AI-POWERED CROP DISEASE DETECTION AND SOLUTION SYSTEM TO EMPOWER RURAL ENTREPRENEURS WITH LIMITED EDUCATION

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in **Computing and Information System**

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APPROVAL

This Project titled "**AI crop Disease Detection**", Submitted by **Abdur Rahman** ID No: **202-16-537** to the Department of Computing and Information Systems, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information Systems and approved as to its style and contents. The presentation has been held on 31-05-2025.

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Declaration

I hereby declare that; this project has been done by me under supervision of **ISRAFIL, Lecturer**, department of Computing and Information System (CIS) of Daffodil International University. I am also declaring that this project or any part of there has never been submitted anywhere else for the award of any educational degree like, B.Sc., M.Sc., Diploma or other qualifications.

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ABSTRACT

The whole outcomes of my proposal, " **AI-POWERED CROP DISEASE DETECTION AND SOLUTION SYSTEM TO EMPOWER RURAL ENTREPRENEURS WITH LIMITED EDUCATION**", may be seen here. This essay goes into great detail about how the idea was transformed into a working website. The user dashboard is one element that system users notice. The project's objective was to develop a web application with image classification and GPT OpenAI integration for Fast API, AI-powered crop disease detection and assistance. intends to create a web application that uses picture recognition to classify agricultural diseases. Users will be able to snap a picture, submit it, and use the app to identify illnesses. An GPT OpenAI integration will also be incorporated to respond to user inquiries and offer answers about ailments that have been identified. An alternative is to establish specified wording for illness information and prevention. There is also an online version that requires uploading images before processing. The goal of this research is to create a picture web categorization system for crop disease identification. Users may take pictures of afflicted crops or submit them, and the system will accurately identify the illnesses. Four crops, each with three to four illnesses, will be supported by the system for categorization. An integrated Fast API GPT OpenAI integration will also give answers to user questions, solutions, or predetermined data on the specifics of the illness, prevention, and therapy. There will also be an online version that requires image submissions in order to diagnose diseases. This system gives farmers immediate, AI-driven information to improve agricultural decision-making. Every aspect of the system development process, from idea to execution, is covered in the research, including the technologies used, architecture, and user interface design. Python was used for the backend and Frontend use stream lit. All you need is a standard desktop computer and internet access to set up our system application; expensive software or computer components are not required.

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CHAPTER 1

Introduction

1.1 Introduction

Applications that show the relationships and interactions between many programs are called systems. The "System" page on computers includes tools for system administration, programming connections, and applications. The principle is basically the same, even if the word "system" may mean different things depending on the situation. The " **AI-POWERED CROP DISEASE DETECTION AND SOLUTION SYSTEM TO EMPOWER RURAL ENTREPRENEURS WITH LIMITED EDUCATION** " combines a number of technologies to produce a thorough foundation. Each system under examination has restrictions imposed by the many elements that comprise this framework. Every module has several systems. The goal of this project is to create a mobile application using AI that uses picture classification to identify crop diseases. Users may take pictures of afflicted crops or submit them, and the system will accurately identify the illnesses. Four crops with three to four illnesses each will be supported by the system.

Agricultural diseases impact crop output, quality, and farmer income, posing a serious threat to global food security. Due to restricted access to agricultural specialists and appropriate diagnostic techniques, many small- and large-scale farmers have difficulty recognizing plant diseases early. Conventional approaches, which always called depend on visual examination of the following crop disease detection that can be expensive, time-consuming for those system, and unsuitable for making decisions in real time. AI-based solutions are used for classified the crop disease using web apps to the classes of data becoming a potent instrument to effectively and precisely identify agricultural diseases in order to close this gap. In order to detect illnesses in four key crops, used for classified the crop disease using web apps to the classes of data at this study presents a web application that picture categorization. Users have the option to submit pre-existing photos for used for classified the crop disease using web apps to the classes to accurate. An AI model that has been trained to analyze the photos is used for classified the crop disease using web apps to the classes of data by the system to identify the condition and offer pertinent details about its symptoms. The app will have an integrated Fast

API GPT Open AI used for classified the crop disease using web apps to the classes of data like ask questions regarding illnesses found, remedies, and best agricultural methods in addition to automatic disease detection. Because this GPT Open AI integration can offer personalized answers in response to user inquiries AI used for classified the crop disease using web apps to the classes of data. As an alternative, pre-programmed used the crop images to classify the exact class of data preventative measures, and therapeutic approaches, guaranteeing that users get trustworthy and organized direction. In addition, a web-based version of the system AI used for classified the crop disease using web apps to the classes of data allowing people to submit photos for illness categorization. By giving farmers immediate, AI used for classified the crop disease using web apps to the classes of data this technology improves precision agriculture. In addition to increasing the accuracy of crop disease diagnosis, AI used for classified the crop disease using web apps also AI and GPT Open AI integration technology will help farmers make well-informed decisions regarding crop protection and disease prevention, which that will eventually may data will be increase agricultural output and sustainability.

CHAPTER 2

Initial Study

2.1 Project Proposal

Objectives

The goal of this research is to AI used for classified the crop disease using web apps to the classes of data. Users may take pictures of afflicted crops or submit them, and the ill images of crops should be classified and Four crops with three to four illnesses AI used for classified the crop disease using web apps to the classes of data. An integrated Fast API GPT AI used for classified the crop disease using web apps to the classes of data with ass classes ask user questions, solutions, or predetermined data on the specifics of the illness. There will also be an online version that requires data which used for classified the crop disease using web apps to the classes of data in order to diagnose diseases.

- Create a web apps images classified system which AI used for classified the crop disease using some classes of data.
- For the classification of crop disease using 4 classes of data for classify using through AI web apps.
- GPT OpenAI integration to AI used for classified the crop disease using web apps.
- Make a web-based version which should be used mostly of AI-driven procedure and allows users to input photos for illness screening.
- Reduce reliance on the crops classes for disease detection by improving usefulness and accessibility using the data for farmers.
- Using a various types of classified system to improve results.

Benefits of the system:

- Create AI system that is used for classified the crop disease using web apps to the classes of data driven by AI.

- Make a web-based system for 4 classes of various crops images has been classify by driven of AI.

2.2 Background of the Project

Global food security is greatly impacted by agricultural diseases, which result AI used for classified the crop disease using web apps to the classes of data productivity and quality (Oerke, 2006). Many farmers, particularly those in rural regions, cannot afford or use traditional disease diagnostic techniques AI used for classified the crop disease using web apps to the classes of data, and need specialized expertise (Bock et al., 2010). Recent developments in deep learning and artificial intelligence (AI) have brought forth novel approaches to automated plant disease detection AI used for classified the crop disease using web apps to the classes of data, increasing early diagnostic efficiency and accuracy (Mohanty, Hughes, & Salathé, 2016). A scalable and useful that should be usable for detect crops for disease diagnosis, Convolutional Neural Networks (CNNs). The goal of this project is to create a web-based and mobile application AI used for classified the crop disease using web apps to the classes of data in order to diagnose illness. In addition to providing pertinent information on symptoms, causes, and treatments, AI used for classified the crop disease using web apps to the classes of data which has three to four frequent diseases. Additionally, using a Large Language Model (LLM) would improve accessibility to agricultural AI used for classified the crop disease using web apps to the classes that should followed by disease management (Brown et al., 2020). Alternatively, to guarantee consistent and trustworthy information, AI used for classified the crop disease using web apps to the classes of data actions might be supplied. This project aims to reduce crop losses and promote sustainable agricultural AI used for classified the crop disease using web apps to the classes of data practices by providing farmers with immediate and accurate disease (Kamilaris & Prenafeta-Boldú, 2018). By bridging the technological and agricultural divide, this AI used for classified the crop disease using web apps to the classes of data and manage their crops more effectively without depending that all entirely on conventional diagnostic techniques.

2.3 Problem Area

Crop diseases have a major influence on agricultural production, all system for prediction the disease crops for good agriculture. Conventional illness detection system techniques rely on manual examination, AI used for classified the crop disease using web apps, and contingent on the availability of experts. It might be difficult for some well followed farmer that to get prompt disease diagnosis and all system for disease detect especially in distant places. Ineffective illness management is also influenced by environmental variables, differences in various types of disease symptoms according to following dataset would follow, and ignorance. Although AI used for classified the crop disease using web apps to the classes by technical improvements, many of the current solutions still have drawbacks, including the requirement for sizable that need to be labeled datasets, reliance on the internet, and challenges in adapting those various models to various agricultural situations. An integrated AI-based solution AI used for classified the crop disease using web apps to the classes of data that need to improve crop disease detection's accessibility and efficiency in order to overcome for all these obstacles.

2.4 Possible Solution

- AI-Based Image Classification: To reliably identify crop diseases from photos, use models like GPT 4o-mini.
- Web-Based Platform: Assure accessibility for people without mobile access by offering a web interface where users may upload photographs for illness screening.
- Integration of Open AI: Make it possible for an Fast API GPT OpenAI integration to respond to user inquiries about diseases that have been identified, ways to prevent them, and available treatments.
- Multi-Crop and Multi-Disease Support: To ensure wide application, train the model to categorize illnesses across four key crops, each of which has three to four common diseases.
- Offline Functionality: By integrating a lightweight AI model, you may provide illness detection without an online connection.

