Transfer learning is a machine learning technique where a pre-trained model (trained on a large dataset like ImageNet) is used as a starting point for a new task with a smaller dataset. Instead of training a model from scratch, we "transfer" the learned features from one domain to another. This significantly improves accuracy and reduces computational cost, especially in deep learning tasks like image classification, object detection, and segmentation.

Pre Trained $\longrightarrow$ Image Net

Transfer $\longrightarrow$ Pre Trained $\longrightarrow$ New Task
Small Dataset

Scratch Training $\longrightarrow$ Computationally Expensive

P.T $\longrightarrow$ Frozen Mode

T.L $\longrightarrow$ Freeze Layers + Train

Parent $\longrightarrow$ Child

Benefits :-
1) Less Training Time
2) Fine Tune with your data
3) Layer Modification
4) Better Accuracy on our small task dataset.

Approach

1) Pre Trained :- Generic problem
   Classes

2) Transfer learning :- Domain Specific