

PaudhaYodha

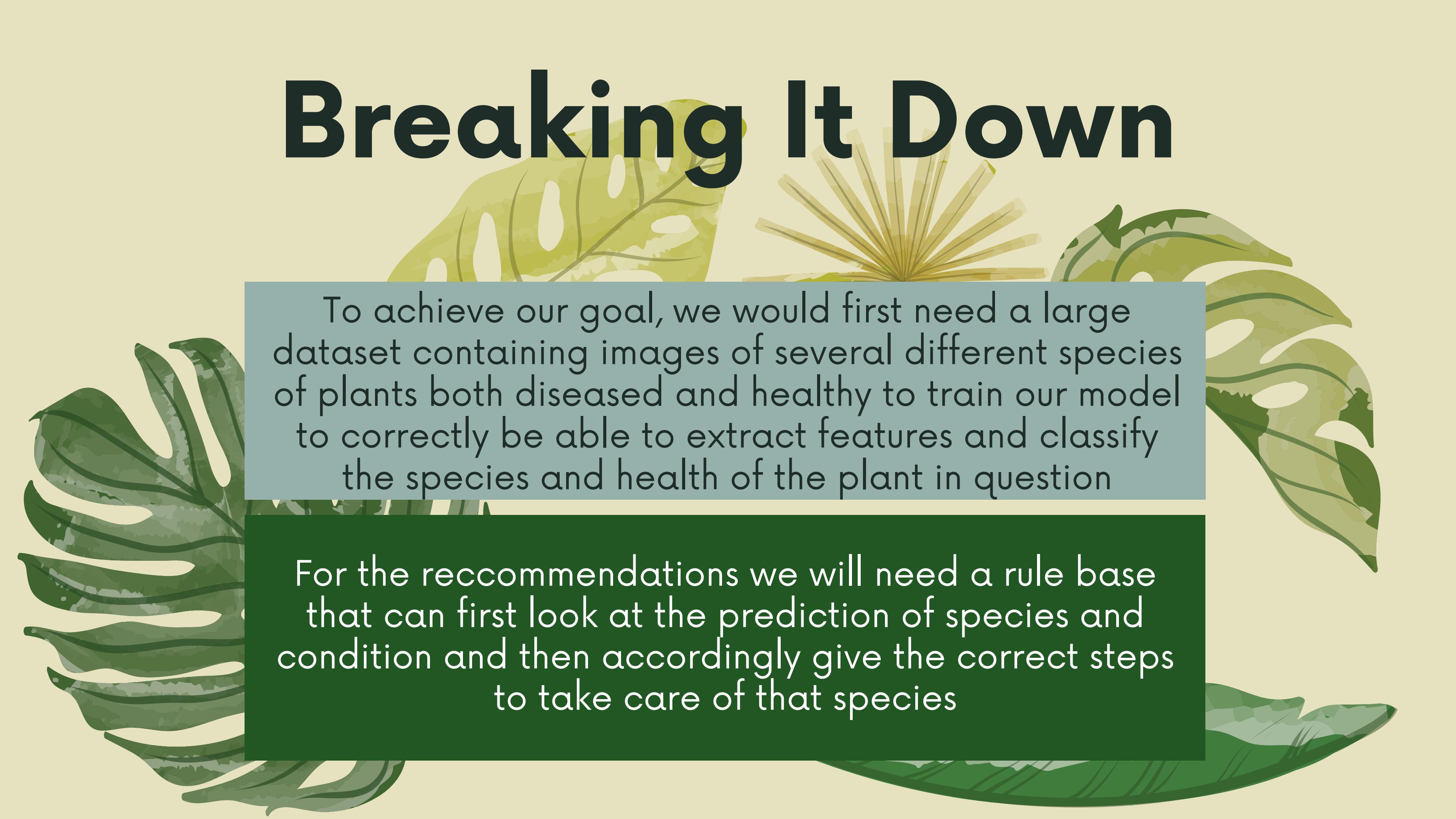
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Mission Statement

To create an application that can perform real time analysis on the species and health of a plant to be able to recommend the best ways to take care and ensure growth of the plant.

India is one of the largest agrarian populations and our goal is to support the farmers who are the backbone of this country by putting the ability to optimise plant care and growth in the palm of their hands.