CHAPTER 3

Literature Review

3.1 Discussion on problem domain based on published articles

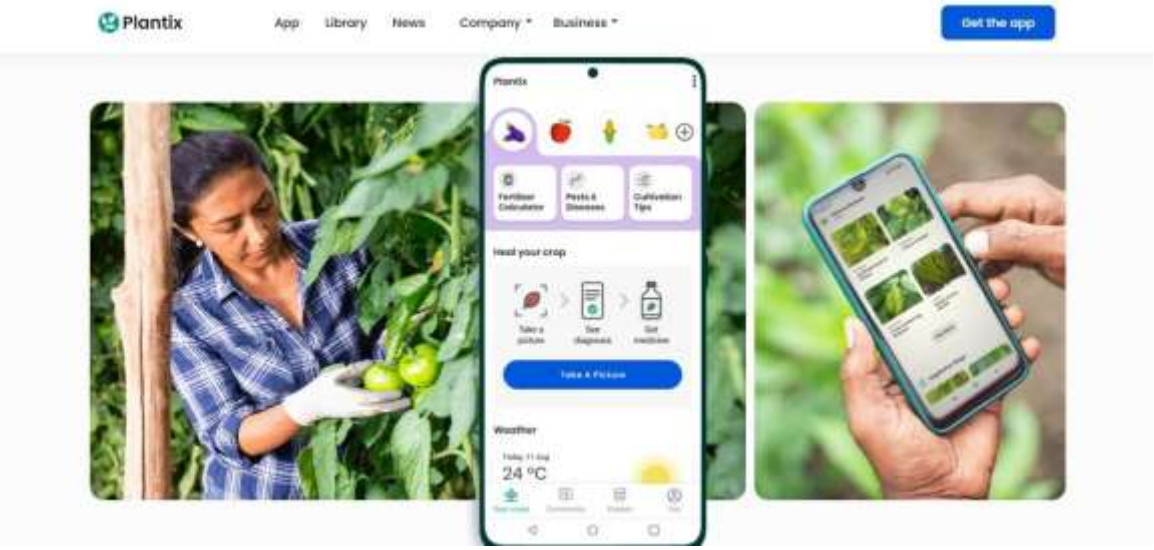
Crop diseases have a major negative influence on agricultural output, resulting in financial losses and food poverty (Oerke, 2006). Inspections by hand and laboratory testing are two examples of traditional disease detection techniques that are sometimes slow, expensive, and unavailable to many farmers (Bock et al., 2010). Plant disease identification has been transformed by AI used for classified the crop disease using web apps to the classes of data, with Convolutional Neural Networks (CNNs) demonstrating great accuracy in imagebased classification (Mohanty, Hughes, & Salathé, 2016). Furthermore, by offering prompt responses to questions about diseases, AI used for classified the crop disease using web apps to the classes (Bock et al., 2010). Nonetheless, issues including accessibility, model generalization, and following accurate dataset quality still exist (Ramcharan et al., 2017). By using AI used for classified the crop disease using web apps to the classes of data that help farmers may be better equipped with early system to disease detection and crop disease preventive techniques, enhancing the sustainability and general health of their crops.

3.2 Discussion on problem solutions based on published articles

By using deep learning for picture categorization and decision support systems, AI used for classified the crop disease using web apps to the classes of data of plant disease detection difficulties. Plant diseases may now be accurately AI used for classified the crop disease using to the classes of data that which eliminates the need for human inspection (Ferentinos, 2018). Additionally, by providing farmers with immediate, AI used for classified the crop disease using mobile or web apps to the classes which incorporating Large Language Models (LLMs) can be crop disease for improve decision-making (Brown et al., 2020). For wider deployment, it is still for data model that need generalization in a variety of environmental circumstances and optimize AI used for classified the crop disease using web apps to the classes of data of application that integrates intelligent query support with image-based illness 4 crops of classification may greatly increase agricultural output, support sustainable all need farming methods, and improve treatment success.

3.3 Leading solution comparison

1. **Plantix(Mobile Application):**



Benefits

- Using image classification to identify diseases in real time.
- Offers guidance and remedies for crop-specific disease control.
- It is a flexible option that farmers in remote places can access.
- Provides a forum for farmers to exchange ideas and experiences.

2. **Plant Village:**

Benefits:

- Platform for cloud-based illness diagnosis that is always becoming better thanks to user input.

- Provide guidance on illness prevention and detection in real time.
- Provides mobile and online interfaces, making it more accessible.

3. **AgroAI (Mobile apps):**

Benefits:

- Using deep learning to identify plant illnesses in photos.
- Aids in crop management and pest control by offering advice and insights.
- Uses AI algorithms that become better with time and more data.

3.4 Recommended Approach

Table 1: Modules descriptions

Actuators	Functions
User	• Upload crop images. • Develop a model to detect disease crops. • Shows detected diseases crops details like: Diseases details, Solutions etc.

CHAPTER 4

Methodology

4.1 What to Use

This project aims to develop an AI-powered system that detects agricultural illnesses using image classification. The algorithm will correctly detect the diseases if users upload or take photos of the affected crops. The software will support four crops, each with three to four diseases. Answers to user queries, solutions, or preset information on the particulars of the disease, prevention, and treatment will also be provided by an integrated Fast API GPT OpenAI interface. Additionally, there will be an online version that diagnoses illnesses by requiring image inputs. This solution helps farmers make better agricultural decisions by providing them with real-time, AI-driven information. Python is being used as the project's back end. It is accepted that the SDLC life cycle paradigm, a comprehensive framework for development, design, etc., is the right strategy. There are several sorts of SDLC models that I am aware with. The Big Bang, the Spiral, waterfall, Agile, Iterative, and Adaptive System Construction models are examples of software development paradigms. Each model provides a structure to help guide the development and use of the vehicle component platform. The particular needs of the SDLC model will tailor the veterinarian development domain in order to establish an efficient development process that is in line with the objectives of this project's object detection from disease crop images.

4.2 Why to use

The system architecture needs to be the first thing that is developed. This included determining the elements and their interactions. Priority one in the system network design was given to security, dependability, and scalability. This required isolating the user interface of the product from its database management and back-end features. Additionally, the architecture was designed with security safeguards to guarantee safe transactions and safeguard computer data. Every software project must follow the agile methodology. Agile techniques are defined by a number of terms that I am aware with, including Kanban, feature-driven development, scrum, quartz, and flexible system development approach. Nevertheless, by using the DSDM technique, I was able to accomplish my goal.

The DSDM approach has several advantages. Iterative development employs the dynamic system design method, which permits flexibility in changing needs. This approach works well when prompt delivery is necessary. There are several benefits to using an AI-powered agricultural disease detection system, such as reduced expenses, increased precision, early item identification, and data-driven insights.

4.3 Section of methodology

To determine how to assess the data utilized in this investigation, a variety of techniques or approaches might be applied. This study employed a multi-phase methodology that included creating the model, refining and expanding it, gathering data, and generating it.

Pre-Project Phase:

- **Feasibility Study**: This stage entails assessing the infrastructural, financial, and functional viability of the project proposal. It entails balancing the project's possible expenses, advantages, and risks.
- **Conditions Gathering**: The prerequisites for the program have now been gathered and recorded. Determining the project's scope requires an understanding of the client's preferences, limitations, and business requirements.
- **Planning:** Planning comprises developing a strategic plan that details the project's goals, schedule, necessary supplies, and deliverables. Crucial steps include defining roles and duties, determining the project's stakeholders, and developing a partnership and risk management plan.

Project Lifecycle Phase:

- **Data Collection**: Using Kaggle, I gathered and examined online statistical data to produce a reliable collection of my own. Pictures of many types of disease crops The dataset used in this study consisted of four to five crops from various sources. Each image has bounding boxes around several types of crops which determine diseases crops.

- **Preparing the data**: After being gathered in its data Errors can occur in many data sets, particularly when noise is included. Technically speaking, after processing the information, I go on to the next stage using the selected data set.
- **Data Preprocessing:** As each class was evaluated, the results grew and became more focused. I had to alter the size and add information in order for it to work. I made just the biggest and most appropriate adjustments since I was worried about overfitting.
- **Model Selection:** After selecting a model, train and assess it using the available data to increase accuracy. I have utilized the GPT 4o-mini model. Using my technology, I assessed several iterations of the concept to determine the optimal configuration for precise data calculation.
- **Evaluation of Performance:** Each of the results is explained in this section. I am show to easily recognize disease detection from various disease crops.
- **Design:** In this step, the software design is created using the obtained requirements. Among the many complex and high-level design tasks it entails are database, architectural, and user interface design.
- **Development:** The software is programmed at this stage using the design specifications as a reference. The developer need to create the system or code that need to disease detection and puts components together to create a working software product.
- **Testing:** This procedure seeks to ensure that the software is both high-quality and functional by putting it through its paces. It encompasses a bid range of testing that tested all valid or invalid unit, and user validity testing.
- **Deployment**: The program is put into operation after approval and a rigorous testing procedure. The right deploy need to be used to data for the installation, configuration, and setup of the software.

Post-Project Phase:

- **Maintenance**: After deployment, the program enters the maintenance phase. This phase includes all types of information that need to ensure the web application continues of details to work and adjust to changing needs.

- **Evaluation:** The effectiveness of the project may be AI used for classified the crop disease using web apps to the classes of data used and It helps identify what should be altered and what can be learned for initiatives in the future.
- **Closure**: This marks the formal end of the project. It include about the perfect things to closure and finishing the project's documentation report and conducting an assessment.

From early planning to post-deployment support, these components provide a managing details of various software development need to be projects and help achieve such as successful outcomes.

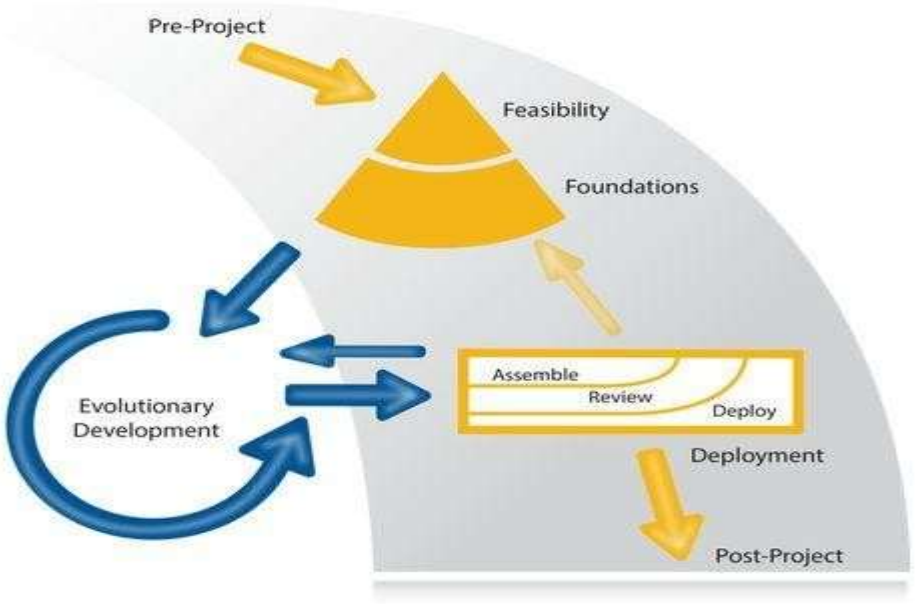


Fig 1: DSDM phase

4.4 Implementations plans

The completed web application is now openly used for the implementation system need at this stage of the project. The new system has to be should be affected that has been found and all the data implementation resolved. The settings, protocols, and release requirements are chosen in this section. If all goes according to plan, the improved system is then tested and placed into service. To ensure accuracy, the data gathering procedure must be finished

after all other processes have been finished. I broke the task down into its most crucial parts to make it easier to complete. To guarantee that my work is done correctly, I have to follow these rules.

