Thank you Hasebul hasan shihab. Hello everyone, I’m Ihsan Md. Al-Aqib. Here I’m going to present vgg16 and our model.

**VGG16 Architecture**

**The number 16 in the name VGG** refers to the fact that it is 16 layers deep neural network. This means VGG16 is a pretty extensive network and has a total of around 138 million parameters.

**You can load a pretrained** version of the network trained on more than a million images from the ImageNet database. The pretrained network can classify images into different categories.

**In our model, takes input** 7X7 and 512 input channel shape then input goes to global avgpool after that the matrices pass through 3 times to dense layer which activate ReLU activation, normalization and dropout layer with different input channel. Finally, it comes to output layer and activate softmax activation.

**Here in the process chart of vgg16,** there is 4 fully connected layer or activation layers 3 of them are ReLU activation and last one is softmax activation. To use this model, first remove the fully connected layers and also removing the input block from our model. Because input block won’t be needed though taking input from pretrained model.

**Next slide**

Here removing layers from models. Top layers of vgg16 has been removed.

**Next slide**

Here concatenated our model with vgg16 pretrained model. Now you can see the shape of the joining point matched. That means there won’t be any error on joining.

**Next slide**

**Here you can see it takes input first from the dataset** and go through the vgg16 which already has trained value from imageNET database. After that the matrices value Loop through our model.

**In this combined model** we use transfer learning which learning rate starts at 1e-3, reduce learning rate by o.2 factor is specialty of this model. In that case vgg16 value has been frozen or not upgrading weights value, only upgrading value on loop area.

Now, Transfer learning

**Iterative Algorithm** that starts off at a random point on the loss function and travels down its slope in steps until it reaches the lowest point (minimum) of the function.

**Algorithm works by (i)Calculate** what a small change in each individual weight would do to the value loss function **(ii)**Adjust each parameter based on its take a small step in the determined direction. Repeat steps 1 and 2 until the value loss function is as low as possible.

**Reduce learning** function monitor the value loss and factor by which the learning rate will be reduced. click

**This function** also has a parameter called patience which count number of epochs with no improvement after which learning rate will be reduced. Another parameter called min\_lr which is a lower bound on the learning rate.

**Now my fellow teammate MD SAKIBUL ALAM UTCHAS will continue**