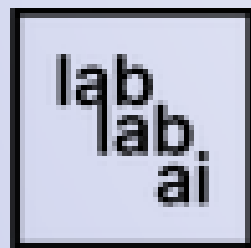


# LABLAB.AI HACKATHON

REEFMATE

**NextGen GPT AI Hackathon with Clarifai**



# INTRODUCTION

**Imagine AI reshaping coral conservation—a smart ensemble classifying reefs and decoding their health. Picture intelligent guide navigating the underwater realm, offering a concise tool for preserving coral ecosystems.**



# THE PROBLEM

Machine learning models have the potential to revolutionize coral reef classification and health assessment, offering a robust solution to challenges faced in traditional monitoring methods.

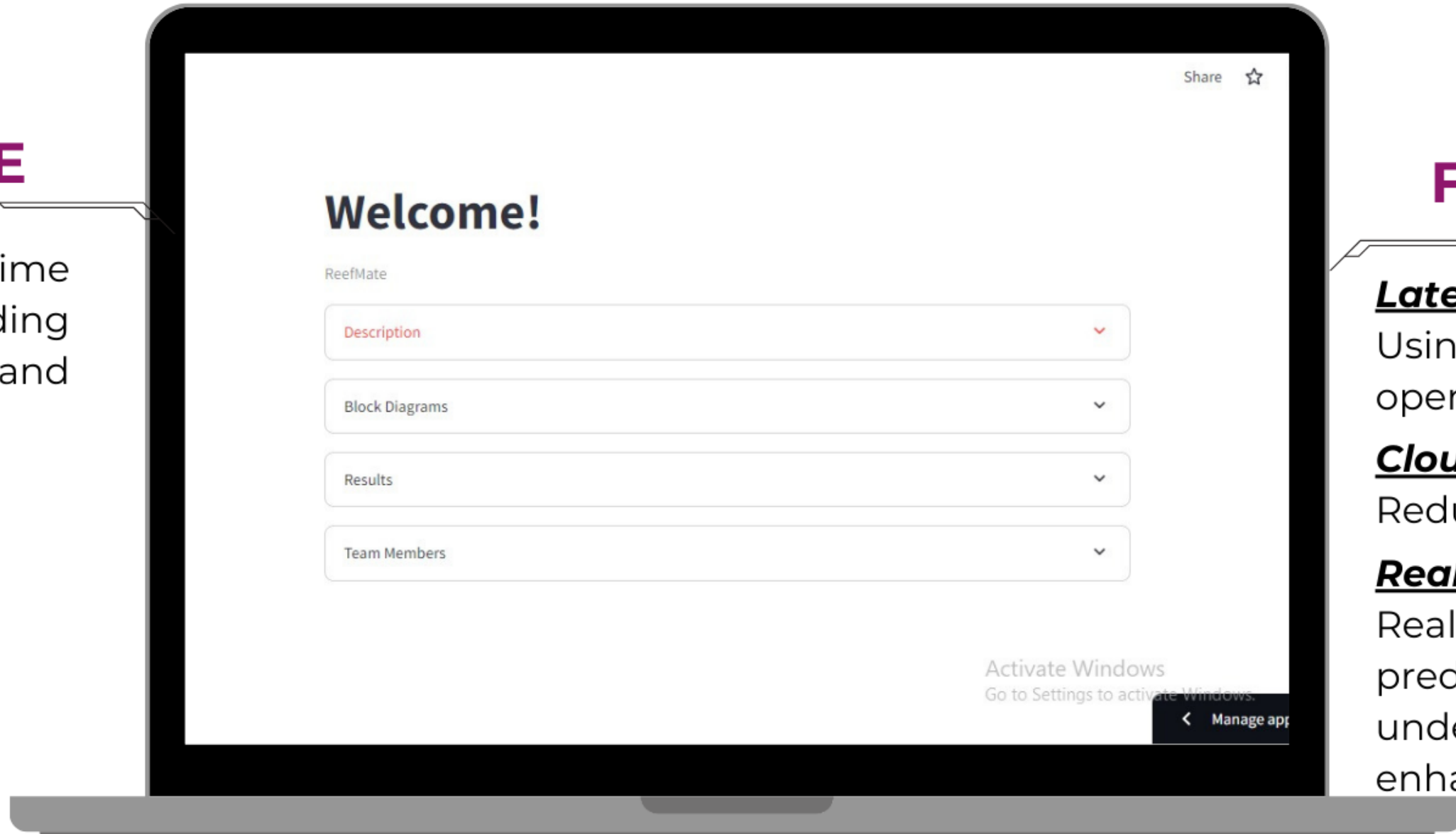
- **Inadequate Real-time Insights**
- **Precision Deficiency**
- **Resource-Intensive Monitoring**
- **Conservation Lag**



# OUR PRODUCT

## THE FUTURE

AI-powered real-time solution providing quicker, accurate, and scalable results.



