

```

clc
clear

filename = 'Normal-Data-Training_dat.txt';
formatSpec = '%1s%13s%s%[\n\r]';
fileID = fopen(filename, 'r');
trainData = textscan(fileID, formatSpec, 'Delimiter', '', 'WhiteSpace', '',
'ReturnOnError', false);
fclose(fileID);

filename = 'Normal-Data-Testing_dat.txt';
formatSpec = '%1s%13s%s%[\n\r]';
fileID = fopen(filename, 'r');
testData = textscan(fileID, formatSpec, 'Delimiter', '', 'WhiteSpace', '',
'ReturnOnError', false);
fclose(fileID);

datatrain = str2num([cell2mat(trainData{1}), cell2mat(trainData{2}),
cell2mat(trainData{3})]);
datatest = str2num([cell2mat(testData{1}), cell2mat(testData{2}),
cell2mat(testData{3})]);
Data = [[datatrain(1:500, 1); datatest(1:500, 1); datatrain(501:1000, 1);
datatest(501:1000, 1)], [datatrain(1:500, 2); datatest(1:500, 2); datatrain(501:1000,
2); datatest(501:1000, 2)], [datatrain(1:500, 3); datatest(1:500, 3);
datatrain(501:1000, 3); datatest(501:1000, 3)]];
Data = [Data, zeros(numel(Data(:, 1)), 1)];
D = numel(Data(1, 2:end-1));

[rowC1, ~] = find(Data(:, 1) == 1);
[rowC2, ~] = find(Data(:, 1) == 2);
distance = zeros(max([numel(rowC1), numel(rowC2)]), 2);
distance(:) = inf;

nTPC11 = 0;
nFNC1 = 0;
nFPC12 = 0;

nTPC22 = 0;
nFNC2 = 0;
nFPC21 = 0;

class1 = [Data(rowC1, 2), Data(rowC1, 3)];
class2 = [Data(rowC2, 2), Data(rowC2, 3)];
N1 = numel(class1(:, 1));
N2 = numel(class2(:, 1));

for k = 1:3
    for i = min(rowC1):max(rowC1)
        class1_L00 = [Data(setdiff(rowC1, i), 2), Data(setdiff(rowC1, i), 3)];
        DataPoint = [Data(i, 2), Data(i, 3)];
        for j = 1:numel(class1_L00(:, 1))
            distance(j + 1, 1) = euclideanDistance(DataPoint, class1_L00(j, :));
        end
    end
end

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for j = 1:numel(class2(:, 1))
    distance(j, 2) = euclideanDistance(DataPoint, class2(j, :));
end
sortedDistance = sort(distance);

A = sortedDistance(1:k, 1);
kA = max(numel(find(A(end) == sortedDistance(:, 1))) + numel(find(A(end) ~=
A(:))), k);
B = sortedDistance(1:k, 2);
kB = max(numel(find(B(end) == sortedDistance(:, 2))) + numel(find(B(end) ~=
B(:))), k);

V1 = Vn(D, max(A));
V2 = Vn(D, max(B));
N1_L00 = numel(class1_L00(:, 1));

l12 = (kA * N2 * V2) / (kB * N1_L00 * V1);

pC1 = N1_L00 / (N1_L00 + N2);
pC2 = N2 / (N1_L00 + N2);

[~, index1] = max([l12, pC2 / pC1]);
if index1 == 1
    TrueClass = 1;
else
    TrueClass = 2;
end
Data(i, 4) = TrueClass;
if TrueClass ~= 1
    nFNC1 = nFNC1 + 1;
    nFPC12 = nFPC12 + 1;
    display('-----');
    display(['Row Number: ', num2str(i)]);
    display(['Actual Class: ', num2str(Data(i, 1))]);
    display(['Predicted Class: ', num2str(TrueClass)]);
    display('-----');
end
end
nTPC11 = numel(rowC1) - nFNC1;

distance(:) = inf;
for i = min(rowC2):max(rowC2)
    class2_L00 = [Data(setdiff(rowC2, i), 2), Data(setdiff(rowC2, i), 3)];
    DataPoint = [Data(i, 2), Data(i, 3)];
    for j = 1:numel(class1(:, 1))
        distance(j, 1) = euclideanDistance(DataPoint, class1(j, :));
    end
    for j = 1:numel(class2_L00(:, 1))
        distance(j + 1, 2) = euclideanDistance(DataPoint, class2_L00(j, :));
    end
    sortedDistance = sort(distance);

    A = sortedDistance(1:k, 1);
    kA = max(numel(find(A(end) == sortedDistance(:, 1))) + numel(find(A(end) ~=
A(:))), k);

```

```

B = sortedDistance(1:k, 2);
kB = max(numel(find(B(end) == sortedDistance(:, 2))) + numel(find(B(end) ~=
B(:))), k);

V1 = Vn(D, max(A));
V2 = Vn(D, max(B));
N2_L00 = numel(class2_L00(:, 1));

l12 = (kA * N2_L00 * V2) / (kB * N1 * V1);

pC1 = N1 / (N1 + N2_L00);
pC2 = N2_L00 / (N1 + N2_L00);

[~, index1] = max([l12, pC2 / pC1]);
if index1 == 1
    TrueClass = 1;
else
    TrueClass = 2;
end
Data(i, 4) = TrueClass;
if TrueClass ~= 2
    nFNC2 = nFNC2 + 1;
    nFPC21 = nFPC21 + 1;
    display('-----');
    display(['Row Number: ', num2str(i - max(rowC1))]);
    display(['Actual Class: ', num2str(Data(i, 1))]);
    display(['Predicted Class: ', num2str(TrueClass)]);
    display('-----');
end
end
nTPC22 = numel(rowC2) - nFNC2;

display(['k = ', num2str(k)]);

Confusion_matrix{1, 1} = 'P\A';
Confusion_matrix{2, 1} = 'C1';
Confusion_matrix{3, 1} = 'C2';
Confusion_matrix{1, 2} = 'C1';
Confusion_matrix{1, 3} = 'C2';

Confusion_matrix{2, 2} = nTPC11;
Confusion_matrix{2, 3} = nFPC21;

Confusion_matrix{3, 2} = nFPC12;
Confusion_matrix{3, 3} = nTPC22;

display(Confusion_matrix);

nTPC11 = 0;
nFNC1 = 0;
nFPC12 = 0;

nTPC22 = 0;
nFNC2 = 0;
nFPC21 = 0;

