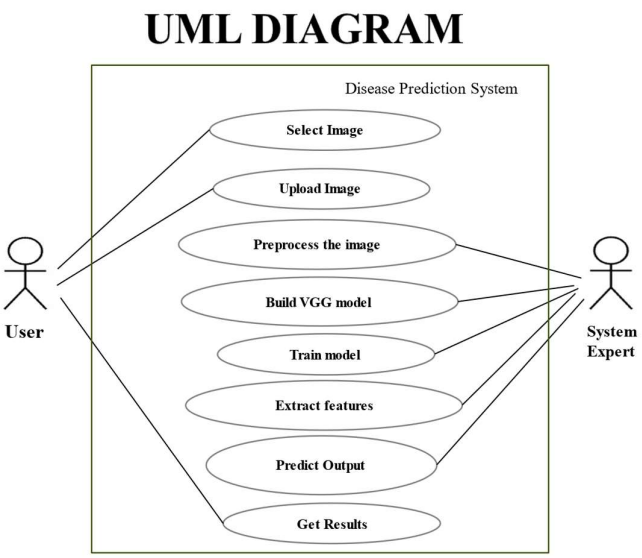
UML DIAGRAM



Good afternoon, everyone here is UML diagram of our project, Our system has 2 actors 1 is a user and 2 is a system expert.

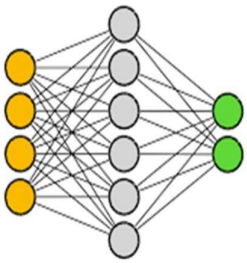
so, system expert is going to

prepossess the image data, Build models, train models, extract the features from images and predict the output.

And Any user is simply select the image. upload image and get the result whether crop is healthy or disease!

Implementation technique

IMPLEMENTATION TECHNIQUE



CNN | Xception | ResNet | VGG

For the implementation of our project, we used 4 techniques first is a deep learning-based plane CNN algorithm and rest of the three is deep learning pre-trained models That we will see in upcoming slides.

We compare the accuracy of all techniques and choose the best one in our case VGG gives the best result among all, so we finalise VGG in our project.

CNN

CNN

- Convolutional Neural Network in crop disease identification signifies a transformative approach in precision agriculture.
- In this context, the application of CNNs involves training the model on diverse images of crops affected by various diseases.
- By leveraging deep learning, CNNs can process vast datasets of crop images, learning complex features that distinguish between healthy and diseased plants.

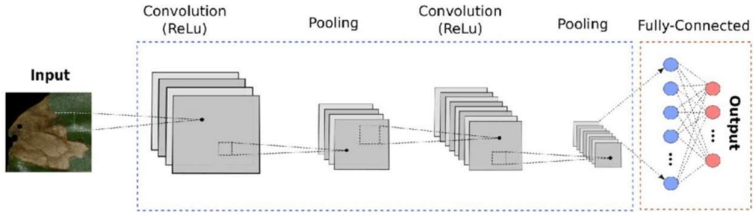


Fig: Architecture of CNN

So our first technique is CNN

Convolutional neural networks signify a transformative approach in prestigious agriculture.

In the context of Crop disease prediction leveraging deep learning training a model on diverse image dataset so it learn complex features patterns that distinguish between healthy and disease crops

Here is an architecture of CNN.

CNN has a three layers convolutional layer, pooling layer and fully connected layer.

convolutional layer:

Convolutional layer extract the features from images by applying set of filters (kernels) to the input image of crops.

Filters are the small grids across the image. Generally, we take the filter size as 1x1, 3x3 and 5x5 it will depend on the task.

That extracted feature is stored in a feature map. feature map Highlights different patterns such as edges, texture, shape and colour variation in crops.

For the extraction of feature CNN used activation function like ReLU, Sigmoid, Tanh, softmax.

pooling layer

pooling layer is used to Reduce the amount of data created by convolutional layer.

It decreases the size of feature map to reduce the computational cost.

It basically summarizes the feature map of the crops in the form of color shape texture generated by convolutional layer.

While summarizing the feature map pulling layer performs some operations like max pooling and average pooling

Max Pulling takes the maximum value from the Feature map and average pulling take the average value in feature map.

Again, it depends on the task for the classification task we use the max pulling over here.

fully connected layer.

fully connected layer is the traditional artificial neural network layer where each neuron is connected to every neuron in the previous and subsequent layer.

These layers learn complex relationship between the extracted features and the classes present in dataset.