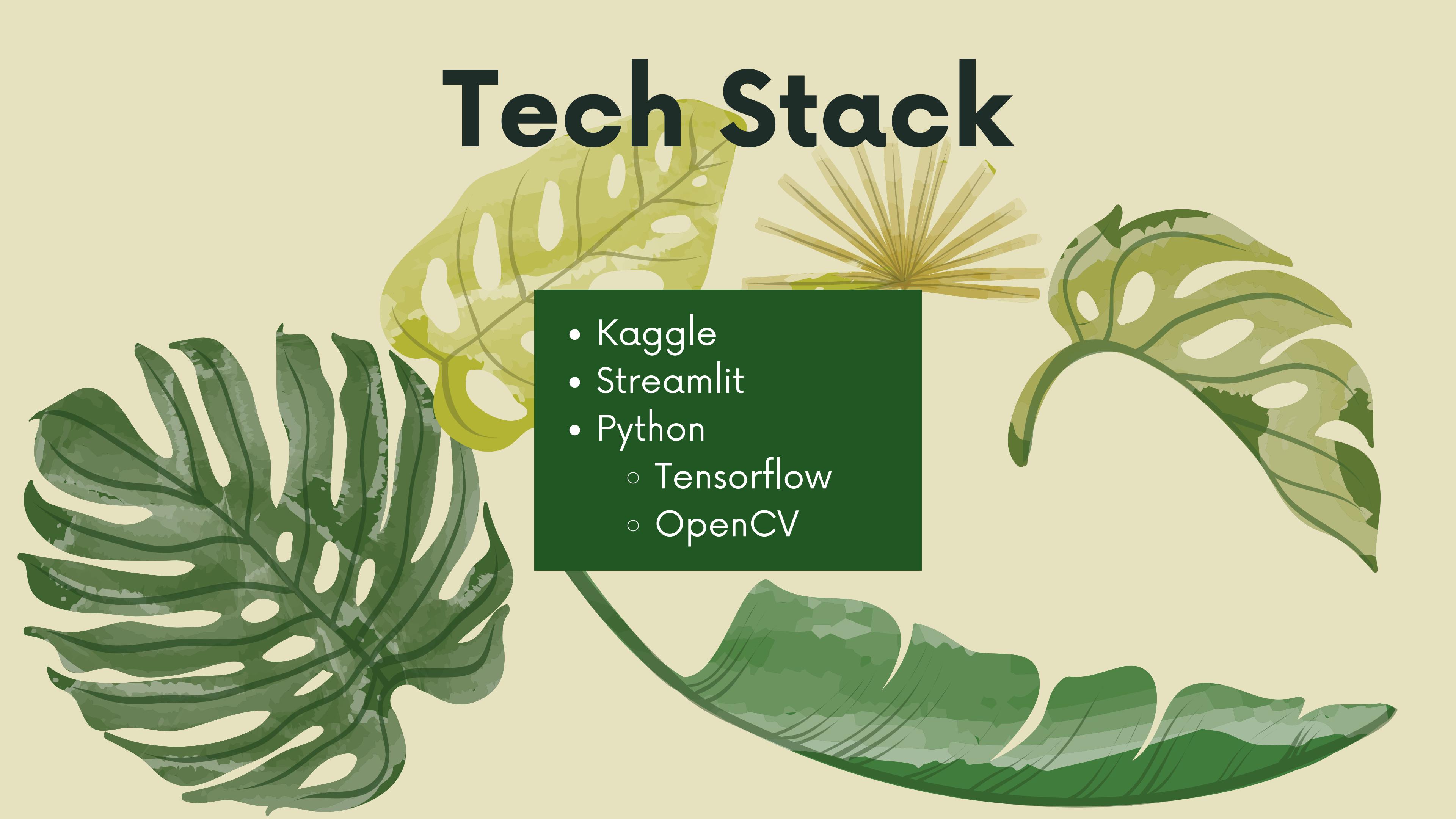
Breaking It Down



To achieve our goal, we would first need a large dataset containing images of several different species of plants both diseased and healthy to train our model to correctly be able to extract features and classify the species and health of the plant in question