```

end

Row Number: 11
Actual Class: 1
Predicted Class: 2

Row Number: 36
Actual Class: 1
Predicted Class: 2

Row Number: 46
Actual Class: 1
Predicted Class: 2

Row Number: 61
Actual Class: 1
Predicted Class: 2

Row Number: 71
Actual Class: 1
Predicted Class: 2

Row Number: 97
Actual Class: 1
Predicted Class: 2

Row Number: 108
Actual Class: 1
Predicted Class: 2

Row Number: 117
Actual Class: 1
Predicted Class: 2

Row Number: 124
Actual Class: 1
Predicted Class: 2

Row Number: 129
Actual Class: 1
Predicted Class: 2

Row Number: 134
Actual Class: 1
Predicted Class: 2

Row Number: 143
Actual Class: 1
Predicted Class: 2

Row Number: 150
Actual Class: 1
Predicted Class: 2

Row Number: 151
Actual Class: 1
Predicted Class: 2

Row Number: 160
Actual Class: 1
Predicted Class: 2

Row Number: 162
Actual Class: 1
Predicted Class: 2

Row Number: 166
Actual Class: 1
Predicted Class: 2

Row Number: 172
Actual Class: 1
Predicted Class: 2

Row Number: 177
Actual Class: 1
Predicted Class: 2

Row Number: 184
Actual Class: 1
Predicted Class: 2

Row Number: 187
Actual Class: 1
Predicted Class: 2

Row Number: 197
Actual Class: 1
Predicted Class: 2

Row Number: 210
Actual Class: 1
Predicted Class: 2

Row Number: 213
Actual Class: 1
Predicted Class: 2

Row Number: 216
Actual Class: 1
Predicted Class: 2

Row Number: 217
Actual Class: 1
Predicted Class: 2

Row Number: 239
Actual Class: 1
Predicted Class: 2

Row Number: 240
Actual Class: 1
Predicted Class: 2

Row Number: 241
Actual Class: 1
Predicted Class: 2

Row Number: 242
Actual Class: 1
Predicted Class: 2

Row Number: 251
Actual Class: 1
Predicted Class: 2

Row Number: 254
Actual Class: 1
Predicted Class: 2

Row Number: 255
Actual Class: 1
Predicted Class: 2

Row Number: 262
Actual Class: 1
Predicted Class: 2

Row Number: 265
Actual Class: 1
Predicted Class: 2

Row Number: 266
Actual Class: 1
Predicted Class: 2

Row Number: 267
Actual Class: 1
Predicted Class: 2

Row Number: 282
Actual Class: 1
Predicted Class: 2

Row Number: 292
Actual Class: 1
Predicted Class: 2

Row Number: 295
Actual Class: 1
Predicted Class: 2

Row Number: 306
Actual Class: 1
Predicted Class: 2

Row Number: 314
Actual Class: 1
Predicted Class: 2

Row Number: 316
Actual Class: 1
Predicted Class: 2

Row Number: 326
Actual Class: 1
Predicted Class: 2

Row Number: 347
Actual Class: 1
Predicted Class: 2

Row Number: 363
Actual Class: 1
Predicted Class: 2

Row Number: 372
Actual Class: 1
Predicted Class: 2

Row Number: 382
Actual Class: 1
Predicted Class: 2

Row Number: 408
Actual Class: 1
Predicted Class: 2

Row Number: 416
Actual Class: 1
Predicted Class: 2

Row Number: 421
Actual Class: 1
Predicted Class: 2

Row Number: 424
Actual Class: 1
Predicted Class: 2

Row Number: 432
Actual Class: 1
Predicted Class: 2

Row Number: 434
Actual Class: 1
Predicted Class: 2

Row Number: 453
Actual Class: 1
Predicted Class: 2

Row Number: 464
Actual Class: 1
Predicted Class: 2

Row Number: 473
Actual Class: 1
Predicted Class: 2

Row Number: 475
Actual Class: 1
Predicted Class: 2

Row Number: 481
Actual Class: 1
Predicted Class: 2

Row Number: 493
Actual Class: 1
Predicted Class: 2

Row Number: 494
Actual Class: 1
Predicted Class: 2

Row Number: 497
Actual Class: 1
Predicted Class: 2

Row Number: 511
Actual Class: 1
Predicted Class: 2

Row Number: 516
Actual Class: 1
Predicted Class: 2

Row Number: 525
Actual Class: 1
Predicted Class: 2

Row Number: 537
Actual Class: 1
Predicted Class: 2

Row Number: 539
Actual Class: 1
Predicted Class: 2

Row Number: 541
Actual Class: 1
Predicted Class: 2

Row Number: 566
Actual Class: 1
Predicted Class: 2

Row Number: 586
Actual Class: 1
Predicted Class: 2

Row Number: 594
Actual Class: 1
Predicted Class: 2

Row Number: 598
Actual Class: 1
Predicted Class: 2

Row Number: 620
Actual Class: 1
Predicted Class: 2

Row Number: 634
Actual Class: 1
Predicted Class: 2

Row Number: 643
Actual Class: 1
Predicted Class: 2

Row Number: 648
Actual Class: 1
Predicted Class: 2

Row Number: 654
Actual Class: 1
Predicted Class: 2

Row Number: 656
Actual Class: 1
Predicted Class: 2

Row Number: 697
Actual Class: 1
Predicted Class: 2

Row Number: 711
