**TOPIC:**

**CITRUS DISEASE DETECTION**

**Group members:**

**Javeria (2020-ag-6490)**

**Noor Fatima (2020-ag-6498)**

**DEGREE:**

BS (SOFTWARE ENGINEERING**)**

**DEPARTMENT:**

COMPUTER SCIENCE:

**DESCRIPTION :**

I want to develop a mobile application for citrus disease detection that captures real images of diseased citrus plants. Machine learning algorithms will then analyze these images to identify and describe the type of disease.

**METHADOLOGY:**

**Agile methodology will be used.**

**REASON:**

The primary reason for using the Agile methodology in developing the citrus disease detection app is its emphasis on continuous feedback, which allows for the early detection of risks. For instance, one critical aspect of the project is the accuracy of the disease detection algorithm. Agile retrospective approach enables the team to regularly analyze what is working and what needs improvement, making it easier to address changing requirements over time.

**REQUIREMENTS FOR CITRUS DISEASE DETECTION APP:**

**Functional Requirements for Frontend:**

**User Interface (UI) for Disease Detection:**

Users should have an intuitive and user-friendly interface for uploading images or inputting data related to plant diseases.

The UI should guide users through the process of disease detection, providing clear instructions and feedback.

**Image Capture and Upload:**

If the app includes image-based disease detection, users should be able to capture or upload images of affected citrus plants.

The app should support various image formats and provide options for cropping and enhancing images if necessary.

**Search and Navigation:**

Users should be able to search for specific diseases, access a disease database, or navigate the app easily.

**Result Presentation:**

The frontend should display disease detection results in a visually appealing and informative manner.

It should include information such as disease name, severity, recommended actions, and possibly treatment options.

**(BACKEND REQUIREMENTS)**

**FUNCTIONAL REQUIREMENT:**

* **Data collection :**

Data will be gathering from the mendeley website and some of the data set will be gather from

Kaggle and data will also be gathered by us own struggle**. Dataset can be accessible at Mendeley data: https://data.mendeley.com/datasets/**

**3f83gxmv57/2**

**Data Type:**

Image data of citrus fruit.

* **Image processing:**

**I**mage processing algorithm will be used to analyze and preprocessor the uploaded image.

* **Machine learning and deep learning algorithm:**

Recommended algorithm used for this is CNN, K-nearest neighbor, Random forest algorithm.

* **API:**

Create API to communicate between backend and mobile app allowing data exchange**.**

* **Integration**
* **Non-Functional Requirements :**

**Performance:**

The frontend should be responsive and load quickly to ensure a smooth user experience.

It should handle concurrent user interactions efficiently.

**Scalability:**

The app should be designed to accommodate potential growth in user numbers and data volume.

Scalability considerations should extend to both frontend and backend components.

**Usability and Accessibility:**

The frontend should adhere to usability best practices, making it easy for users to understand and navigate.

It should be accessible to users with disabilities, complying with accessibility standards such as WCAG (Web Content Accessibility Guidelines).

**Security:**

Ensure that user data, including images and personal information, is stored and transmitted securely.

Implement proper authentication and authorization mechanisms to protect user accounts and sensitive data**.**

**Maintainability:**

Develop the frontend codebase in a way that facilitates maintenance, updates, and future enhancements**.**

**Performance Metrics:**

Define specific performance metrics (e.g., page load time, response time) and measure them to ensure the app meets performance goals.