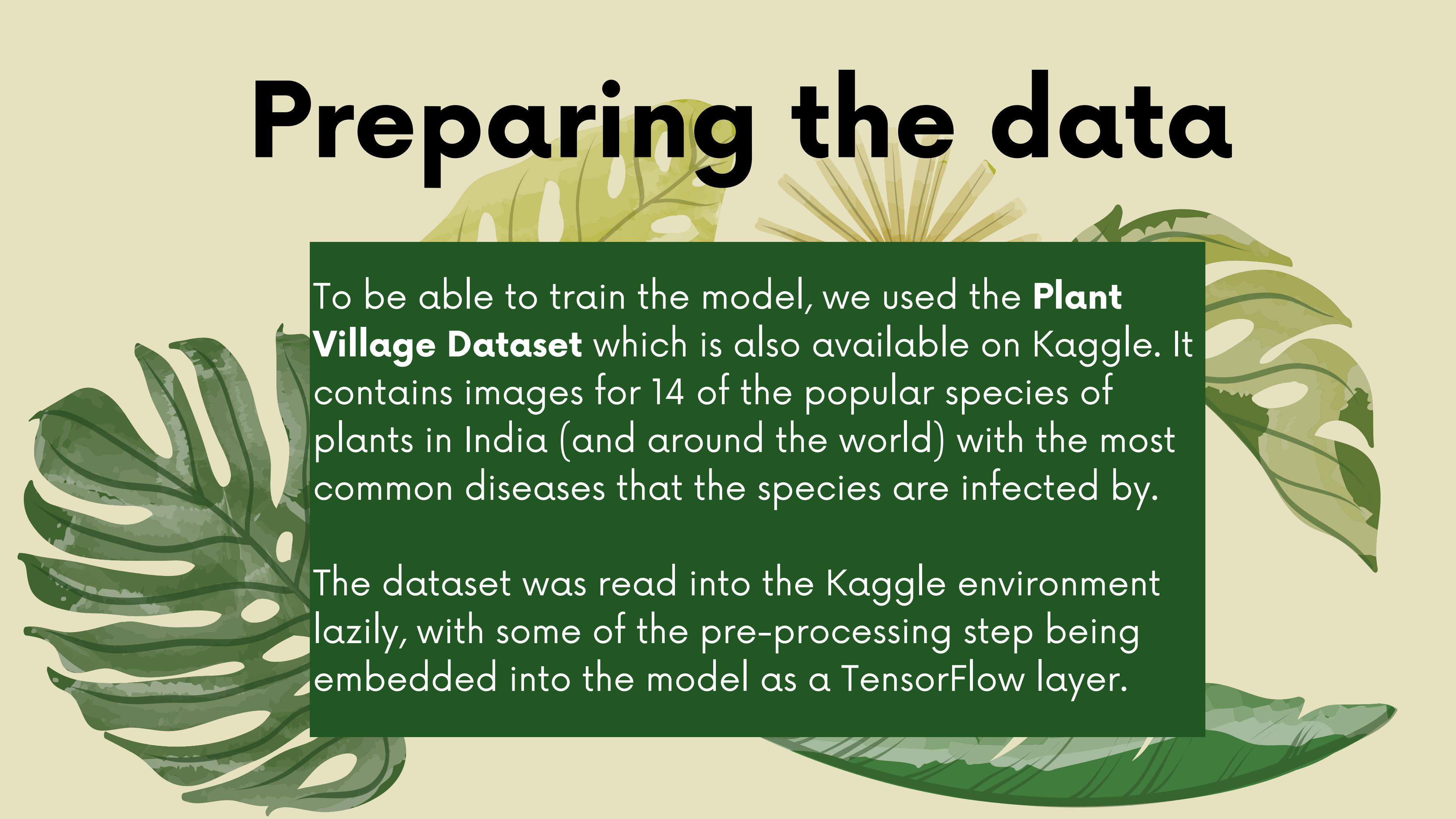
For the recommendations we will need a rule base that can first look at the prediction of species and condition and then accordingly give the correct steps to take care of that species

Tech Stack



- Kaggle
- Streamlit
- Python
 - Tensorflow
 - OpenCV

Preparing the data



To be able to train the model, we used the **Plant Village Dataset** which is also available on Kaggle. It contains images for 14 of the popular species of plants in India (and around the world) with the most common diseases that the species are infected by.