Actual Class: 1
Predicted Class: 2

Row Number: 712
Actual Class: 1
Predicted Class: 2

Row Number: 716
Actual Class: 1
Predicted Class: 2

Row Number: 721
Actual Class: 1
Predicted Class: 2

Row Number: 729
Actual Class: 1
Predicted Class: 2

Row Number: 738
Actual Class: 1
Predicted Class: 2

Row Number: 744
Actual Class: 1
Predicted Class: 2

Row Number: 752
Actual Class: 1
Predicted Class: 2

Row Number: 769
Actual Class: 1
Predicted Class: 2

Row Number: 772
Actual Class: 1
Predicted Class: 2

Row Number: 782
Actual Class: 1
Predicted Class: 2

Row Number: 795
Actual Class: 1
Predicted Class: 2

Row Number: 796
Actual Class: 1
Predicted Class: 2

Row Number: 798
Actual Class: 1
Predicted Class: 2

Row Number: 809
Actual Class: 1
Predicted Class: 2

Row Number: 818
Actual Class: 1
Predicted Class: 2

Row Number: 819
Actual Class: 1
Predicted Class: 2

Row Number: 824
Actual Class: 1
Predicted Class: 2

Row Number: 831
Actual Class: 1
Predicted Class: 2

Row Number: 836
Actual Class: 1
Predicted Class: 2

Row Number: 844
Actual Class: 1
Predicted Class: 2

Row Number: 847
Actual Class: 1
Predicted Class: 2

Row Number: 866
Actual Class: 1
Predicted Class: 2

Row Number: 876
Actual Class: 1
Predicted Class: 2

Row Number: 877
Actual Class: 1
Predicted Class: 2

Row Number: 880
Actual Class: 1
Predicted Class: 2

Row Number: 888
Actual Class: 1
Predicted Class: 2

Row Number: 893
Actual Class: 1
Predicted Class: 2

Row Number: 898
Actual Class: 1
Predicted Class: 2

Row Number: 899
Actual Class: 1
Predicted Class: 2

Row Number: 925
Actual Class: 1
Predicted Class: 2

Row Number: 933
Actual Class: 1
Predicted Class: 2

Row Number: 940
Actual Class: 1
Predicted Class: 2

Row Number: 951
Actual Class: 1
Predicted Class: 2

Row Number: 965
Actual Class: 1
Predicted Class: 2

Row Number: 981
Actual Class: 1
Predicted Class: 2

Row Number: 990
Actual Class: 1
Predicted Class: 2

Row Number: 991
Actual Class: 1
Predicted Class: 2

Row Number: 992
Actual Class: 1
Predicted Class: 2

Row Number: 2
Actual Class: 2
Predicted Class: 1

Row Number: 20
Actual Class: 2
Predicted Class: 1

Row Number: 32
Actual Class: 2
Predicted Class: 1

Row Number: 51
Actual Class: 2
Predicted Class: 1

Row Number: 58
Actual Class: 2
Predicted Class: 1

Row Number: 71
Actual Class: 2
Predicted Class: 1

Row Number: 75
Actual Class: 2
Predicted Class: 1

Row Number: 81
Actual Class: 2
Predicted Class: 1

Row Number: 84
Actual Class: 2
Predicted Class: 1

Row Number: 95
Actual Class: 2
Predicted Class: 1

Row Number: 96
Actual Class: 2
Predicted Class: 1

Row Number: 118
Actual Class: 2
Predicted Class: 1

Row Number: 137
Actual Class: 2
Predicted Class: 1

Row Number: 167
Actual Class: 2
Predicted Class: 1

Row Number: 182
Actual Class: 2
Predicted Class: 1

Row Number: 203
Actual Class: 2
Predicted Class: 1

Row Number: 211
Actual Class: 2
Predicted Class: 1

Row Number: 215
Actual Class: 2
Predicted Class: 1

Row Number: 235
Actual Class: 2
Predicted Class: 1

Row Number: 237
Actual Class: 2
Predicted Class: 1

Row Number: 246
Actual Class: 2
Predicted Class: 1

Row Number: 251
Actual Class: 2
Predicted Class: 1

Row Number: 255
Actual Class: 2
Predicted Class: 1

Row Number: 262
Actual Class: 2
Predicted Class: 1

Row Number: 270
Actual Class: 2
Predicted Class: 1

Row Number: 272
Actual Class: 2
Predicted Class: 1

Row Number: 291
Actual Class: 2
Predicted Class: 1

Row Number: 292
Actual Class: 2
Predicted Class: 1

Row Number: 298
Actual Class: 2
Predicted Class: 1

Row Number: 299
Actual Class: 2
Predicted Class: 1

Row Number: 302
Actual Class: 2
Predicted Class: 1

Row Number: 306
Actual Class: 2
Predicted Class: 1

Row Number: 317
Actual Class: 2
Predicted Class: 1

Row Number: 321
Actual Class: 2
Predicted Class: 1

Row Number: 325
Actual Class: 2
Predicted Class: 1

Row Number: 332
Actual Class: 2
Predicted Class: 1

Row Number: 336
Actual Class: 2
Predicted Class: 1

Row Number: 341
Actual Class: 2
Predicted Class: 1

Row Number: 342
Actual Class: 2
Predicted Class: 1

Row Number: 361
Actual Class: 2
Predicted Class: 1

Row Number: 372
Actual Class: 2
