FLOWER BREEDS IDENTIFIER

TEAM EMOJIS

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INTRODUCTION

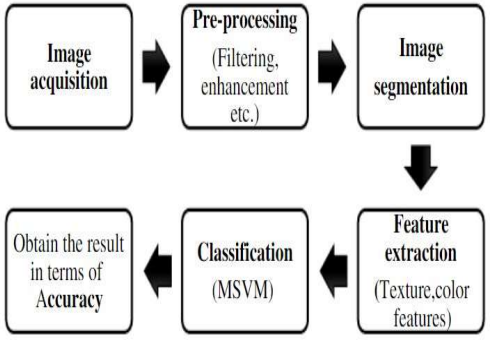
Flower species identification plays a crucial role in various industries, from agriculture to ecology and conservation. It helps us understand the Flower kingdom better, which in turn can lead to the development of new medicines, more efficient farming practices, and even the preservation of endangered species of Flowers.

Flower species identification plays a crucial role in various industries, such as agriculture, pharmaceuticals, and ecology. Accurate identification of Flower species helps in improving crop yields, developing new medicines, and understanding the ecological balance of an ecosystem.

For instance, in agriculture, identifying the right Flower species can help farmers optimize their crop management practices, leading to higher yields and reduced costs. In the pharmaceutical industry, accurate identification of Flower species can lead to the discovery of new medicines and treatments for various diseases.

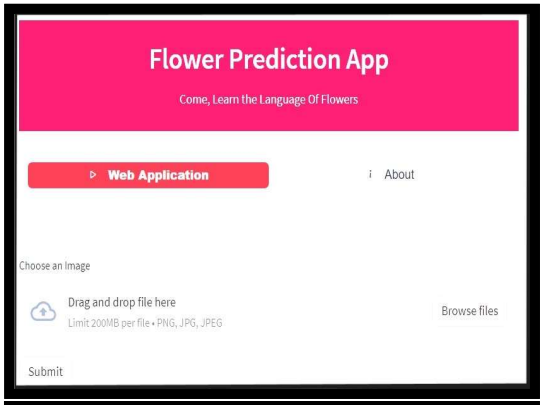
PROPOSED APPROACH

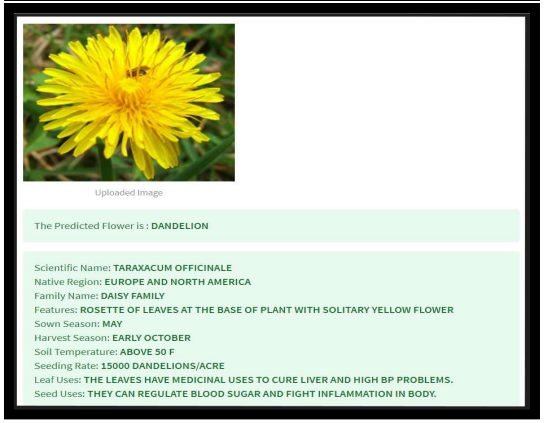
- The proposed approach is based on Deep learning and convolutional neural network fundamentals.
- The set of stages and operations involved throughout the approach are diagrammatically represented below:



FEATURES

- User Friendly Interface
- User Enabled Image Upload
- Cross – Platform web application
- Easily Used on Mobile Phones
- Identification + In-depth information about breeds



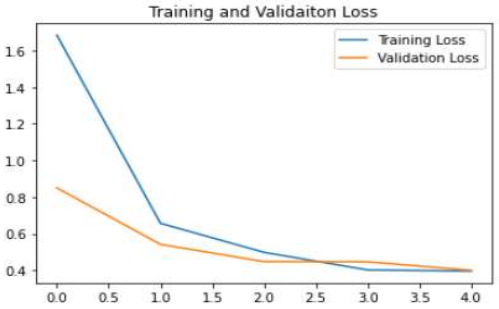


TECHNOLOGY USED

- Python - Python is one of the most frequently utilized programming languages to build web applications, making its use crucial especially in Deep learning tasks.
- TensorFlow - It's an open source software library for high performance numerical computation. Its a flexible architecture allowing the deployment of computation.
- Dataset - A dataset is a collection of data. For performing the deep learning operations and training of the model, we have used two datasets : PlantCLEF and Flowers Recognition from Kaggle platform
- Streamlit – This web software turns data scripts into shareable web applications entirely in pure python.
- Convolution Neural Network - A convolutional neural network (CNN or ConvNet) is a network architecture for deep learning that learns directly from data. CNNs are particularly useful for finding patterns in images to recognize objects, classes, and categories.

EXPERIMENTAL ANALYSIS

The model generated quantitative results are listed below:
Overall Samples: 1318
Training: 70% | **Validation:** 20% | **Testing:** 10%
Loss: Categorical Cross entropy
Testing Loss: 0.32296934723854065
Testing Accuracy: 0.8982785148620605



CONCLUSION

Through an analysis of the data set we also found that the relative number of training samples for each flower species is quite uneven, which seems to lead to a favouritism, from the model of flower species, and that some flower species are difficult to classify than others.

The trained dataset is created using 5000 steps, higher the number of steps higher its accuracy. The accuracy of the trained dataset is 88.12%.

After the training phase the dataset was tested against a variety of testing images of Flower species. The testing dataset has nearly 1000 images with an accuracy of 80%.

After analysis of these results it has been observed that the the species those are having the highest score has been predicted as a required species. this result can be shown in the Training and validation graph.

Thus we were able to successfully develop and deploy the application on streamlit platform to make it portable.

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