## FEATURES

### **Latest Gen-AI models**

Using the power of open source models

### **Cloud Support**

Reduced overhead costs

### **Realtime prediction**

Realtime health prediction of coral and underwater image enhancement



# OUR PRODUCT

**ITS AN web application, designed to address two pivotal challenges in marine conservation:**

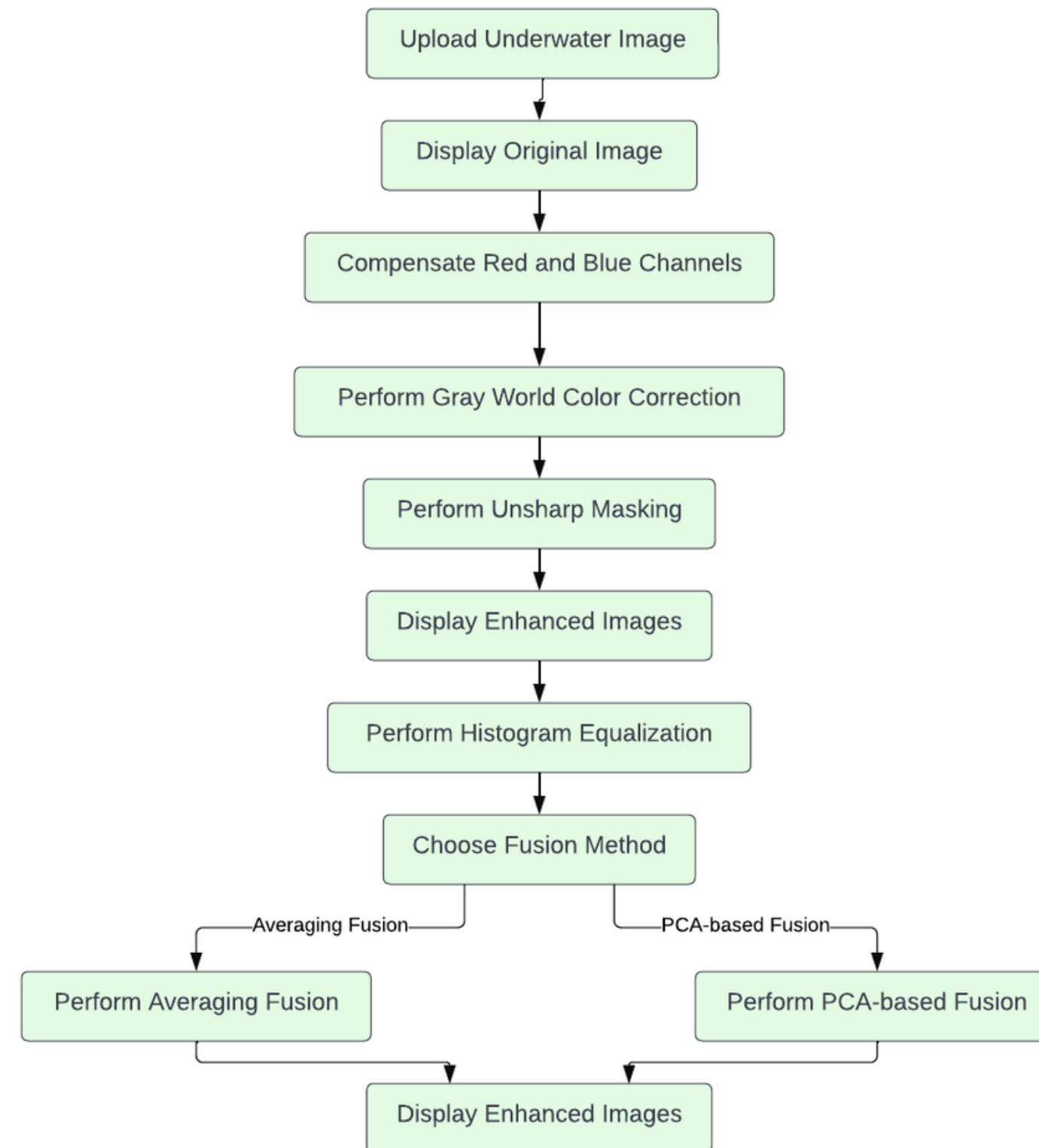
- a. Image Enhancement: Seamlessly rectify underwater blurry images, providing unparalleled clarity for enhanced visual analysis.**
- b. Coral Reef Classification & Analysis: Deploy cutting-edge machine learning models to classify coral reefs and deliver detailed insights into their health conditions, empowering informed conservation decisions  
In a commitment to advancing marine preservation .**