Predicted Class: 1

Row Number: 377
Actual Class: 2
Predicted Class: 1

Row Number: 378
Actual Class: 2
Predicted Class: 1

Row Number: 400
Actual Class: 2
Predicted Class: 1

Row Number: 402
Actual Class: 2
Predicted Class: 1

Row Number: 421
Actual Class: 2
Predicted Class: 1

Row Number: 432
Actual Class: 2
Predicted Class: 1

Row Number: 443
Actual Class: 2
Predicted Class: 1

Row Number: 445
Actual Class: 2
Predicted Class: 1

Row Number: 451
Actual Class: 2
Predicted Class: 1

Row Number: 466
Actual Class: 2
Predicted Class: 1

Row Number: 470
Actual Class: 2
Predicted Class: 1

Row Number: 485
Actual Class: 2
Predicted Class: 1

Row Number: 488
Actual Class: 2
Predicted Class: 1

Row Number: 498
Actual Class: 2
Predicted Class: 1

Row Number: 499
Actual Class: 2
Predicted Class: 1

Row Number: 501
Actual Class: 2
Predicted Class: 1

Row Number: 510
Actual Class: 2
Predicted Class: 1

Row Number: 515
Actual Class: 2
Predicted Class: 1

Row Number: 529
Actual Class: 2
Predicted Class: 1

Row Number: 548
Actual Class: 2
Predicted Class: 1

Row Number: 566
Actual Class: 2
Predicted Class: 1

Row Number: 571
Actual Class: 2
Predicted Class: 1

Row Number: 572
Actual Class: 2
Predicted Class: 1

Row Number: 573
Actual Class: 2
Predicted Class: 1

Row Number: 575
Actual Class: 2
Predicted Class: 1

Row Number: 581
Actual Class: 2
Predicted Class: 1

Row Number: 582
Actual Class: 2
Predicted Class: 1

Row Number: 598
Actual Class: 2
Predicted Class: 1

Row Number: 619
Actual Class: 2
Predicted Class: 1

Row Number: 622
Actual Class: 2
Predicted Class: 1

Row Number: 629
Actual Class: 2
Predicted Class: 1

Row Number: 659
Actual Class: 2
Predicted Class: 1

Row Number: 665
Actual Class: 2
Predicted Class: 1

Row Number: 675
Actual Class: 2
Predicted Class: 1

Row Number: 679
Actual Class: 2
Predicted Class: 1

Row Number: 691
Actual Class: 2
Predicted Class: 1

Row Number: 695
Actual Class: 2
Predicted Class: 1

Row Number: 696
Actual Class: 2
Predicted Class: 1

Row Number: 717
Actual Class: 2
Predicted Class: 1

Row Number: 731
Actual Class: 2
Predicted Class: 1

Row Number: 738
Actual Class: 2
Predicted Class: 1

Row Number: 741
Actual Class: 2
Predicted Class: 1

Row Number: 747
Actual Class: 2
Predicted Class: 1

Row Number: 754
Actual Class: 2
Predicted Class: 1

Row Number: 757
Actual Class: 2
Predicted Class: 1

Row Number: 778
Actual Class: 2
Predicted Class: 1

Row Number: 787
Actual Class: 2
Predicted Class: 1

Row Number: 790
Actual Class: 2
Predicted Class: 1

Row Number: 791
Actual Class: 2
Predicted Class: 1

Row Number: 807
Actual Class: 2
Predicted Class: 1

Row Number: 833
Actual Class: 2
Predicted Class: 1

Row Number: 835
Actual Class: 2
Predicted Class: 1

Row Number: 836
Actual Class: 2
Predicted Class: 1

Row Number: 844
Actual Class: 2
Predicted Class: 1

Row Number: 846
Actual Class: 2
Predicted Class: 1

Row Number: 850
Actual Class: 2
Predicted Class: 1

Row Number: 852
Actual Class: 2
Predicted Class: 1

Row Number: 871
Actual Class: 2
Predicted Class: 1

Row Number: 884
Actual Class: 2
Predicted Class: 1

Row Number: 886
Actual Class: 2
Predicted Class: 1

Row Number: 895
Actual Class: 2
Predicted Class: 1

Row Number: 907
Actual Class: 2
Predicted Class: 1

Row Number: 909
Actual Class: 2
Predicted Class: 1

Row Number: 911
Actual Class: 2
Predicted Class: 1

Row Number: 912
Actual Class: 2
Predicted Class: 1

Row Number: 921
Actual Class: 2
Predicted Class: 1

Row Number: 925
Actual Class: 2
Predicted Class: 1

Row Number: 929
Actual Class: 2
Predicted Class: 1

Row Number: 941
Actual Class: 2
Predicted Class: 1

Row Number: 963
Actual Class: 2
Predicted Class: 1

Row Number: 969
Actual Class: 2
Predicted Class: 1

Row Number: 972
Actual Class: 2
Predicted Class: 1

```
-----  
-----  
Row Number: 975  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
Row Number: 983  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
Row Number: 991  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
Row Number: 998  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
k = 1
```

```
Confusion_matrix =
```

```
3x3 cell array
```