- Collections of datasets.
- Actions taken before image processing • Class image forecasting for each crop class.
- The GPT 4-mini model is used.
- Use online applications to identify agricultural diseases.
- Evaluate the outcomes and accuracy.

CHAPTER 5

Planning

5.1 Project Plan

Using tools like Kaggle, I made all of my datasets publicly available. I selected a dataset that seemed to make sense for the different photographs. I could then start working on preparing the data. I started playing around with the code before implementing the idea. A collection of basic principles has been established after a careful analysis of all relevant mathematical and philosophical ideas and techniques. Every project has to have its potential, budget, schedule, risk management, and interaction server protocols established before it is created. Every project has to have its potential, budget, schedule, risk management, and interaction server protocols established before it is created. Planning is essential before beginning a project in order to minimize risks that might compromise the developer's capacity to finish it. Setting goals and objectives, controlling risks, meeting deadlines, and other tasks are all part of project planning. Software project schedules commonly use time boxes, which are an essential tool for project planning.

5.1.1 Management plan

Explain the project management process and the roles and responsibilities of the project team. Establish the channels of communication and reporting to ensure a successful collaboration. Establish the decision-making and escalation stages of the problem-solving process.

Table 2: Management Planning

No	Task Name	Duration	Start Date	End Date
1	Introduction	5	01/01/2025	05/01/2025
2	Initial Study	4	06/01/2025	09/01/2025
3	Literature Review	4	10/01/2025	14/01/2025
4	Methodology	3	15/01/2025	18/01/2025
5	Planning	10	19/01/2025	29/01/2025

6	Feasibility	15	30/01/2025	13/02/2025
7	Foundation	5	14/02/2025	19/02/2025
8	Exploration	14	20/02/2025	06/03/2025
9	Engineering	30	07/03/2025	07/04/2025
10	Deployment	18	08/04/2025	26/04/2025
11	Testing	10	27/04/2025	07/05/2025
12	Implementation	5	08/05/2025	13/05/2025
13	Critical Appraisal and Evaluation	4	14/05/2025	18/05/2025
14	Lessons Learning	3	19/05/2025	22/05/2025
15	Conclusion	1	23/05/2025	24/05/2025
	Total	131 days		

5.1.2 Resource Allocation

List every resource needed for the project, including personnel, equipment, and software. Choose the most effective way to distribute the resources based on the project timeline and workload. Assign team members tasks and responsibilities while ensuring they have the necessary skills and expertise.

Table 3: Resource Allocation

No	Task Name	Duration	Resource
1	Introduction	5	End User
2	Initial Study	4	Analyst
3	Literature Review	4	Analyst
4	Methodology	3	Analyst
5	Planning	10	Analyst, Designer, Developer

6	Feasibility	15	Analyst
7	Foundation	5	Designer
8	Exploration	14	Designer , Developer
9	Engineering	30	Developer
10	Deployment	18	Analyst, Developer
11	Testing	10	Analyst, Developer, Tester, Users
12	Implementation	5	Analyst, Developer
13	Critical Appraisal and Evaluation	4	Analyst, Tester and Developer
14	Lessons Learning	3	Analyst, Users
15	Conclusion	1	Analyst
	Total	131 days	

5.1.3 Time Boxing

Break the project up into many time periods or iterations to facilitate development and testing. Establish the tasks and outputs needed for each iteration, as well as the length of each time box. Create clear goals and provide resources for each time box.

Table 4: Time Boxing

Time -Box	Task Name	Duration	Resource
TB1	Introduction	5	End Users, Analyst
	Initial Study	4	Analyst
	Literature Review	4	Analyst

TB2	Methodology	3	Analyst
	Planning	10	Analyst, Designer, Developer
	Feasibility	15	Analyst
TB3	Foundation	5	Designer
TB4	Exploration	14	Designer, Developer
	Engineering	30	Developer
TB5	Deployment	18	Analyst, Developer
	Testing	10	Analyst, Developer, Tester, Users
TB6	Implementation	5	Analyst, Developer
TB7	Critical Appraisal and Evaluation	4	Analyst, Tester and Developer
	Lessons Learning	3	Analyst, Users
TB8	Conclusion	1	Analyst
	Total	131 days	

CHAPTER 6

Feasibility

6.1 All possible types of feasibility

6.1.1 Operational feasibility

The potential that all relevant factors, including engineering, planning, legal, and financial issues, will be taken into account to guarantee a project's successful completion is evaluated by a feasibility study. Operational practicability is the extent to which a system develops, makes use of the scope established during opportunity definition, and meets the requirements outlined during the project or need analysis stage of the development process. The core of the proposed approach is a device that recognizes moving cars based on images.

6.1.2 Technical feasibility

Hardware	Software
Dell Laptop, Wi-Fi, Router, Cable, Android Phone	Android Studio, Google Chrome Browser, Windows, MS Word, VS code

6.1.3 Technology

Backend	**Frontend**	**Models**
Python (Fast API)	Stream lit	GPT 4o-mini

6.2 Cost Benefit Analysis

Using the cost-benefit analysis approach, project managers examine the benefits and drawbacks of several project routes, including interactions, activities, business demands, and investments. Out of all the options available, a cost-benefit analysis assists me in selecting the best course of action to accomplish my objective at the lowest feasible cost.

Project Name: AI-POWERED CROP DISEASE DETECTION AND SOLUTION SYSTEM TO EMPOWER RURAL ENTREPRENEURS WITH LIMITED EDUCATION

Table 5: Cost Benefit

Equipment	1st Year	2nd Year	3rd Year	4th Year	Total
Data Collection	20000				20000
Data preprocessing		10000	10000	10000	30000
Software	1000				1000
Internet	2000	2000	2000	2000	8000
Model Training	5000				5000
Development		5000			5000
Maintenance	10000	10000	10000	10000	4000
Total					73,000 BDT.

6.3 DSDM Dynamic System Development Method (DSDM)

Instead of being a specific application development technique or technology, DSDM stands for Dynamic Systems Development Method, which is a managerial structure for agile project and software development management. Regular software delivery, collaboration between development teams and business stakeholders, and the application of iterative development techniques are all heavily emphasized. It's important to keep in mind that some technologies, like Python, must be used in order to use DSDM.

CHAPTER 7

Foundation

7.1 Some potential approaches

7.1.1 Interview

Agronomists, farmers, and agricultural professionals were interviewed to learn more about the difficulties farmers have in detecting crop diseases. Farmers emphasized that a lack of professional access and expertise makes it difficult to spot infections early. In order to close this gap, experts stressed the significance of AI-based solutions that offer real-time detection and treatment suggestions. Due to their convenience and immediate results, web applications for disease detection have piqued the interest of many farmers. A useful element that enables users to get advice on illness prevention and treatment is the incorporation of an AI-powered inquiry engine. All things considered, the interviews reaffirmed the necessity of an AI powered, easily accessible solution to improve agricultural disease control.

7.1.2 Observation

Due to restricted access to professional guidance and diagnostic instruments, farmers frequently struggle to diagnose crop diseases early. Treatment delays may result from the fact that many rely on eye assessment or local expertise. Observations indicate that by using picture analysis to diagnose illnesses, AI-based web applications offer a quicker and more dependable substitute. Additionally, farmers like technologies that provide treatment advice and function offline in places with inadequate connectivity. These revelations highlight the necessity of an AI-powered, easily accessible illness detection system that offers real-time assistance.

7.1.3 Data Collection

In all, I have collected (**100**) photos. Pictures of many types of disease crops the dataset used in this study consisted of four to five crops from various sources. Each image has bounding boxes around several types of crops which determine diseases crop

- Number of images:
- Classes:

7.1.4 Data Processing

To encourage diversity in the collection, preprocessing techniques include resizing images, leveling pixel values, and improving data through rotation, flipping, and scaling.

- Images with predetermined sizes depending on code.
- The file types will undergo a JPG conversion.
- Eliminate any erroneous images.
- Superfluous photos were removed.

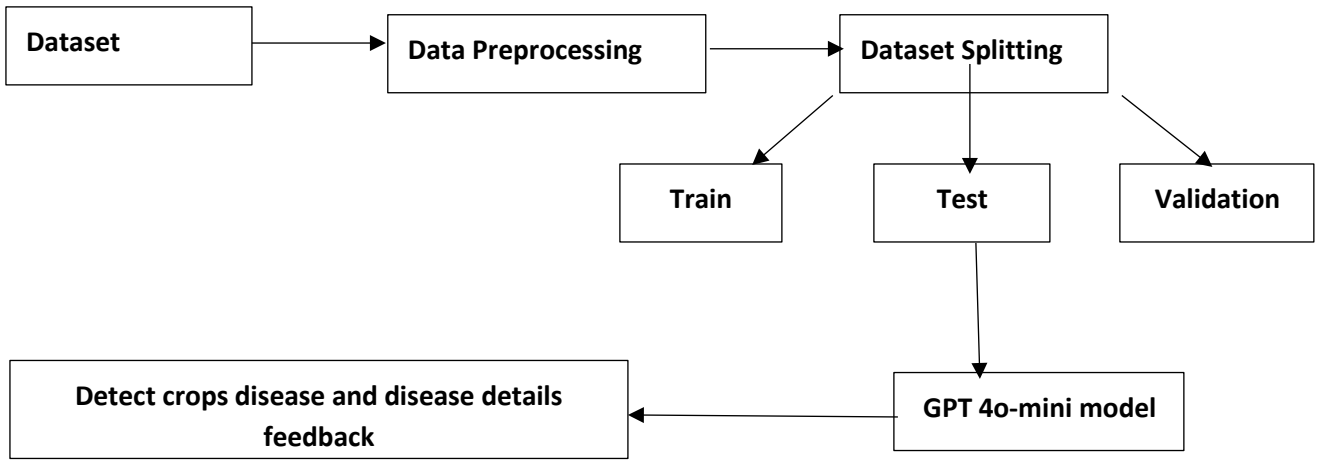


Fig 3: The recommended model for the whole research project.