# CORAL REEF CLASSIFICATION & ANALYSIS

- **ML System Components:**
  - **Image Classifier: Resnet**
  - **Vision-Language Model: ChatGPT-4 Vision**
- **Workflow:**
  - **Resnet for image classification.**
  - **chatGPT-4 Vision for vision-language tasks.**
- **Integration:**
  - **Combine Resnet and ChatGPT-4 Vision outputs for comprehensive analysis.**
- **Goal:**
  - **Accurate coral reef classification and detailed analysis using a dual-model approach.**

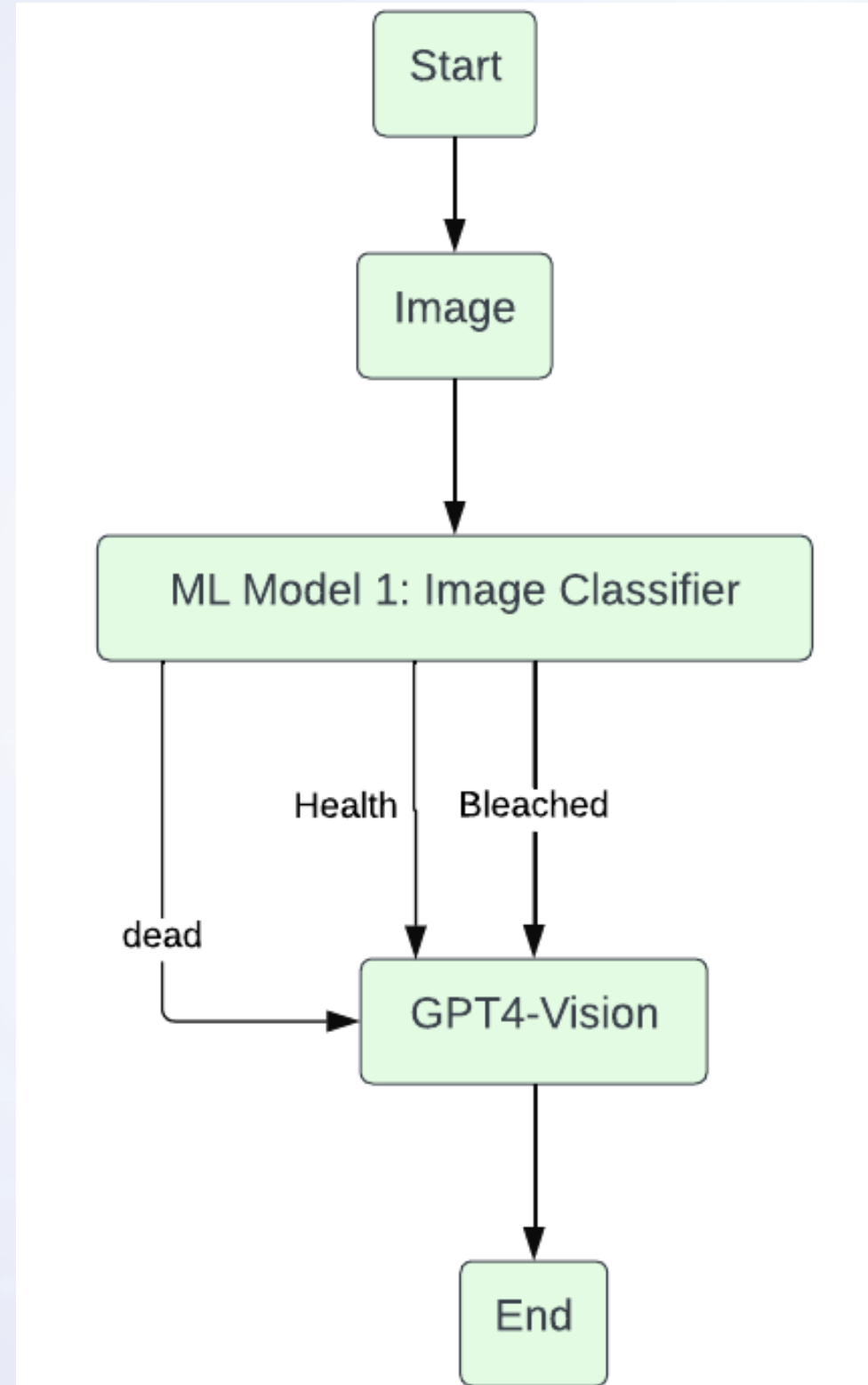


# IMAGE ENHANCEMENT WORKFLOW





# CORAL HEALTH PREDICTION





# COMMERCIAL USE CASE



Conservation purposes which include monitoring health condition of coral reefs, notifying local authorities to take action and preserve coral reefs by making guidelines and policies to ensure they remain preserved and healthy.

**THANKS**