{ 'P\A' }	{ 'C1' }	{ 'C2' }
{ 'C1' }	{ [882] }	{ [117] }
{ 'C2' }	{ [118] }	{ [883] }

```
-----  
Row Number: 11  
Actual Class: 1  
Predicted Class: 2  
-----
```

```
-----  
Row Number: 36  
Actual Class: 1  
Predicted Class: 2  
-----
```

```
-----  
Row Number: 46  
Actual Class: 1  
Predicted Class: 2  
-----
```

```
-----  
Row Number: 70  
Actual Class: 1  
Predicted Class: 2  
-----
```

```
-----  
Row Number: 71  
Actual Class: 1  
Predicted Class: 2
```


Row Number: 97
Actual Class: 1
Predicted Class: 2

Row Number: 108
Actual Class: 1
Predicted Class: 2

Row Number: 117
Actual Class: 1
Predicted Class: 2

Row Number: 129
Actual Class: 1
Predicted Class: 2

Row Number: 143
Actual Class: 1
Predicted Class: 2

Row Number: 160
Actual Class: 1
Predicted Class: 2

Row Number: 165
Actual Class: 1
Predicted Class: 2

Row Number: 166
Actual Class: 1
Predicted Class: 2

Row Number: 167
Actual Class: 1
Predicted Class: 2

Row Number: 177
Actual Class: 1
Predicted Class: 2

Row Number: 184
Actual Class: 1
Predicted Class: 2

Row Number: 197
Actual Class: 1
Predicted Class: 2

Row Number: 203
Actual Class: 1
Predicted Class: 2

Row Number: 210
Actual Class: 1
Predicted Class: 2

Row Number: 213
Actual Class: 1
Predicted Class: 2

Row Number: 216
Actual Class: 1
Predicted Class: 2

Row Number: 217
Actual Class: 1
Predicted Class: 2

Row Number: 240
Actual Class: 1
Predicted Class: 2

Row Number: 241
Actual Class: 1
Predicted Class: 2

Row Number: 242
Actual Class: 1
Predicted Class: 2

Row Number: 251
Actual Class: 1
Predicted Class: 2

Row Number: 254
Actual Class: 1
Predicted Class: 2

Row Number: 255
Actual Class: 1
Predicted Class: 2

Row Number: 262
Actual Class: 1
Predicted Class: 2

Row Number: 265
Actual Class: 1
Predicted Class: 2

Row Number: 266
Actual Class: 1
Predicted Class: 2

Row Number: 267
Actual Class: 1
Predicted Class: 2

Row Number: 273
Actual Class: 1
Predicted Class: 2

Row Number: 282
Actual Class: 1
Predicted Class: 2

Row Number: 306
Actual Class: 1
Predicted Class: 2

Row Number: 314
Actual Class: 1
Predicted Class: 2

Row Number: 316
Actual Class: 1
Predicted Class: 2

Row Number: 326
Actual Class: 1
Predicted Class: 2

Row Number: 347
Actual Class: 1
Predicted Class: 2

Row Number: 367
Actual Class: 1
Predicted Class: 2

Row Number: 382
Actual Class: 1
Predicted Class: 2

Row Number: 408
Actual Class: 1
Predicted Class: 2

Row Number: 416
Actual Class: 1
Predicted Class: 2

Row Number: 424
Actual Class: 1
Predicted Class: 2

Row Number: 432
Actual Class: 1
Predicted Class: 2

Row Number: 434
Actual Class: 1
Predicted Class: 2

Row Number: 463
Actual Class: 1
Predicted Class: 2

Row Number: 464
Actual Class: 1
Predicted Class: 2

Row Number: 481
Actual Class: 1
Predicted Class: 2

Row Number: 484
Actual Class: 1
Predicted Class: 2

Row Number: 493
Actual Class: 1
Predicted Class: 2

Row Number: 494
Actual Class: 1
Predicted Class: 2

Row Number: 497
Actual Class: 1
Predicted Class: 2

Row Number: 511
Actual Class: 1
Predicted Class: 2

Row Number: 516
Actual Class: 1
Predicted Class: 2

Row Number: 525
Actual Class: 1
Predicted Class: 2

Row Number: 537
Actual Class: 1
Predicted Class: 2

Row Number: 539
Actual Class: 1
Predicted Class: 2

Row Number: 541
Actual Class: 1
Predicted Class: 2

Row Number: 566
Actual Class: 1
Predicted Class: 2

Row Number: 586
Actual Class: 1
Predicted Class: 2

Row Number: 594
Actual Class: 1
Predicted Class: 2

Row Number: 598
Actual Class: 1
Predicted Class: 2

Row Number: 608
Actual Class: 1
Predicted Class: 2

Row Number: 620
Actual Class: 1
Predicted Class: 2

Row Number: 633
Actual Class: 1
Predicted Class: 2

Row Number: 634
Actual Class: 1
Predicted Class: 2

Row Number: 637
Actual Class: 1
Predicted Class: 2

Row Number: 648
Actual Class: 1
Predicted Class: 2

Row Number: 651
Actual Class: 1
Predicted Class: 2

Row Number: 654
Actual Class: 1
Predicted Class: 2

Row Number: 697
Actual Class: 1
Predicted Class: 2

Row Number: 711
Actual Class: 1
Predicted Class: 2

Row Number: 712
Actual Class: 1
Predicted Class: 2

Row Number: 716
Actual Class: 1
Predicted Class: 2

Row Number: 721
Actual Class: 1
Predicted Class: 2

Row Number: 729
Actual Class: 1
Predicted Class: 2

Row Number: 744
Actual Class: 1
Predicted Class: 2

Row Number: 769
Actual Class: 1
Predicted Class: 2

Row Number: 782
Actual Class: 1
Predicted Class: 2

Row Number: 795
Actual Class: 1
Predicted Class: 2

Row Number: 796
Actual Class: 1
Predicted Class: 2

Row Number: 798
Actual Class: 1
Predicted Class: 2

Row Number: 809
Actual Class: 1
Predicted Class: 2

Row Number: 819
Actual Class: 1
Predicted Class: 2

Row Number: 836
Actual Class: 1
Predicted Class: 2

Row Number: 847
Actual Class: 1
Predicted Class: 2

Row Number: 866
Actual Class: 1
Predicted Class: 2

Row Number: 876
Actual Class: 1
Predicted Class: 2

Row Number: 877
Actual Class: 1
Predicted Class: 2

Row Number: 880
Actual Class: 1
Predicted Class: 2

Row Number: 893
Actual Class: 1
Predicted Class: 2

Row Number: 898
Actual Class: 1
Predicted Class: 2

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-----
Row Number: 899
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 911
