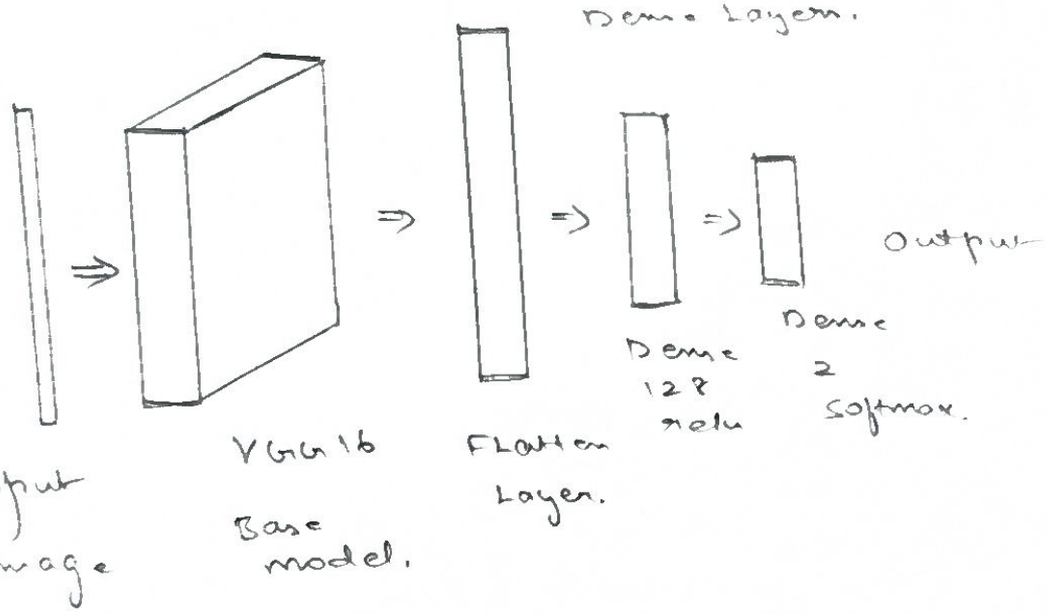
Custom Architecture :-

customized VGG16.



Lab 14:- Implement a pretrained CNN using Transfer learning models.

Aim:-

TO implement a pre trained CNN model as a feature extraction using transfer learning.

Pseudo code:-

* Import necessary libraries.
* Load a pre trained CNN model.
* Freeze all convolution layers to prevent training.
* Remove the original classification layer.
* Add a new classifier layer Suitable for the custom dataset.
* Load and preprocess the dataset.
* Pass images through the pre trained model.
* Train only the new classifier using extracted feature.
* Evaluate model performance on the test dataset.
* Display Accuracy & Loss curves

Observation:

* The pre trained CNN already knows how to detect low-level & mid-level features like edges & shapes.
* By freezing the CN layers we reuse this prior knowledge instead of training from scratch.
* Only the final classification layer is trained, reducing training time.
* The model converges faster and performs better.
* ResNet performed better on complex dataset due to its residual, while VGG16 gave stable map

Result:-

Successfully implemented pre-Trained model as a feature extractor using Transfer learning model.