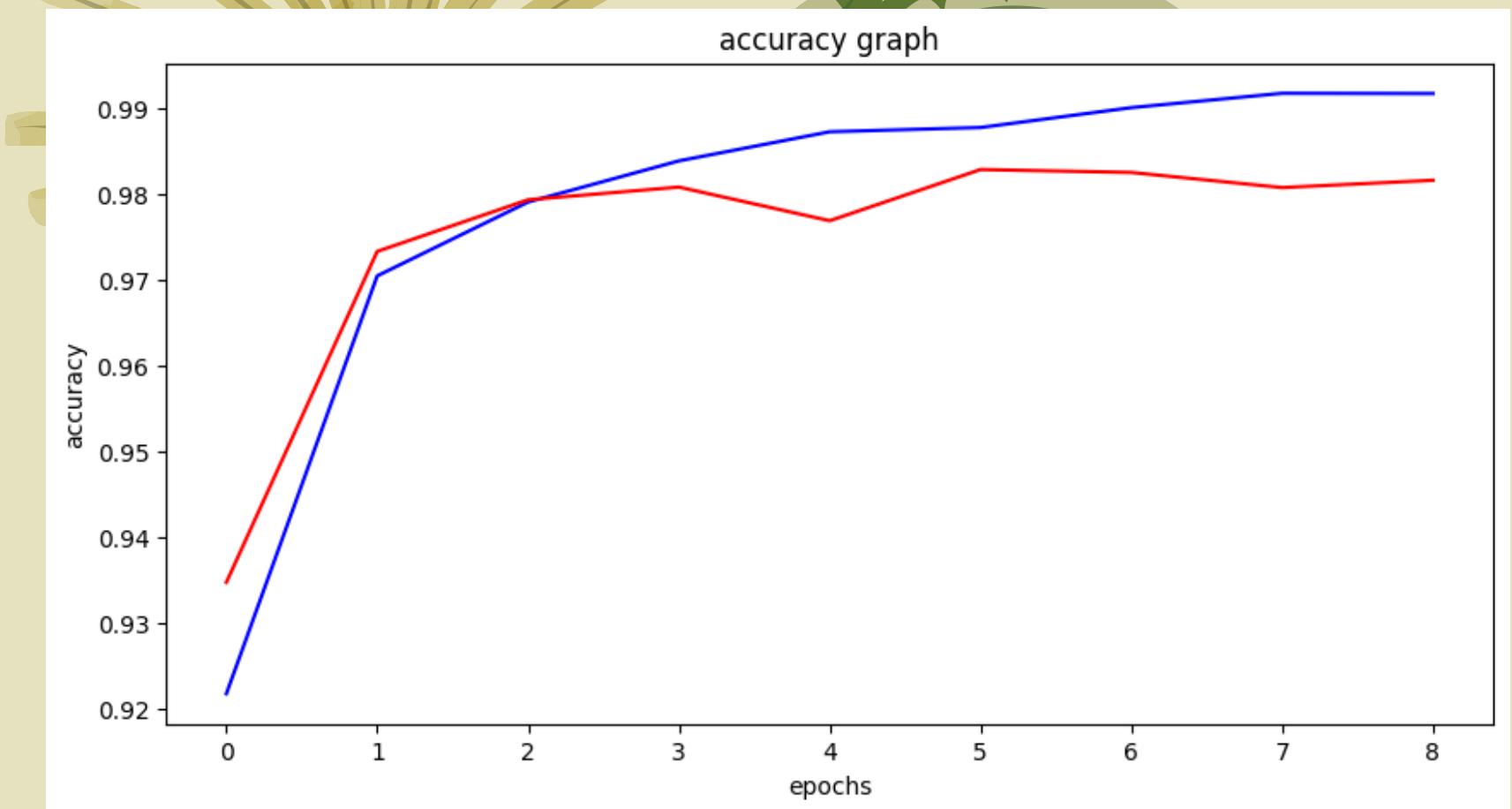
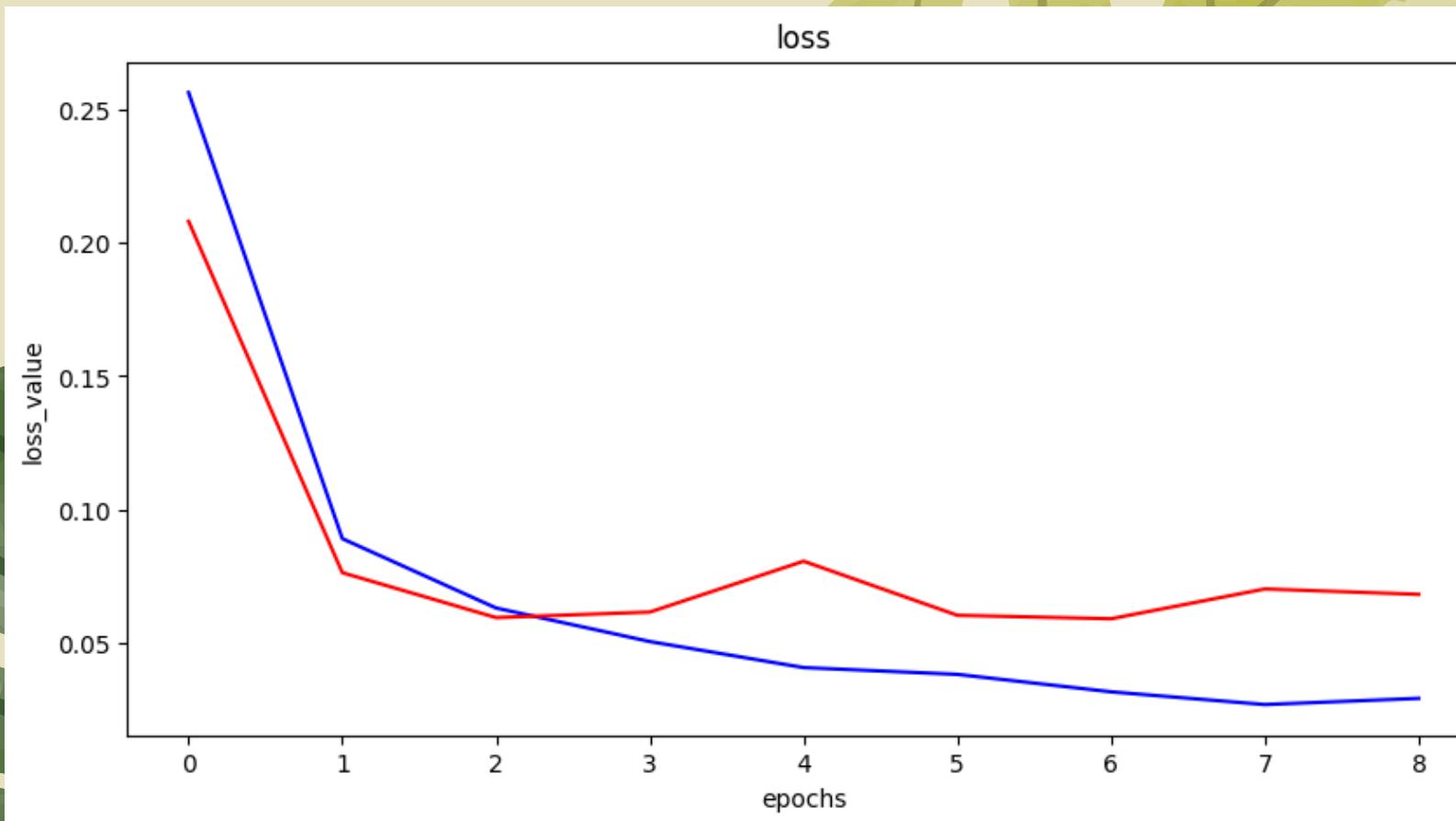
The dataset was read into the Kaggle environment lazily, with some of the pre-processing step being embedded into the model as a TensorFlow layer.