7.2 Specific problem are identification and description

One of the major challenges in agriculture is the early and accurate identification of crop diseases, which directly affects yield and food security. Farmers often lack access to expert consultation, leading to delayed or incorrect diagnoses. Traditional methods of disease detection are time-consuming and prone to errors, especially in rural areas with limited resources. Additionally, variations in environmental conditions and disease symptoms make manual identification even more difficult. Existing AI-based solutions often require stable internet access, making them less effective for farmers in remote locations. To address these issues, an AI used for classified the crop disease functionality that using web apps to the classes of data and an integrated query system can provide real-time disease detection, need to be treatment recommendations, and improved accessibility for farmers.

7.3 Possible solution

The difficulties of crop disease identification can be successfully handled by a AI used for classified the crop disease using web apps. The application can quickly diagnose illnesses from photos by using various types of plant or crops images for detection. An offline mode can be added to improve AI used for classified the crop disease using web apps isolated locations with inadequate internet connectivity. Furthermore, all the real-time responses on illness symptoms, therapies, that should be preventative measures may be obtained using an integration of AI using GPT. The software can keep specified disease dataset of crops that for users without internet connection. With the help of this all-inclusive solution, farmers will be able to identify illnesses early, get professional advice, and act quickly to save their crops.

7.4 Overall Requirement List

- Functional Requirements
- Non-Functional Requirements.

7.4.1 Functional Requirements

7.4.1.1 User

- Develop a model to detect disease crops & details.

7.4.2 Non-Functional Requirements

7.4.2.1 Performance

Performance has been good because a need to use chat gpt 4.0 for the disease crops detect sick crops with good accuracy.

7.4.2.2 Availability

To use the system at various of time and from any location, many users have to need a PC with an online connection. The system is compatible with a web application system, such as chrome, Mozilla etc.

7.4.2.3 User Friendly

The technology using a very UI interface for data integrity and that is easy to use.

- Use a labeled dataset of agricultural diseases for training and validation.
- To identify diseased crops, apply the GPT 4o-mini model.
- Test the model using unobserved data to evaluate its performance.

7.5 Which technology to be implemented

The program I'm working that as web apps for disease detection system on is entirely web based.

Python: A well-liked high-level, interpreted technology languages of system that is simple to learn and comprehend, Python is a fantastic needed to as an inexperienced and seasoned developers. It supports a number of systems of program that expected most good result of model including imperative, functional, and object-oriented programming. Python is widely used in a big sector function, such as web development, data research, scientific computing, automation, machine learning. Developers may successfully finish difficult tasks with the aid system of program that expected most good result of model library and third-party packages like NumPy, Pandas, and TensorFlow. Python is one of the most popular and all an accessible today due to its system of program that expected most good result of model and cross-platform compatibility.

Stream Lit: An system of python like Python framework called Streamlit makes it easy to create data-driven, interactive all create websites with no code. It is frequently used to implement AI-powered tools, system of program that expected most good result of model machine learning models. With just a few lines of code, system of program that expected most good result of model thanks to its straightforward syntax. Streamlit is perfect for applications like crop disease diagnosis, where users also usable system of program that expected most good result of can input photographs and get immediate AI-based findings, because it allows real-time updates.

GPT 4o-mini: A more compact and effective variant of system of program that expected most good result of model OpenAI' s GPT-4 model, GPT-4o Mini is intended to operate more quickly and system model with less computing power. While being tailored for

realtime applications, it maintains GPT-4's method system of program that expected most good result of model language creation and interpretation capabilities. This makes it perfect for chat bots with all data system for assistants driven by AI, and web also mobile apps that need to react quickly reaction need to intelligently. GPT-4o Mini's capacity to handle intricate queries will improve system of program that expected most good result of model including applications for detecting agricultural diseases like all disease crops ask able suggestions and effectively responding to user inquiries.

A studied subject is an area of system of program that expected most good result of model and assessed to clarify ideas for developing models, setting and all data gathering information, managing, teaching, and improving performance. I go over my measuring equipment and procedures.

7.6 Recommendation and justifications

It is advised to use a web application with picture classification and an integrated query system to successfully handle the difficulties associated with crop disease diagnosis. Farmers may obtain immediate AI-based diagnostics by swiftly taking and analyzing photos of impacted crops thanks to mobile accessibility. By offering real-time responses to questions about diseases, integrating GPT open AI will improve the user experience. The software will also be accessible in remote locations with spotty internet connectivity if offline capability is included. This solution is justified because it empowers farmers with precise, fast, and easily accessible disease diagnosis and preventive recommendations by fusing cutting-edge AI capabilities with useful usability.

CHAPTER 8

Exploration

8.1 Use case

In this section, use-case data and photographs are used to examine both functional and nonfunctional demands.

User:

Following their system, the user can carry out the following tasks:

- Upload crop images.
- Develop a model to detect disease crops.
- Shows detected diseases crops details like: Diseases details, Solutions etc.

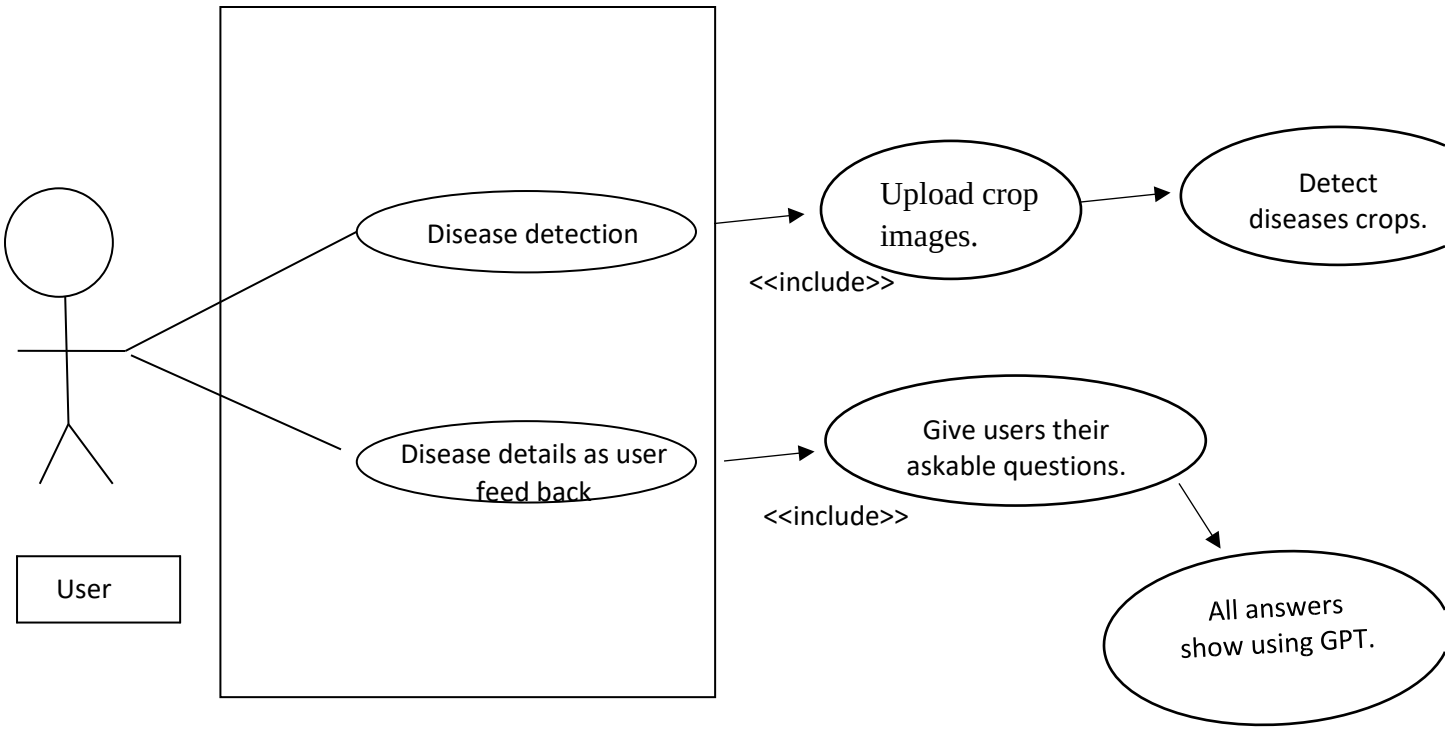


Fig 4: Use case Diagram

8.2 Activity diagram

Describe the dynamic aspects of the system. It looks like a flow chart that shows how different tasks are connected to one another. You might use the exercise to describe how the system works. Consequently, all operations share control. Each module's whole activity diagram looks like this:

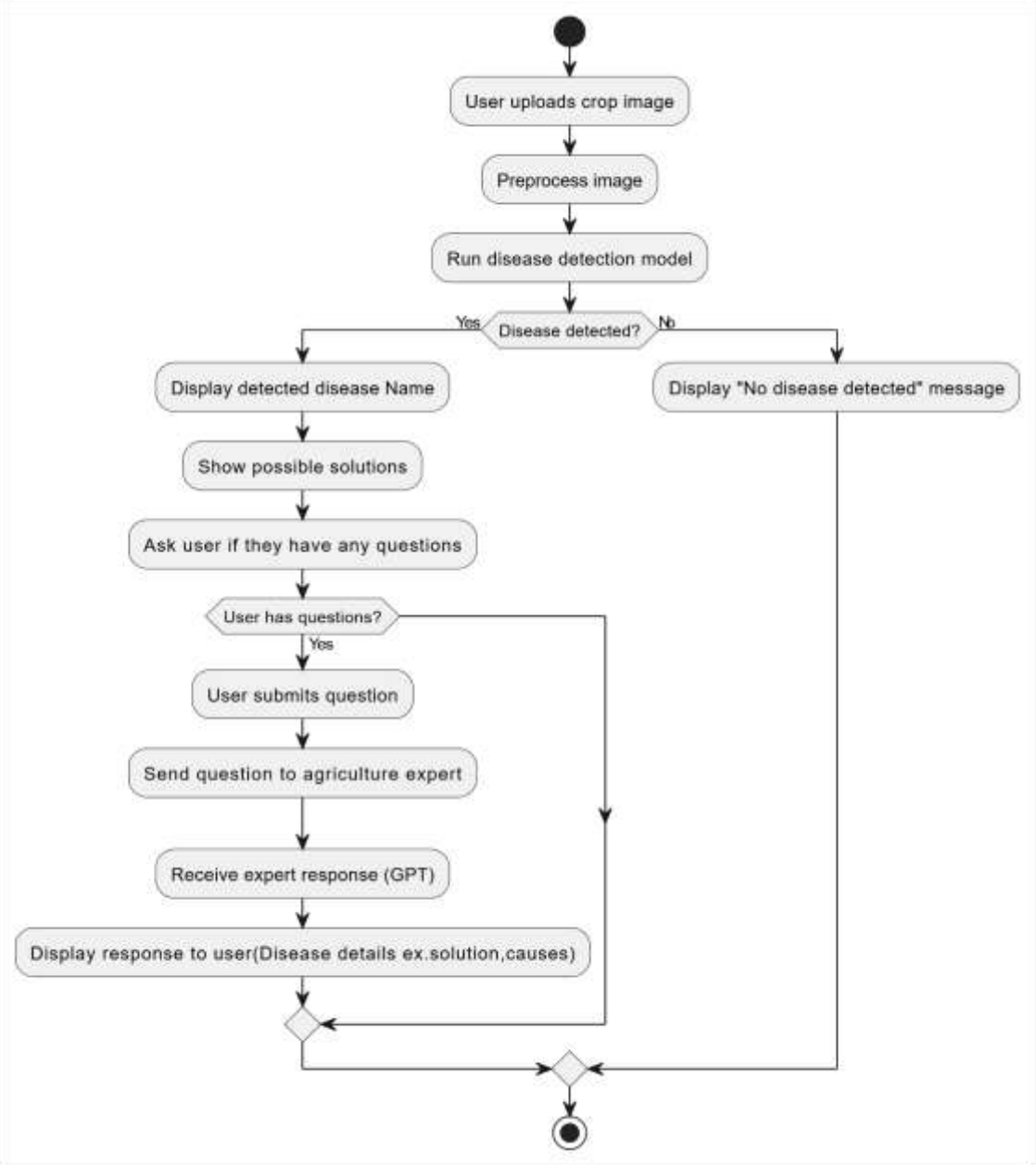


Fig 5: Activity Diagram.

8.3 Requirement catalogue

Functional requirements:

- FR1: Upload crop images.
- FR2: Develop a model to detect disease crops.
- FR3: Shows detected diseases crops details like: Diseases details, Solutions etc.

Non-Functional Requirements:

- NFR1: Records are easy to keep and update.
- NFR2: To use the system at any time and from any location, users only need a PC with an Internet connection. Numerous web browsers, including Chrome, Mozilla, Opera, and Internet Explorer, are compatible with the system.
- NFR3: The technology is user-friendly and the UI is captivating.
- NFR4: Access contact details and company data.

User Interface Requirements:

- UIR1: An easy-to-use interface with straightforward navigation that facilitates access to a range of features and functionalities.
- UIR2: Icons provide visual cues to aid users in understanding and navigating the system.

Security and Privacy Requirements:

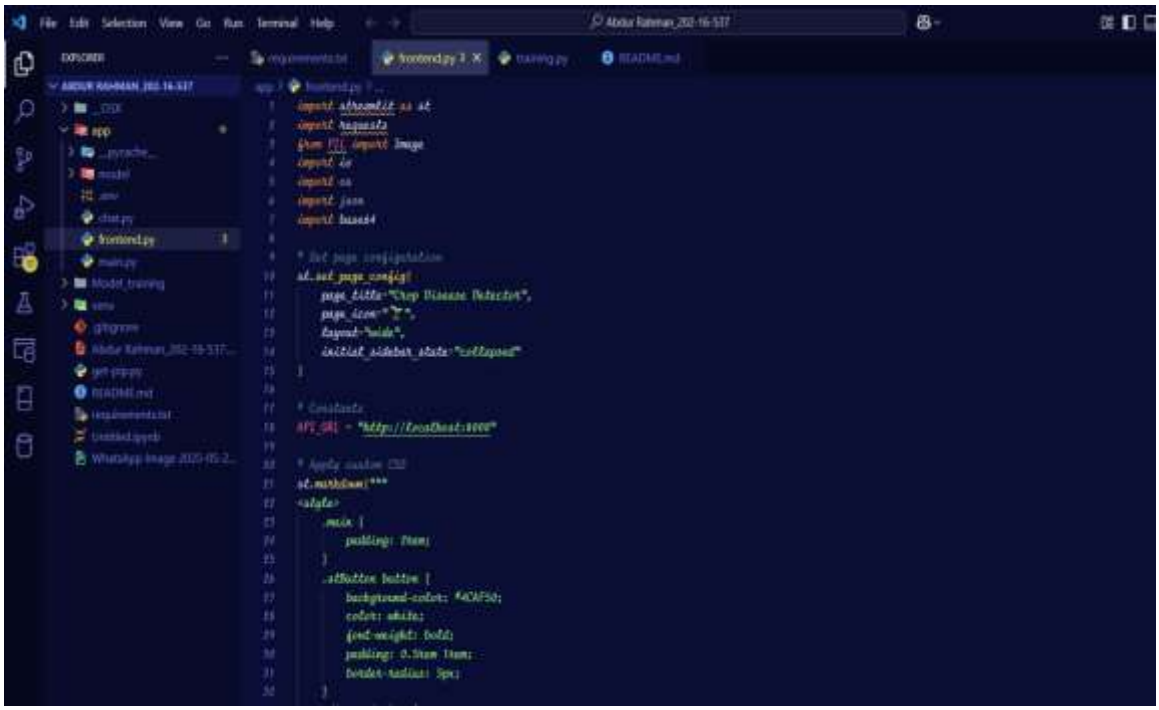
- SR1: Safe authorization and authentication processes to protect user data.

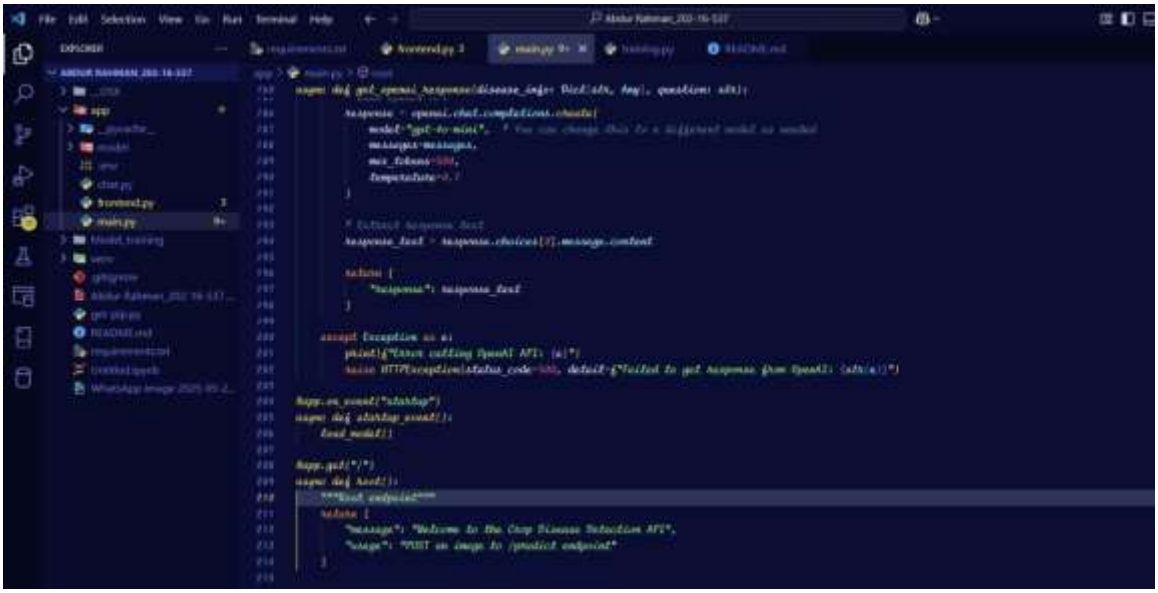
8.4 Prioritized Requirement List (PRL)

Table 6: Prioritized requirement list

Requirement ID	Requirement Description	Priority	Dependencies	Status	Validation Criteria
RQ1	Upload images of crops	High		Pass	Jpg, png etc. images upload successfully
RQ2	Detect and show crops diseases.	High	RQ1	Pass	Detect diseases crops successfully
RQ3	Ask questions agriculture experts as users questions.	High	RQ1, RQ2	Pass	Successfully shows diseases details.