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 951
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 965
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 981
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 986
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 990
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 991
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 992
Actual Class: 1
Predicted Class: 2
-----
-----
Row Number: 3
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 20
Actual Class: 2
Predicted Class: 1

```


Row Number: 32
Actual Class: 2
Predicted Class: 1

Row Number: 51
Actual Class: 2
Predicted Class: 1

Row Number: 54
Actual Class: 2
Predicted Class: 1

Row Number: 58
Actual Class: 2
Predicted Class: 1

Row Number: 75
Actual Class: 2
Predicted Class: 1

Row Number: 84
Actual Class: 2
Predicted Class: 1

Row Number: 95
Actual Class: 2
Predicted Class: 1

Row Number: 100
Actual Class: 2
Predicted Class: 1

Row Number: 108
Actual Class: 2
Predicted Class: 1

Row Number: 118
Actual Class: 2
Predicted Class: 1

Row Number: 137
Actual Class: 2
Predicted Class: 1

Row Number: 146
Actual Class: 2
Predicted Class: 1

Row Number: 167
Actual Class: 2
Predicted Class: 1

Row Number: 176
Actual Class: 2
Predicted Class: 1

Row Number: 177
Actual Class: 2
Predicted Class: 1

Row Number: 182
Actual Class: 2
Predicted Class: 1

Row Number: 194
Actual Class: 2
Predicted Class: 1

Row Number: 203
Actual Class: 2
Predicted Class: 1

Row Number: 211
Actual Class: 2
Predicted Class: 1

Row Number: 215
Actual Class: 2
Predicted Class: 1

Row Number: 237
Actual Class: 2
Predicted Class: 1

Row Number: 246
Actual Class: 2
Predicted Class: 1

Row Number: 262
Actual Class: 2
Predicted Class: 1

Row Number: 264
Actual Class: 2
Predicted Class: 1

Row Number: 272
Actual Class: 2
Predicted Class: 1

Row Number: 287
Actual Class: 2
Predicted Class: 1

Row Number: 291
Actual Class: 2
Predicted Class: 1

Row Number: 298
Actual Class: 2
Predicted Class: 1

Row Number: 299
Actual Class: 2
Predicted Class: 1

Row Number: 302
Actual Class: 2
Predicted Class: 1

Row Number: 317
Actual Class: 2
Predicted Class: 1

Row Number: 321
Actual Class: 2
Predicted Class: 1

Row Number: 325
Actual Class: 2
Predicted Class: 1

Row Number: 336
Actual Class: 2
Predicted Class: 1

Row Number: 341
Actual Class: 2
Predicted Class: 1

Row Number: 372
Actual Class: 2
Predicted Class: 1

Row Number: 376
Actual Class: 2
Predicted Class: 1

Row Number: 405
Actual Class: 2
Predicted Class: 1

Row Number: 421
Actual Class: 2
Predicted Class: 1

Row Number: 445
Actual Class: 2
Predicted Class: 1

Row Number: 451
Actual Class: 2
Predicted Class: 1

Row Number: 461
Actual Class: 2
Predicted Class: 1

Row Number: 466
Actual Class: 2
Predicted Class: 1

Row Number: 485
Actual Class: 2
Predicted Class: 1

Row Number: 488
Actual Class: 2
Predicted Class: 1

Row Number: 498
Actual Class: 2
Predicted Class: 1

Row Number: 499
Actual Class: 2
Predicted Class: 1

Row Number: 510
Actual Class: 2
Predicted Class: 1

Row Number: 515
Actual Class: 2
Predicted Class: 1

Row Number: 529
Actual Class: 2
Predicted Class: 1

Row Number: 548
Actual Class: 2
Predicted Class: 1

Row Number: 553
Actual Class: 2
Predicted Class: 1

Row Number: 571
Actual Class: 2
Predicted Class: 1

Row Number: 572
Actual Class: 2
Predicted Class: 1

Row Number: 579
Actual Class: 2
Predicted Class: 1

Row Number: 582
Actual Class: 2
Predicted Class: 1

Row Number: 598
Actual Class: 2
Predicted Class: 1

Row Number: 619
Actual Class: 2
Predicted Class: 1

Row Number: 629
Actual Class: 2
Predicted Class: 1

Row Number: 641
Actual Class: 2
Predicted Class: 1

Row Number: 646
Actual Class: 2
Predicted Class: 1

Row Number: 679
Actual Class: 2
Predicted Class: 1

Row Number: 691
Actual Class: 2
Predicted Class: 1

Row Number: 695
Actual Class: 2
Predicted Class: 1

Row Number: 709
Actual Class: 2
Predicted Class: 1

Row Number: 717
Actual Class: 2
Predicted Class: 1

Row Number: 741
Actual Class: 2
Predicted Class: 1

Row Number: 747
Actual Class: 2
Predicted Class: 1

Row Number: 754
Actual Class: 2
Predicted Class: 1

Row Number: 778
Actual Class: 2
Predicted Class: 1

Row Number: 787
Actual Class: 2
Predicted Class: 1

Row Number: 790
Actual Class: 2
Predicted Class: 1

Row Number: 791
Actual Class: 2
Predicted Class: 1

Row Number: 833
Actual Class: 2
Predicted Class: 1

Row Number: 835
Actual Class: 2
Predicted Class: 1

Row Number: 836
Actual Class: 2
Predicted Class: 1

Row Number: 846
Actual Class: 2
Predicted Class: 1

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-----
Row Number: 850
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 852
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 871
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 886
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 909
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 912
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 963
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 972
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 983
Actual Class: 2
Predicted Class: 1
-----
-----
Row Number: 999
Actual Class: 2
Predicted Class: 1
-----
k = 2

Confusion_matrix =