ResNet

ResNet, short for Residual Network, is a deep learning architecture primarily used for image classification tasks. It addresses the problem of vanishing gradients in deep neural networks by introducing skip connections or shortcuts that allow the gradient to flow more directly during training.

Its popularity and high accuracy is why we are choosing it as our model for this particular problem, In the next slide, you will see a detailed architecture of how we plan on using the proposed model.

ResNet



Recommendations

After we have successfully classified the plant species and its condition, the next step is to provide the optimum care conditions for that plant. To achieve this functionality we will do the following:

First create a rule base that contains the do's and don't's for each specie based on the current health condition of the plant, for example:

```
{ 'Tomato' : 'grow in sunny conditions with lots of sun' }
```

Once this is created, we will teach our application to map the models prediction the rules in the rule base to give correct recommendations for that plant.

User Interface

streamlitApp

Share

PaudhaYodha

Hello, Learn the best way to treat your favourite plants!

PaudhaYodha is a web app that helps you identify and treat your plants. It uses machine learning to identify the plant and provide you with the best care tips. Just upload a picture of your plant and let PaudhaYodha do the rest!

Upload a picture of your plant and let PaudhaYodha identify it for you. Once the plant is identified, PaudhaYodha will provide you with the best care tips for your plant.

Select an option:

Upload an image

Choose an image:

Drag and drop file here
Limit 200MB per file • JPG, PNG, JPEG, HEIC, WEBP

Browse files

X

images.jpeg 4.6KB

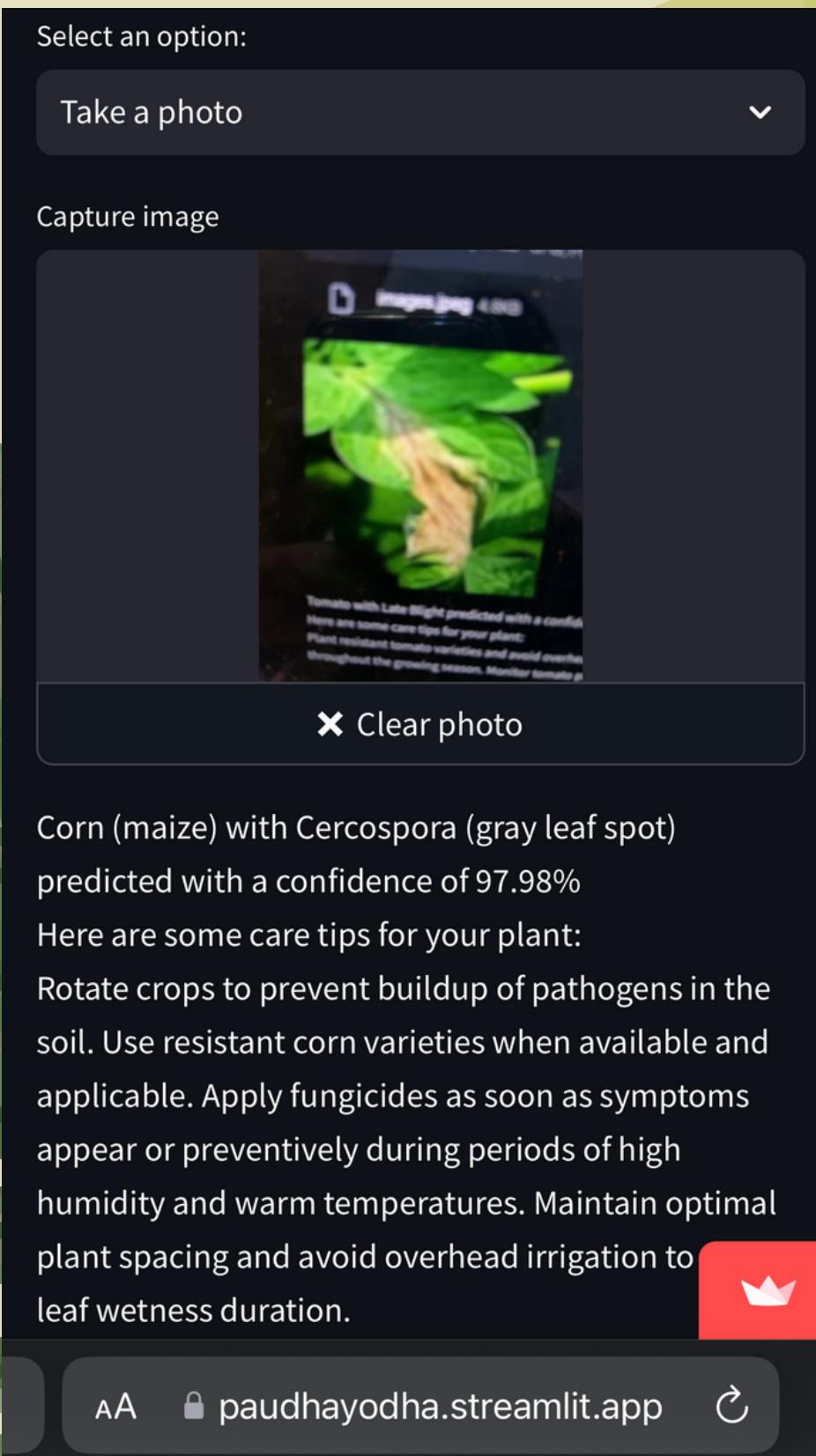


Tomato with Late Blight predicted with a confidence of 100.00%

Here are some care tips for your plant:

Plant resistant tomato varieties and avoid overhead irrigation to minimize leaf wetness duration. Apply fungicides preventively starting at transplanting and continue at regular intervals throughout the growing season. Monitor tomato plants regularly for signs of late blight and take immediate action to prevent its spread.

User Interface



- A web application available on every device with an internet access
- Quick and easy image recognition using a phone camera
- Simple and efficient access to farmers all over India



Any Questions?