do today.
    3. Any blockers or issues I'm facing. This keeps the team synchronized and helps us solve problems quickly.
- **Sprint Review:** At the end of each sprint, we will have a demo of the working software we built. This is a chance to get feedback from our mentor and adjust our plan for the next sprint.