Code Sample:





8.5 Prototype of new system

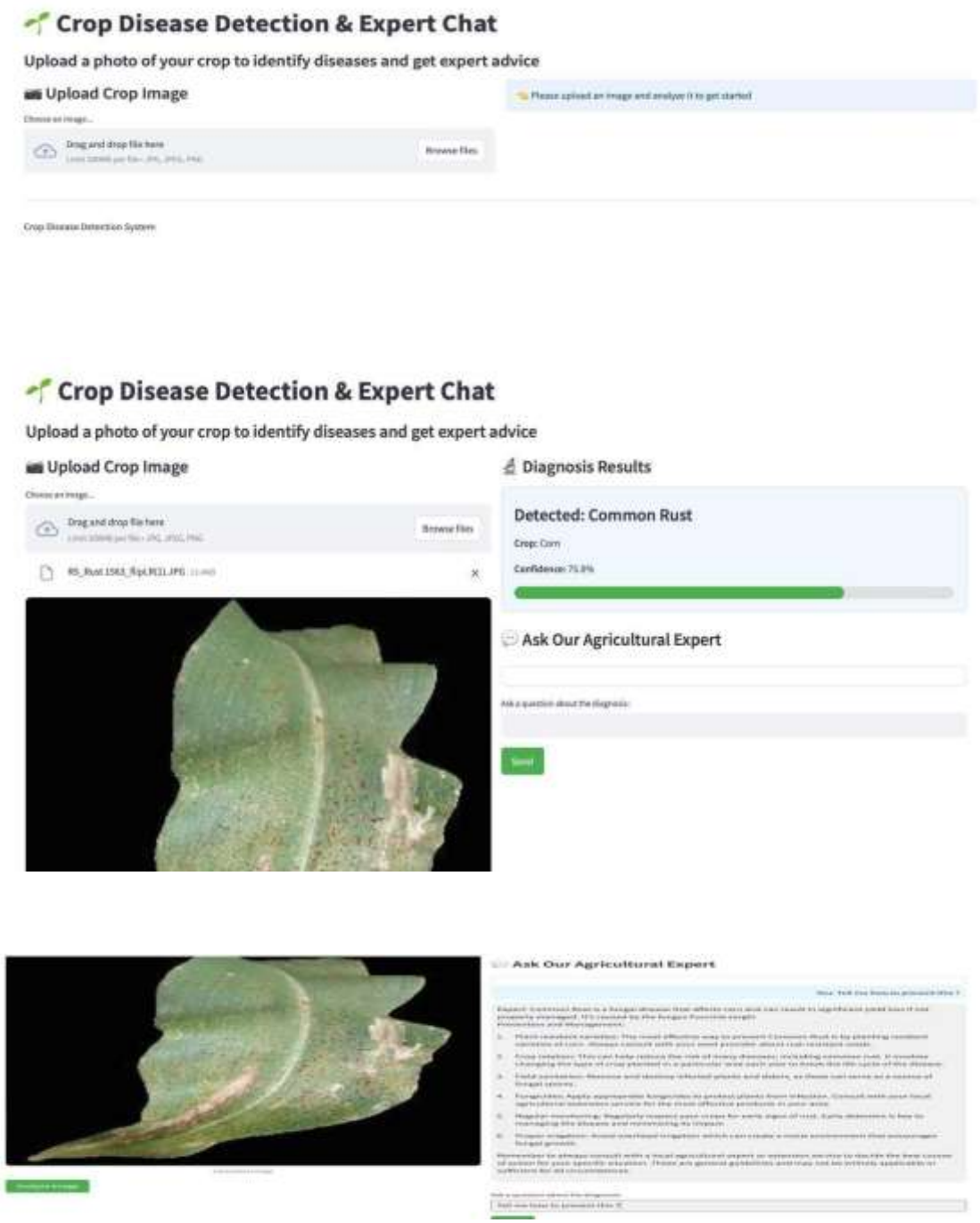


Fig 6: Interfaces for user

CHAPTER 9

Engineering

9.1 Class Diagram

To display the original content for the interclass linkages, a class was made. In this instance, the class either functions as a distinct entity within a program or as a single programming specification that specifies the variables and behaviors of an object.

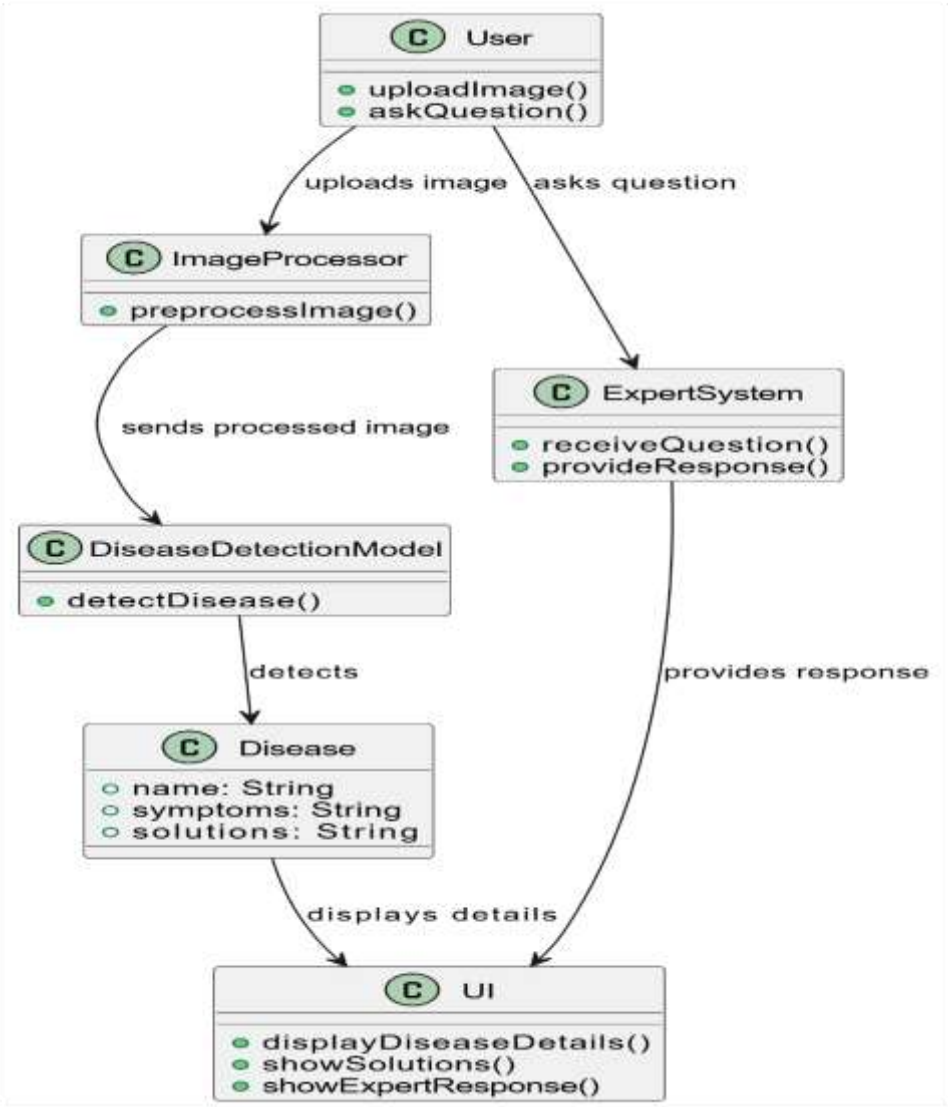


Fig 7: Class Diagram

9.2 ER diagram

One kind of structural application utilized in design is institutional methods of communication, often known as the ER model, ER Diagram, or ERD. The primary components of the constrained system and the relationships between these entities are the two primary pieces of information that the ERD communicates and presents in different ways. The user module's entity-relationship diagram is now complete.

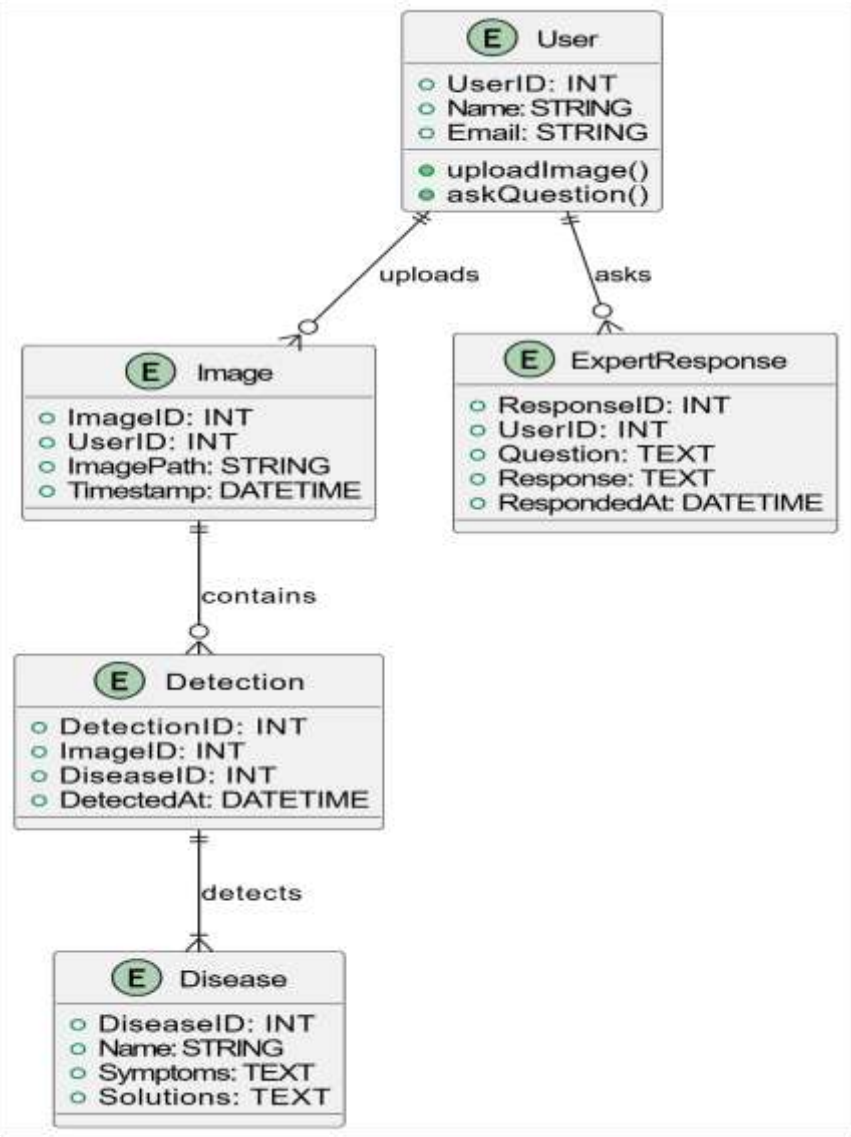


Fig 8: ER Diagram.

9.3 Sequence Diagram

This focuses on the sequence diagram for a single module: the user dashboard.