```

3×3 cell array

{'P\A'}	{'C1' }	{'C2' }
{'C1' }	{[898]}	{[89]}
{'C2' }	{[102]}	{[911]}

Row Number: 11
Actual Class: 1
Predicted Class: 2

Row Number: 36
Actual Class: 1
Predicted Class: 2

Row Number: 46
Actual Class: 1
Predicted Class: 2

Row Number: 71
Actual Class: 1
Predicted Class: 2

Row Number: 97
Actual Class: 1
Predicted Class: 2

Row Number: 108
Actual Class: 1
Predicted Class: 2

Row Number: 117
Actual Class: 1
Predicted Class: 2

Row Number: 129
Actual Class: 1
Predicted Class: 2

Row Number: 143
Actual Class: 1
Predicted Class: 2

Row Number: 150
Actual Class: 1
Predicted Class: 2

Row Number: 160
Actual Class: 1
Predicted Class: 2

Row Number: 165
Actual Class: 1
Predicted Class: 2

Row Number: 166
Actual Class: 1
Predicted Class: 2

Row Number: 167
Actual Class: 1
Predicted Class: 2

Row Number: 177
Actual Class: 1
Predicted Class: 2

Row Number: 184
Actual Class: 1
Predicted Class: 2

Row Number: 197
Actual Class: 1
Predicted Class: 2

Row Number: 210
Actual Class: 1
Predicted Class: 2

Row Number: 213
Actual Class: 1
Predicted Class: 2

Row Number: 216
Actual Class: 1
Predicted Class: 2

Row Number: 217
Actual Class: 1
Predicted Class: 2

Row Number: 240
Actual Class: 1
Predicted Class: 2

Row Number: 241
Actual Class: 1
Predicted Class: 2

Row Number: 242
Actual Class: 1
Predicted Class: 2

Row Number: 251
Actual Class: 1
Predicted Class: 2

Row Number: 254
Actual Class: 1
Predicted Class: 2

Row Number: 255
Actual Class: 1
Predicted Class: 2

Row Number: 262
Actual Class: 1
Predicted Class: 2

Row Number: 265
Actual Class: 1
Predicted Class: 2

Row Number: 266
Actual Class: 1
Predicted Class: 2

Row Number: 267
Actual Class: 1
Predicted Class: 2

Row Number: 273
Actual Class: 1
Predicted Class: 2

Row Number: 282
Actual Class: 1
Predicted Class: 2

Row Number: 306
Actual Class: 1
Predicted Class: 2

Row Number: 314
Actual Class: 1
Predicted Class: 2

Row Number: 316
Actual Class: 1
Predicted Class: 2

Row Number: 326
Actual Class: 1
Predicted Class: 2

Row Number: 347
Actual Class: 1
Predicted Class: 2

Row Number: 367
Actual Class: 1
Predicted Class: 2

Row Number: 382
Actual Class: 1
Predicted Class: 2

Row Number: 408
Actual Class: 1
Predicted Class: 2

Row Number: 416
Actual Class: 1
Predicted Class: 2

Row Number: 424
Actual Class: 1
Predicted Class: 2

Row Number: 434
Actual Class: 1
Predicted Class: 2

Row Number: 463
Actual Class: 1
Predicted Class: 2

Row Number: 464
Actual Class: 1
Predicted Class: 2

Row Number: 484
Actual Class: 1
Predicted Class: 2

Row Number: 493
Actual Class: 1
Predicted Class: 2

Row Number: 494
Actual Class: 1
Predicted Class: 2

Row Number: 497
Actual Class: 1
Predicted Class: 2

Row Number: 511
Actual Class: 1
Predicted Class: 2

Row Number: 516
Actual Class: 1
Predicted Class: 2

Row Number: 537
Actual Class: 1
Predicted Class: 2

Row Number: 541
Actual Class: 1
Predicted Class: 2

Row Number: 561
Actual Class: 1
Predicted Class: 2

Row Number: 566
Actual Class: 1
Predicted Class: 2

Row Number: 586
Actual Class: 1
Predicted Class: 2

Row Number: 594
Actual Class: 1
Predicted Class: 2

Row Number: 598
Actual Class: 1
Predicted Class: 2

Row Number: 620
Actual Class: 1
Predicted Class: 2

Row Number: 633
Actual Class: 1
Predicted Class: 2

Row Number: 634
Actual Class: 1
Predicted Class: 2

Row Number: 637
Actual Class: 1
Predicted Class: 2

Row Number: 648
Actual Class: 1
Predicted Class: 2

Row Number: 651
Actual Class: 1
Predicted Class: 2

Row Number: 654
Actual Class: 1
Predicted Class: 2

Row Number: 697
Actual Class: 1
Predicted Class: 2

Row Number: 711
Actual Class: 1
Predicted Class: 2

Row Number: 712
Actual Class: 1
Predicted Class: 2

Row Number: 721
Actual Class: 1
Predicted Class: 2

Row Number: 729
Actual Class: 1
Predicted Class: 2

Row Number: 769
Actual Class: 1
Predicted Class: 2

Row Number: 795
Actual Class: 1
Predicted Class: 2

Row Number: 796
Actual Class: 1
Predicted Class: 2

Row Number: 798
Actual Class: 1
Predicted Class: 2

Row Number: 819
Actual Class: 1
Predicted Class: 2

