👥 Team ID : LTVIP2026TMIDS87105

Team Size : 4

Team Leader : Kagitala Saikumar

Team member : Doddaka Venkata Chandu

Team member : Ravi Lakshmi Sai Varun

Team member : Kambala Venkata Sai Prem Chand

Prior Knowledge

You must have prior knowledge of the following topics to complete this project.

- DL Concepts
  - Neural Networks:: https://www.analyticsvidhya.com/blog/2020/02/cnn-vs-rnn-vs-mlp-analyzing-3-types-of-neural-networks-in-deep-learning/
  - Deep Learning Frameworks:: https://www.knowledgehut.com/blog/data-science/pytorch-vs-tensorflow
  - Transfer Learning: https://towardsdatascience.com/a-demonstration-of-transfer-learning-of-vgg-convolutional-neural-network-pre-trained-model-with-c9f5b8b1ab0a
  - VGG16: https://www.geeksforgeeks.org/vgg-16-cnn-model/
  - Convolutional Neural Networks (CNNs): https://www.analyticsvidhya.com/blog/2021/05/convolutional-neural-networks-cnn/ s://www.javatpoint.com/k-nearest-neighbor-algorithm-for-machine-learning
  - Overfitting and Regularization: https://www.analyticsvidhya.com/blog/2021/07/prevent-overfitting-using-regularization-techniques/
  - Optimizers: https://www.analyticsvidhya.com/blog/2021/10/a-comprehensive-guide-on-deep-learning-optimizers/
- Flask Basics: https://www.youtube.com/watch?v=lj4I_CvBnt0

Project Objectives

By the end of this project, you will:

- Know fundamental concepts and techniques used for Deep Learning.
- Gain a broad understanding of data.
- Have knowledge of pre-processing the data/transformation techniques on outliers and some visualization concepts.

Project Flow

- The user interacts with the UI (User Interface) to choose the image.
- The chosen image is analyzed by the model which is integrated with the flask application.
- Once the model analyses the input the prediction is showcased on the UI

To accomplish this, we have to complete all the activities listed below,

- Data Collection: Collect or download the dataset that you want to train.
- Data pre-processing
  - Data Augmentation
  - Splitting data into train and test

- Model building
  - Import the model-building libraries
  - Initializing the model
  - Training and testing the model
  - Evaluating the performance of the model
  - Save the model
- Application Building
  - Create an HTML file
  - Build python code

Project Structure

Create the Project folder which contains files as shown below
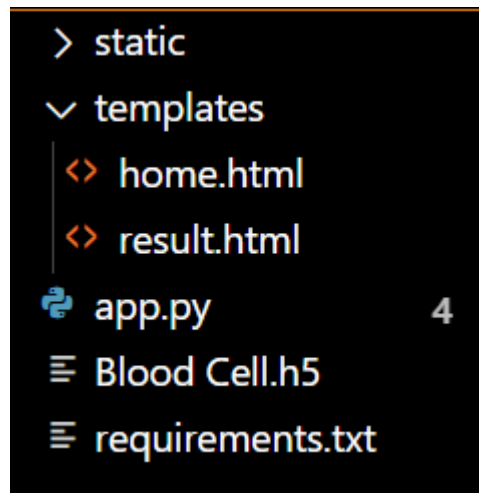
- We are building a Flask application with HTML pages stored in the templates folder and a Python script app.py for scripting.
- Blood Cell.h5 is our saved model. Further, we will use this model for flask integration.