Transfer Learning using AlexNet and Dog Breed Classifier Dataset

You will need to have modified dataset.

- Download the "Dog Breed Identification" dataset from (https://www.kaggle.com/c/dog-breed-identification/data)
- Run "ModifyDataset.mlx" script to modify the dataset into directory wise categories

Train

Set up testing data

```
rootFolder = 'test';

LabelData = readtable('.\labels.csv', 'Format', '%C%C');
BreedLabels = string(transpose(table2cell(unique(LabelData(:,'breed')))));

BreedCount = numel(BreedLabels)

BreedCount = 120

testDS = imageDatastore(fullfile(rootFolder, BreedLabels), 'LabelSource', 'foldernames');
```

```
testDS.ReadFcn = @readFunctionTrain;
```

Import GoogLeNet trained with Transfer Learning

Importing trained network for some manual validation and results.

```
GoogLeNet_convnet = trainedNetwork_1;
```

Test classifer

```
[labels,err_test] = classify(GoogLeNet_convnet, testDS, 'MiniBatchSize', 64);
```

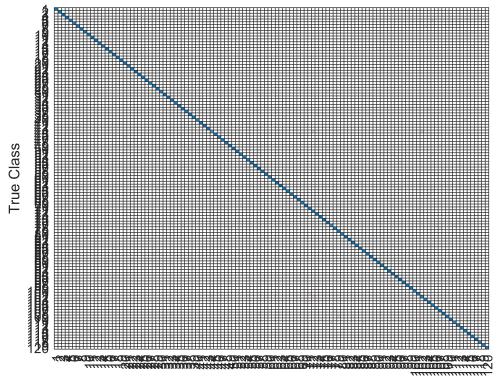
Determine overall accuracy

```
GoogLeNet_confMat = confusionmat(testDS.Labels, labels);
GoogLeNet_confMat = GoogLeNet_confMat./sum(GoogLeNet_confMat,2);
OverallAccuracy = mean(diag(GoogLeNet_confMat))
OverallAccuracy = 0.9394
```

```
BreedAcc = diag(GoogLeNet_confMat).';
int_confMat = int64(GoogLeNet_confMat .* 10000)
```

int_confMat	= 120>	<120 int6	4 matrix						
9625	0	0	0	0	0	0	0	0	0
0	9569	0	0	0	0	0	0	0	0
0	0	10000	0	0	0	0	0	0	0
0	0	0	9439	0	0	93	0	0	0
0	0	0	0	8784	0	0	0	0	0
0	0	0	0	0	8974	0	0	0	0
0	0	0	0	0	0	9216	0	0	0
0	0	0	0	0	0	0	9636	0	0
0	0	0	0	0	0	0	0	9390	0
0	0	0	0	0	0	0	0	190	9429
:									
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confusionchart(int_confMat)



Predicted Class