

**%% Load\_dataset**

**function** [imgTrainAll, lblTrainAll, imgTestAll, lblTestAll] = **Load\_dataset**()

imgTrainAll = loadMNISTImages('train-images.idx3-ubyte');

lblTrainAll = loadMNISTLabels('train-labels.idx1-ubyte');

imgTestAll = loadMNISTImages('t10k-images.idx3-ubyte');

lblTestAll = loadMNISTLabels('t10k-labels.idx1-ubyte');

**end**

**%% Training Phase**

**function** model = **Training\_Phase**(X\_train, y\_train)

%% Training model using knn

model = **fitcknn**(X\_train, y\_train);

**save**('model.mat', 'model');

**end**

**%% Test Phase**

**function** label = **Test\_Phase**(imgTestAll, lblTestAll, index)

img = imgTestAll(:, index);

**load**('model.mat');

label = **predict**(model, img);

**fprintf**('Predicted Label: %d \n', label);

**fprintf**('Real Label: %d \n', lblTestAll(index));

**end**