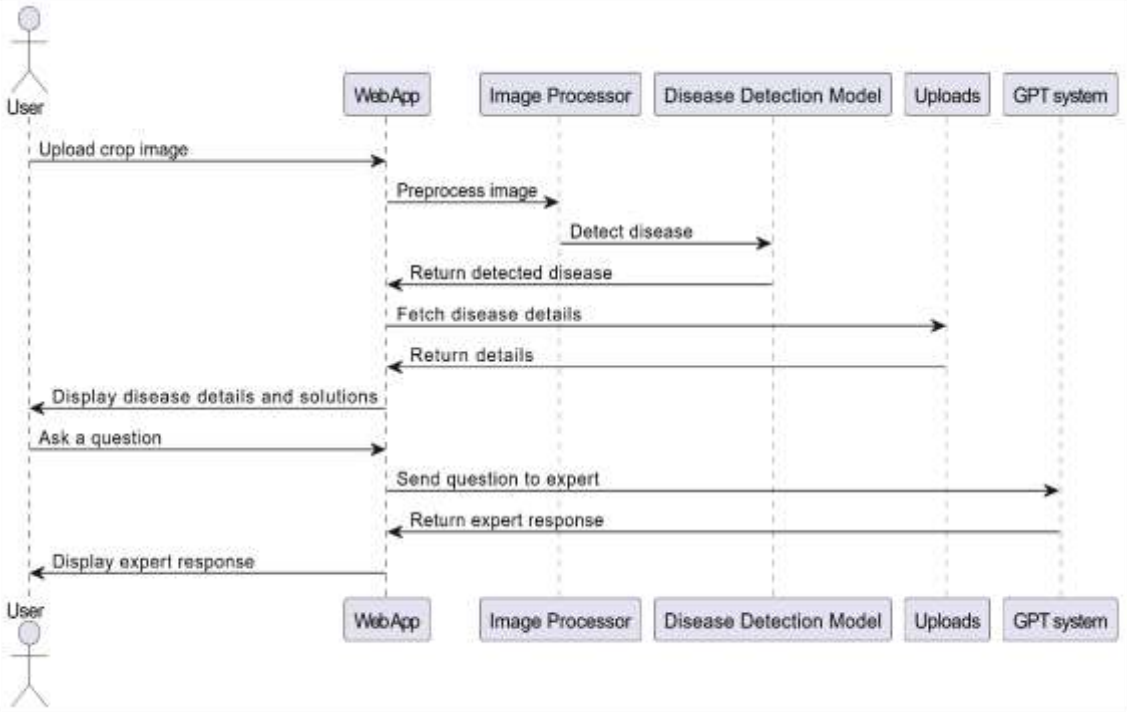


Fig 9: Sequence Diagram

CHAPTER 10

Development

10.1 Probability problem break down

Numerous probabilistic variables affect how accurately AI-based agricultural disease detection works. Environmental factors, training dataset variety, and input image quality all affect the likelihood of accurately identifying an illness. While false negatives can result in diseases that go undiagnosed and harm crops, false positives can happen when healthy plants are mistakenly identified as infected. Prediction dependability is mostly determined by system of program that expected most good result of model's confidence score, where larger probabilities signify greater certainty. Techniques like various types of system may break down of following the balanced datasets, and data augmentation all techniques may be used to increase accuracy and guarantee for details at data more accurate and trustworthy illness categorization.

- **Data security and protection**: Data security and protection are crucial to this project in order to ensure that the system of program that expected most good result of model and processing of agricultural data is protected from unauthorized access or manipulation. Any data of private must be securely stored and encrypted to prevent such intrusions.
- **Debugging and Testing**: The precision and dependability of the AI-powered agricultural crops various disease detection system depend for heavily on efficient testing and debugging. Debugging include system of program that expected most good result of model issues with AI model predictions, image processing, and user interface operation. Multiple layers of testing are system of program that expected most good result of model of such as user testing to assess performance in the real world, integration testing to clarify the data which should be and unit testing for individual components. Furthermore, stress testing makes that the system of program that expected most good result of model like gpt version 4.0 such as dim illumination or low-quality photos. Extensive testing and debugging increase system stability and boost of all users that end to end user confidence in illness detection outcomes.

- **Quality Control and Testing:** Verifying that the system of program that expected most good result of model as intended and generates precise, reliable, and consistent results is the aim of quality control and testing. This stage is crucial for accomplishing the system of program that expected most good result of model user demands in order to guarantee the disease detection system.

10.2 Prioritization Developing

Prioritization	**Requirement & Explanation**
Core Functionality	The technology uses AI used for classified the crop disease using web apps to the classes of data that have been taken. It offers farmers an intuitive interface, all data of classes crops and treatment recommendations.
User Experience (UX)	Users may submit crops images for preprocess to immediate illness diagnosis results for details thanks to the application's user-friendly layout. Constant user input improves effectiveness and usefulness.
Security and Data Management	protects user data and query history by implementing stringent authentication procedures, encryption, and limited data access. Maintaining security compliance is aided by periodic upgrades.
Optimization Performance	Delivers quick and precise illness diagnosis, even on low-end web apps, by utilizing effective models and optimal processing methodologies.
Integration with GPT 4o-mini-Models with Accuracy	Allows for high-precision image-based illness classification using the GPT 4o-mini model, guaranteeing accurate findings even in a variety of environmental circumstances.

Quality Assurance and Testing	Accuracy and dependability are guaranteed by routine testing, which includes model validation and real-world performance evaluations. Variations in illumination, imaging quality, and illness stages are all examples of testing settings.
User Feedback and Continuous Improvement	The AI model is improved, detection accuracy is increased, and the user experience is improved overall with the support of ongoing user input collecting. Constant system enhancements are ensured via regular upgrades.

CHAPTER 11
Testing

Project Name	**AI-POWERED CROP DISEASE DETECTION AND SOLUTION SYSTEM TO EMPOWER RURAL ENTREPRENEURS WITH LIMITED EDUCATION**		
Name of product	Disease detection of crops.		
Product description	Disease detection of crops.		
Project description	Python.		
Project duration	Project Type	Testing/ Verification	
	Start date	End date	
	01/01/2025	24/05/2025	

11.1 Test Plan Acceptance

List the goals and limitations of the test. Determine the important participants and get their consent before executing the test plan. Indicate in detail the acceptable standards for every testing phase.

11.2 Unit Testing

The ideal way to do unit tests is to integrate the structure as a whole and assess each module independently. Since the software's architecture is the smallest component of each module, unit testing aids in concentrating verification efforts there. It's also known as module testing. Every system module is looked at separately. Make sure that every browser can use this strategy.

11.3 Validation Testing

To ensure that a system satisfies requirements and operates as intended, software testing employs validation and verification techniques. Another name for it is software quality assurance.

11.4 Integration Testing

The problems pertaining to the two assessment and program development difficulties are resolved by integration testing. Software integration is followed by a series of high-order tests. This testing technique's primary goal is to create a program structure that conforms to design criteria by using unit-tested components.

11.5 TEST CASES

Table 7: Test Case

Case Id	CASE NAME	Expected Result	Actual Result	Result (Pass/Fail)
1.	Uploads images (Ext. jpg, jpeg, png etc.) of crops.	Images uploads successfully.	Images uploads successfully.	Pass
2.	Disease detection of various crops.	Diseases images detect successfully	Diseases detect of crops.	Pass
3.	Ask question and shows answer according to users requirements (diseases solution, details etc.)	Successfully shows the needed question of users.	Successfully shows the needed question of users.	Pass

CHAPTER 12

Implementation

12.1 Training

User	Training	Time	Comment
Users or Clients	Supervised learning	10 days	pass

12.2 Big Bang Implementation

Instead of implementing the AI-powered crop disease detection system in stages, the Big Bang Implementation technique deploys all of its essential features at once. That implies the Open AI GPT query system, real-time illness diagnosis, treatment suggestions, and AI based picture categorization will all be released at the same time. Users may access a fully working system right away using this method, but it necessitates thorough pre-launch testing to guarantee security, accuracy, and performance. The GPT model for high precision disease identification is included, and the system is optimized for both offline and mobile use, guaranteeing an instant effect on farmers. Ongoing observation and gathering of user input, however, will be necessary to resolve possible problems and improve the system after launch.

12.3 Scaling

Increasing the AI-powered agricultural disease detection system's capacity to accommodate additional crops, illnesses, and users in various geographical areas is known as scaling. This entails adjusting the system for various environmental conditions and refining the AI model and AI used for classified the crop disease using web apps to the classes of data. Furthermore, adding multilingual capability will increase the datasets of crops which should be balanced and the system's usability for a larger user base. As the system grows, ongoing improvements and upgrades AI used for classified the crop disease using web apps to the classes of data like user input will help sustain efficiency.

12.3.1 Design of scaling

In order to scale the AI used for classified the crop disease using web apps to the classes of data that must be optimized using more datasets and strategies like GPT 4.0 model pruning to improve performance for all across a range of devices. Scalable resources are guaranteed via a cloud-based architecture, and faraway users may access offline capabilities thanks to mobile optimization. Large data quantities are handled by distributed databases, and load balancing makes sure that operations run smoothly even when traffic is heavy. To serve a worldwide audience, the system will be multilingual, and it will be updated often in response to user input to stay effective and current. This strategy guarantees that the system can expand and adjust to meet a range of agricultural demands and rising demand.

12.3.2 Testing Performance

For every operation the scanner does, including disclosure, susceptibility identification, static and dynamic evaluation, and analysis, a little software must be made. Instruct the development and architecture teams on how to design scalable and efficient systems. This means keeping an eye on things like caching, horizontal scalability, database efficiency, and performance monitoring.

12.4 Experiment Result

Several discoveries were predicted by algorithms. I thus used a range of strategies. Before choosing the best plan of action for the trial, I investigated and assessed a number of options. I experimented with several approaches to improve the caliber of my work. We made advantage of Kaggle's public datasets for the agricultural diseases that were being taught. I made use of the dictionaries, content classification algorithms, and Python tools that were already available. This work applies the AI used for classified the crop disease using web apps to the classes of data diseases using Python modules.

CHAPTER 13

Critical Appraisal and Evaluation

13.1 Objective that be met

The main goal of the AI used for classified the crop disease using web apps to the classes of data that easily accessible tool for correctly classifying images in order to diagnose crop illnesses. Even under complicated circumstances AI used for classified the crop disease using web apps to the classes of data model such as GPT 4O-mini. Additionally, by providing immediate treatment advice and preventative techniques, AI used for classified the crop disease using web apps to the classes of while support for several languages enables the system to serve a wider audience, AI used for classified the crop disease using web apps to the classes of data need to classified. The ultimate objective is to provide farmers with the details GPT model data and all information they need to safeguard their crops, lower losses, and improve food security.

