Final Exam Problem 3

Bryn Louise

```
% Load Data
X = load('mushrooms.mat');

% Define Targets
T = X.T;

% Define Data
X = X.X;

% Divide data and targets into Training and Testing sets
[m,n] = size(X);

P = 0.70;
idx = randperm(n);
XTrain = X(:, idx(1:round(P*n)));
XTest = X(:, idx(round(P*n)+1:end));

TTrain = T(:, idx(1:round(P*n)));
TTest = T(:, idx(round(P*n)+1:end));
```

Find Weights Using Training Data

```
% Find 30 centers using Kmeans
[idx,C] = kmeans(XTrain',30);
centers = C';

% Find EDM
A = edm(XTrain', centers');

% Find Phi
Phi = rbf1(A,2,1);

% Find Weights using SVD
[u,s,v] = svd(Phi, 'econ');
PhiDagger = v * inv(s) * u';
W = TTrain * PhiDagger';
```

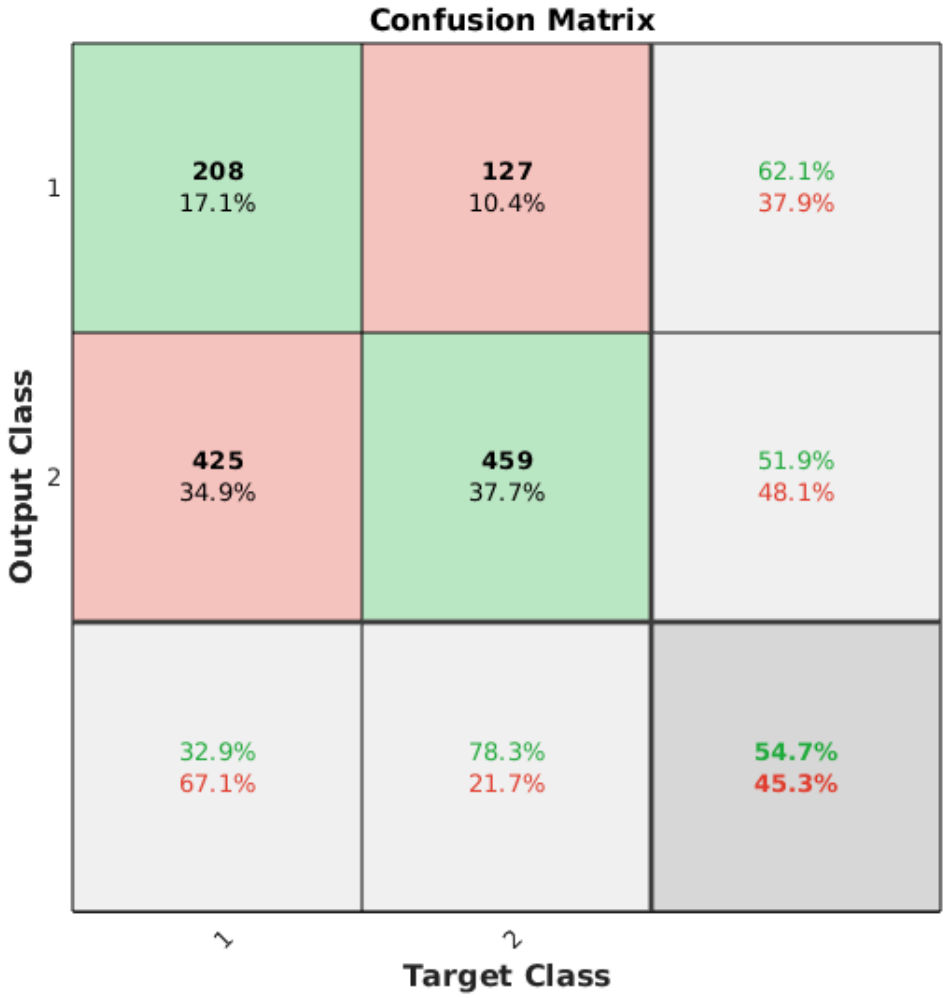
Find Error using Test Data

```
[idx,C] = kmeans(XTest',30);
centers = C';

A = edm(XTest', centers');

Phi = rbf1(A,2,1);
Yout = W*Phi';

plotconfusion(TTest, Yout);
```



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