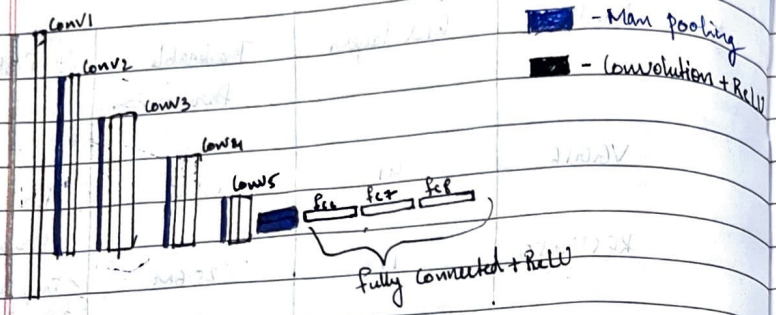
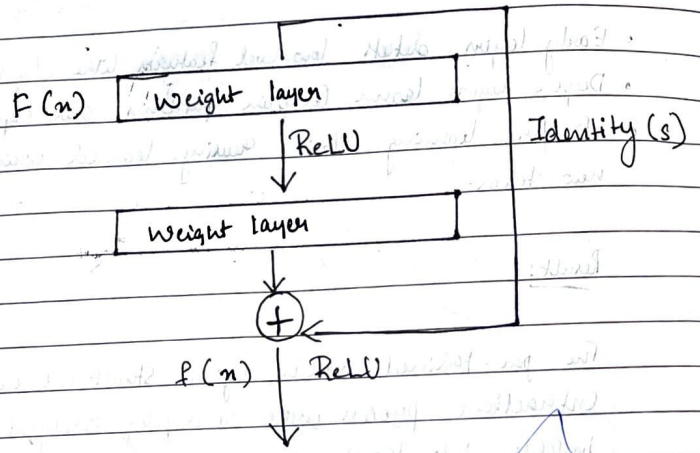
VGG16 Architecture



ResNet Architecture



27.10.25

Ex:14 Implement a Pre-trained CNN Model as a Feature Extractor using Transfer Learning

Aim: To implement a pre-trained CNN Model and use it as a feature extraction for image classification

Objectives:

- To load a pre-trained CNN (eg: VGG16 or ResNet50)
- To extract features from input images using the pre-trained model.
- To classify images using extracted deep features.

Pseudocode:

- Import required libraries.
- Load pre-trained CNN Model without top layers.
- Load and pre-process dataset images.
- Pass through the model to extract features.
- Train a simple classifier on extracted features.

Observation:

1. Transfer Learning significantly reduces the training time.
2. Feature extraction from pre-trained CNN improves accuracy.
3. Deeper models like ResNet perform better than shallow ones.

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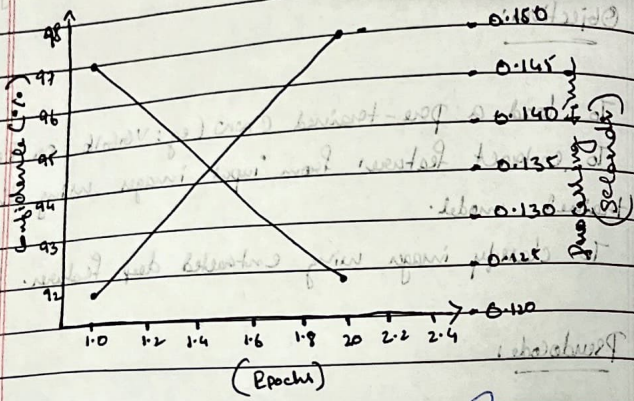
Name	Confidence
person	0.864641
tie	0.631859

· YOLO Object Detection Performance



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Epochs	Models used	Dataset	Accuracy	Time taken
1	VGG16	CIFAR-10	85.6	120
2	RESNET	CIFAR-10	88.3	135

Result:

The pre-trained CNN successfully extracted high level features and improved classification accuracy using transfer learning.