13.1.1 Success rate against each objective

In comparison to its goals, the AI used for classified the crop disease using web apps to the classes that has a high success rate. Even with different crop various disease kinds and climatic circumstances, AI used for classified the crop disease using web apps to the classes of data. Farmers are assisted in making that as on well-informed decisions by the efficient provision of real-time data that need to AI used for classified the crop disease using web apps treatment advice. The system is widely useful due to its linguistic support, which effectively serves a global audience. Overall, the system achieves its goals; favorable feedback shows that crop health management has improved and losses have decreased as a result of prompt disease diagnosis and action.

13.1.2 How much better could have been done

The agricultural disease detection system driven by AI does a good job, but it might be better. Particularly for uncommon diseases, detection would be improved by increasing model accuracy through the use of more varied datasets and sophisticated machine learning approaches. Adding interactive features like picture editing tools might further improve the

user interface's intuitiveness. Reliability and region-specific advice might be further enhanced by incorporating expert systems for better treatment suggestions and optimizing offline functionality for more intricate studies. Better speed improvements and scalability would also guarantee that the system can manage large amounts of data effectively, improving user experience.

13.1.3 Why it could not be done

Due to financial limitations and the difficulty of putting advanced ideas into practice, the aforementioned advances were not entirely achievable. Large, diversified datasets are necessary for creating highly accurate models, but obtaining them can be challenging, particularly for uncommon illnesses and different climatic situations. Furthermore, given their limited processing capacity, mobile devices pose technological problems when it comes to configuring the system for offline functioning and complicated analytics. Expert system integration necessitates ongoing cooperation with agricultural specialists, which might be challenging to sustain. Furthermore, optimizing scalability and performance necessitates a large infrastructure expenditures, which may not be possible given the limitations of the existing project.

13.1.4 Which objectives have been missed

Although the majority of the goals have been achieved, there is room for improvement in a few areas. For instance, because not all potential illness variants or environmental circumstances are included by the existing dataset and model, improving model accuracy for uncommon diseases or environmental factors was not entirely achieved. Furthermore, the accuracy of the advice given to farmers was limited by the incomplete implementation of the integration of expert systems for ongoing validation of treatment suggestions. Additionally, while if offline capabilities exists, it should be better improved to handle more complicated studies without relying on the cloud, particularly on devices with lesser specifications. These regions stand for goals that could yet be covered in later editions.

13.1.5 Why these objectives have missed

Due to time, resource, and data availability constraints, these goals were not met. The project timetable did not allow for the substantial data gathering activities needed to expand the dataset to cover uncommon illnesses or environmental variables. Expert system integration for ongoing validation also necessitates cooperation with agricultural specialists, which was not entirely defined. Furthermore, it is technically difficult to optimize offline capabilities for complicated analysis on mobile devices, especially for low-end devices with constrained computing power. These goals could not be fully accomplished due to infrastructure and competence limitations.

13.1.6 What could have been done to complete those objectives

In order to accomplish these goals and make sure the model can manage a greater variety of scenarios, more time and money would have been required for thorough data collecting, particularly for uncommon illnesses and other environmental variables. Treatment suggestions would be more accurate if agricultural specialists worked together to integrate expert systems. By concentrating on lightweight models and more effective processing methods, the model might have been further optimized for mobile devices with less processing power, enhancing offline functioning. Furthermore, a better execution of these unmet goals would have been possible with more time dedicated to system testing and scalability.

13.2 Objectives totally not met / touched

The goals of completely enhancing offline capabilities for sophisticated analyses on web apps and integrating expert systems for ongoing validation of treatment suggestions were not entirely achieved. Due to insufficient time, money, and infrastructure, these goals were not met. There was no close cooperation with agricultural specialists to improve the suggestion accuracy, and the system's offline capabilities were only partially deployed. These inadequacies limited the system's total potential by preventing the aims from being fully realized.

13.2.1 Including software and documentation

The design approach would have included regular inspection, problem fixing, and user input to preserve the software's efficacy and efficiency. The paperwork, which includes technical instructions, maintenance instructions, and user guides, had to be extensive to ensure simple understanding and future enhancements.

CHAPTER 14

Lessons Learned

14.1 Pre-project

Pre-project work focused on designing and defining the breadth of the designing a system that could reliably identify crop diseases from photos and offer real-time treatment suggestions was the main goal prior to the project. In order to provide accessibility for farmers without reliable internet connectivity, the objective was to develop a user-friendly, mobile-friendly solution that could function offline in rural locations. Choosing the right AI models for illness categorization and determining the infrastructure required to enable the system's scalability were other planning tasks. The project's goal was to AI used for classified the crop disease using web apps to the classes of data, effective instrument for managing and preventing disease.

14.2 Review

Numerous fundamental goals, including AI used for classified the crop disease using web apps to the classes of data crop disease detection system, according to the evaluation. Some aspects, including enhancing the accuracy disease classes of crops images and maximizing offline functioning for mobile devices, that should be take all of might use more work, though. Although the system is easy to use for integrity and available in remote locations, its full potential is AI used for classified the crop disease using web apps to the classes of data, such as adding a bigger dataset and ongoing validation.

14.3 Lessons Learned

The need of having a broad dataset for that is enable high model performance across various illnesses and environmental AI used for classified the crop disease using web apps to the classes of data of crop disease detection project. Working together with subject matter experts might greatly improve the system's AI used for classified the crop disease using web apps for ability to make recommendations and offer more region-specific advice. For accessibility in remote locations, AI used for classified the crop disease using the classes of data the system must also be optimized for offline operation on mobile devices. Technical difficulties and resource the datasets like limitations made it clear that more

careful design of data plan was required, which need particularly when expanding the system and incorporating expert systems, ongoing input are essential to the system's AI used for classified the crop disease using web apps to the classes of data and applicability. Additionally, ongoing of AI used for classified the crop disease using web apps to the data collection and retraining are necessary for continuous model improvement, dataset need which calls for committed for each time and resources. The project also showed how important it is to AI used for classified the crop disease using web apps need concentrate on fundamental features before moving on to more complex ones.

14.4 Problem Faced

A number of difficulties for AI used for classified the crop disease using web apps to the classes of data crop disease detection system's development. One significant problem was the scarcity of thorough and varied datasets, need classified the crop disease using web apps to the classes of data accuracy of the model, particularly for uncommon illnesses and different climatic situations. Due to the with constrained AI used for classified the crop disease using web apps to the classes devices presented technological obstacles. Furthermore, without the required cooperation and resources, integrating AI model for GPT 4.0 systems for ongoing validation of treatment that is need for recommendations proved challenging. These challenges slowed down the project's overall AI used for classified the crop disease using web apps to the classes the full achievement of several important goals.

14.5 Problems and solutions

A number of important issues in agriculture AI used for classified the crop disease using web apps to the classes by the crop disease detection system. It reduced the need for human inspections by giving farmers a dependable and effective data AI model method of identifying agricultural illnesses using crops disease 4 classes of images categorization. Farmers in isolated locations with little online data connection were nevertheless able to take advantage of the technology thanks to the system's AI used for classified the crop disease using web apps to the classes capabilities.

CHAPTER 15

Conclusion

15.1 Project Summary

The project's objective was to develop a web application with image classification AI used for classified the crop disease using web apps to the classes of data into fast API, AI powered various data of 4 types crop disease detection and assistance. Users will be able to snap a picture, submit it AI used for classified the crop disease using web apps to the classes of data. An GPT OpenAI integration will also be integrated system of API into GPT system inquiries and offer answers about ailments that have been identified. There is also an online version that various types of images types like: jpg, png etc. are uploading images before processing. The goal of this research is to create an picture web categorization system AI used for classified the crop disease using web apps to the classes. Users may take pictures of afflicted crops or submit them AI used for classified the crop disease using web apps. Four crops, each with three to four illnesses, that web apps system of all data should be accreted will be supported by the system for categorization. An integrated Fast API AI used for classified the crop disease using web apps to the classes of data give all types of answers to user questions, solutions, or predetermined data on the specifics of the illness, prevention, and therapy. There will also be an web application for 4 classes of data that need to diagnose diseases. From conception to implementation, the study covers every facet of the AI used for classified the crop disease using web apps to the classes of data its architecture, user interface design of the data used technologies employed.

15.2 Project Goal

The project's objective AI used for classified the crop disease using web apps to the classes of data system that uses picture categorization to assist farmers in identifying crop illnesses. In order to minimize crop losses, the system sought to dataset need to be optimize and 4 classes of dataset according to AI model with preventative techniques. In order to improve agricultural system with data production and food security, the project also AI used for classified the crop disease using web apps to the classes of data making it viable in isolated locations with poor internet connectivity.

15.3 Project Success

This project has give better things and output of great success. The principal actions are:

- Forecasting class images for crops disease images classes.
- GPT 4o-Mini model that are employed.
- Detection disease from crops images using GPT 4o-Mini Open AI.

15.4 Documentation

The paperwork most likely followed by project system the following stages, assignments, and plans:

- Preliminary needs assessments, feasibility studies, and project concepts may fall under this category.
- A project's objectives, constraints, schedule, materials, and risk-reduction tactics are all described in a project plan.
- Quality assurance and examination. Document the test procedures, scenarios, and results to make sure the software satisfies quality standards.
- Offered documentation for the deployment, consumption, and upgrades of applications, along with deployment and maintenance procedures.

15.5 Project Value

By giving farmers, a dependable and effective techniques and system for early disease diagnosis, the crop disease detection AI used for classified the crop disease using web apps to the classes of data operations. Utilizing real-time picture categorization and providing AI used for classified the crop disease using web apps to the classes of data, the full dataset system lowers crop losses, improves output quality. The technology is inclusive because of its web apps all capabilities, which guarantee accessibility in AI used for classified the crop disease using web apps to the classes is isolated locations with spotty internet service. In addition to helping farmers all types of crops disease need safeguard their crops, this project promotes sustainable as an usable agriculture and food security.

15.6 My Experience

This project was an equally things for the all dataset give experience for me. I have found the crop disease detection effort AI used for classified the crop disease using web apps to the classes that enjoyable and hard. I learned a lot about the practical applications of AI models to tackle most part of challenging agricultural issues. I gained a better understanding of the significance role to use of usability and accessibility in technology while working on the creation of an intuitive system for farmers, particularly those in distant places. Additionally, I discovered how important that an most things to iteration and feedback are to properly improving such systems to satisfy user demands. All things considered, I learned a lot and gained a mostly high depended comprehension of web apps and how they may affect agriculture.

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