Problem Statement 12: Intelligent AI System for Pest and Disease Risk Assessment

The Challenge

Pest and disease outbreaks can rapidly impact crop yield if not identified early. Traditional monitoring methods rely on visual inspections and historical experience, which may not capture early risk conditions driven by weather and environmental changes. There is a need for an intelligent system that can analyze environmental and crop data to assess pest and disease risk proactively.

Environmental & Crop Data Analysis Agent

An agent that processes temperature, humidity, rainfall, crop type, and seasonal data into risk assessment summaries.

Pest & Disease Risk Detection Agent

An agent that identifies favorable conditions for pest and disease development using historical patterns and agronomic thresholds.

Risk Alert & Preventive Advisory Assistant

An agent that generates risk alerts and preventive care insights
(assistive only, non-chemical recommendation).

Outcome

Improves early awareness of pest and disease risks, reducing crop loss, and unnecessary interventions.

Mandatory Tech Stack

Lang Flow using IBM Granite Model
(Using RAG on integrated pest management (IPM) guidelines and agricultural extension resources.