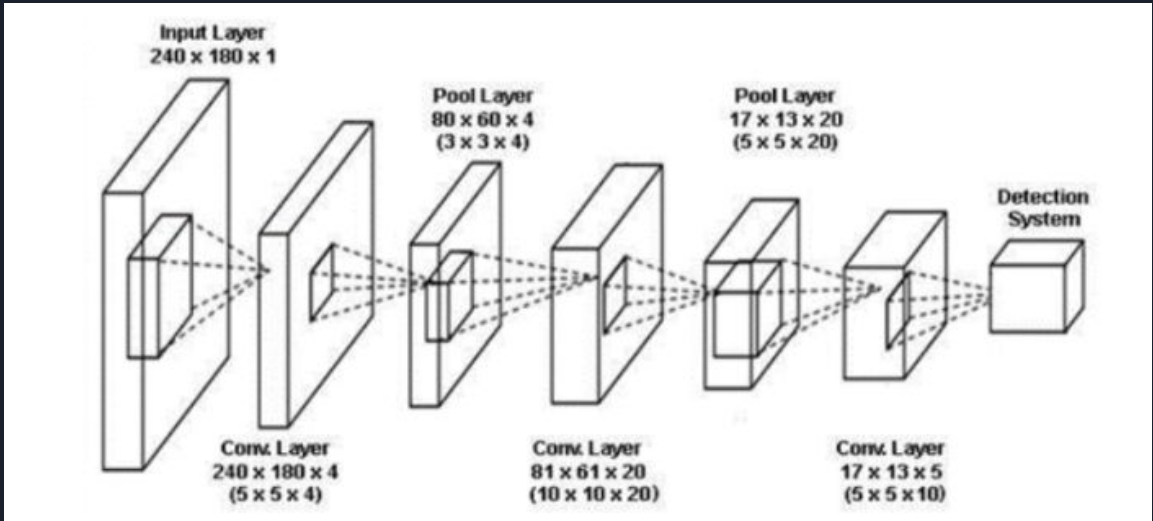
Pneumonia Detection

CNN's

- Image as input
- Early Convolution layers detects low level features like edges and captures spatial dependencies in image.Done with filters
- Deep layers detects high level features like objects



- Activation layer helps to learn complex pattern in data
- Feature map from convolution layer given as input to activation layer
- Pooling layers -

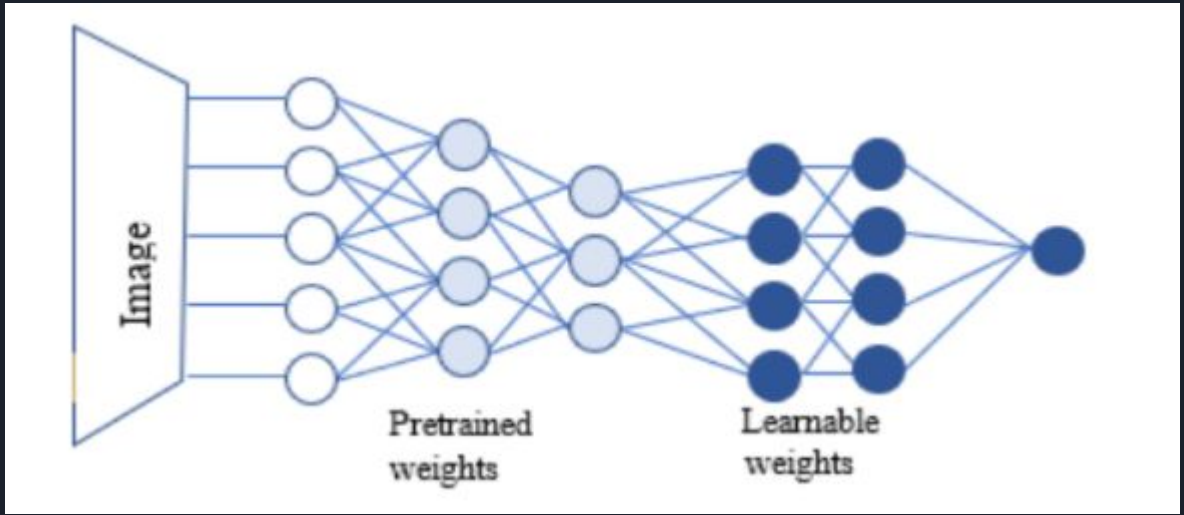
1. reduce spatial size which helps to reduce parameters and hence computation work
2. Extract features that are positional and rotational invariant

Two types of Pooling layers-

1. Max pooling-Outputs maximum value
2. Average pooling -Outputs average value

Transfer Learning

- Reusing weights of already predefined and trained model to some new model.
- If working on similar Computer Vision problem instead of training model from scratch can use pre-trained model for ease



Detection Using Transfer Learning-

- Pretrained models which can be used-

1. AlexNet
2. DenseNet121
3. Resnet18
4. InceptionV3
5. GoogLeNet

These are trained on ImageNet Dataset and then used on Images of Chest X-Ray dataset

- Ensemble Classification-

1. Used for combining prediction of pre-trained Neural Networks
2. Prediction Vector has outputs of pre-trained networks
3. Final Prediction done by majority voting