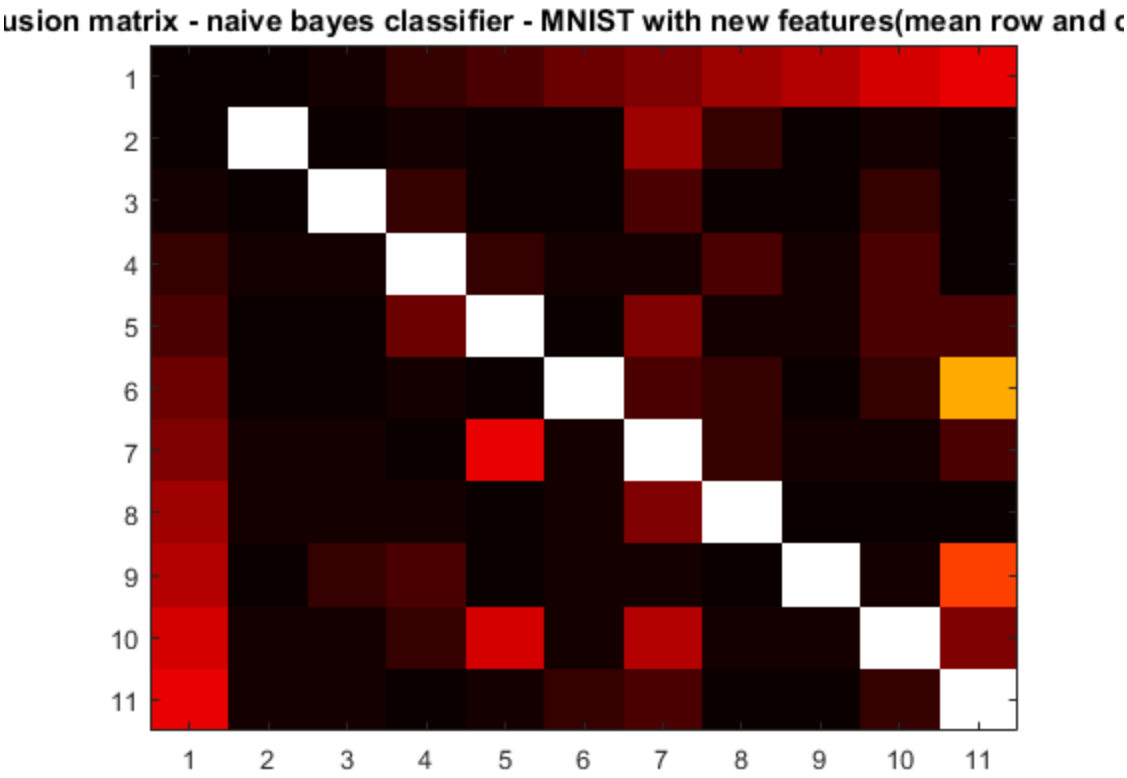
```
 % Add new features: mean of each row and column

M_new_data_train = reshape(M_data_train,[60000,24,24,1]);
M_new_data_train = [repmat([permute(mean(M_new_data_train,2),[1 3
 2]),mean(M_new_data_train,3)],[1 1]), M_data_train];

M_new_data_test = reshape(M_data_test,[10000,24,24,1]);
M_new_data_test = [repmat([permute(mean(M_new_data_test,2),[1 3
 2]),mean(M_new_data_test,3)],[1 1]), M_data_test];

% Train the classifier
[M_new_means, M_new_variances] =
 f1_train_naive_bayes_classifier( M_new_data_train, M_labels_train );

% Test the predictions on the test data for the MNIST dataset
[M_labels_prediction, M_confusion_matrix, M_accuracy] =
 f2_predict_naive_bayes_classifier( M_new_means, M_new_variances,
 M_new_data_test, M_labels_test, 0.084);

% Display the confusion matrix and the accuracy
M_confusion_matrix
M_accuracy

% Display the confusion matrix through an image
figure();
colormap hot;
image(M_confusion_matrix*2.5);
title('confusion matrix - naive bayes classifier - MNIST with new
 features(mean row and column)')
```

```
M_confusion_matrix =

   NaN     0     1     2     3     4     5     6     7     8     9
     0    89     0     1     0     0     6     2     0     1     0
     1     0    92     2     0     0     3     0     0     2     0
     2     1     1    84     2     1     1     3     1     3     0
     3     0     0     4    83     0     5     1     1     3     3
     4     0     0     1     0    76     3     2     0     2    16
     5     1     1     0     9     1    79     2     1     1     3
     6     1     1     1     0     1     5    91     0     0     0
     7     0     2     3     0     1     1     0    79     1    12
     8     1     1     2     8     1     7     1     1    74     5
     9     1     1     0     1     2     3     0     0     2    89


M_accuracy =

    0.8392
```



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