Row Number: 820
Actual Class: 1
Predicted Class: 2

Row Number: 847
Actual Class: 1
Predicted Class: 2

Row Number: 876
Actual Class: 1
Predicted Class: 2

Row Number: 877
Actual Class: 1
Predicted Class: 2

Row Number: 880
Actual Class: 1
Predicted Class: 2

Row Number: 893
Actual Class: 1
Predicted Class: 2

Row Number: 898
Actual Class: 1
Predicted Class: 2

Row Number: 951
Actual Class: 1
Predicted Class: 2

Row Number: 965
Actual Class: 1
Predicted Class: 2

Row Number: 981
Actual Class: 1
Predicted Class: 2

Row Number: 986
Actual Class: 1
Predicted Class: 2

Row Number: 990
Actual Class: 1
Predicted Class: 2

Row Number: 991
Actual Class: 1
Predicted Class: 2

Row Number: 992
Actual Class: 1
Predicted Class: 2

Row Number: 3
Actual Class: 2
Predicted Class: 1

Row Number: 20
Actual Class: 2
Predicted Class: 1

Row Number: 32
Actual Class: 2
Predicted Class: 1

Row Number: 51
Actual Class: 2
Predicted Class: 1

Row Number: 54
Actual Class: 2
Predicted Class: 1

Row Number: 58
Actual Class: 2
Predicted Class: 1

Row Number: 75
Actual Class: 2
Predicted Class: 1

Row Number: 84
Actual Class: 2
Predicted Class: 1

Row Number: 95
Actual Class: 2
Predicted Class: 1

Row Number: 100
Actual Class: 2
Predicted Class: 1

Row Number: 108
Actual Class: 2
Predicted Class: 1

Row Number: 118
Actual Class: 2
Predicted Class: 1

Row Number: 137
Actual Class: 2
Predicted Class: 1

Row Number: 165
Actual Class: 2
Predicted Class: 1

Row Number: 167
Actual Class: 2
Predicted Class: 1

Row Number: 176
Actual Class: 2
Predicted Class: 1

Row Number: 177
Actual Class: 2
Predicted Class: 1

Row Number: 194
Actual Class: 2
Predicted Class: 1

Row Number: 203
Actual Class: 2
Predicted Class: 1

Row Number: 211
Actual Class: 2
Predicted Class: 1

Row Number: 215
Actual Class: 2
Predicted Class: 1

Row Number: 237
Actual Class: 2
Predicted Class: 1

Row Number: 246
Actual Class: 2
Predicted Class: 1

Row Number: 262
Actual Class: 2
Predicted Class: 1

Row Number: 264
Actual Class: 2
Predicted Class: 1

Row Number: 268
Actual Class: 2
Predicted Class: 1

Row Number: 270
Actual Class: 2
Predicted Class: 1

Row Number: 272
Actual Class: 2
Predicted Class: 1

Row Number: 287
Actual Class: 2
Predicted Class: 1

Row Number: 291
Actual Class: 2
Predicted Class: 1

Row Number: 302
Actual Class: 2
Predicted Class: 1

Row Number: 317
Actual Class: 2
Predicted Class: 1

Row Number: 321
Actual Class: 2
Predicted Class: 1

Row Number: 325
Actual Class: 2
Predicted Class: 1

Row Number: 336
Actual Class: 2
Predicted Class: 1

Row Number: 341
Actual Class: 2
Predicted Class: 1

Row Number: 372
Actual Class: 2
Predicted Class: 1

Row Number: 402
Actual Class: 2
Predicted Class: 1

Row Number: 405
Actual Class: 2
Predicted Class: 1

Row Number: 445
Actual Class: 2
Predicted Class: 1

Row Number: 451
Actual Class: 2
Predicted Class: 1

Row Number: 461
Actual Class: 2
Predicted Class: 1

Row Number: 485
Actual Class: 2
Predicted Class: 1

Row Number: 488
Actual Class: 2
Predicted Class: 1

Row Number: 498
Actual Class: 2
Predicted Class: 1

Row Number: 499
Actual Class: 2
Predicted Class: 1

Row Number: 510
Actual Class: 2
Predicted Class: 1

Row Number: 515
Actual Class: 2
Predicted Class: 1

Row Number: 529
Actual Class: 2
Predicted Class: 1

Row Number: 553
Actual Class: 2
Predicted Class: 1

Row Number: 571
Actual Class: 2
Predicted Class: 1

Row Number: 579
Actual Class: 2
Predicted Class: 1

Row Number: 582
Actual Class: 2
Predicted Class: 1

Row Number: 598
Actual Class: 2
Predicted Class: 1

Row Number: 619
Actual Class: 2
Predicted Class: 1

Row Number: 629
Actual Class: 2
Predicted Class: 1

Row Number: 641
Actual Class: 2
Predicted Class: 1

Row Number: 646
Actual Class: 2
Predicted Class: 1

Row Number: 691
Actual Class: 2
Predicted Class: 1

Row Number: 695
Actual Class: 2
Predicted Class: 1

Row Number: 717
Actual Class: 2
Predicted Class: 1

Row Number: 741
Actual Class: 2
Predicted Class: 1

Row Number: 747
Actual Class: 2
Predicted Class: 1

Row Number: 754
Actual Class: 2
Predicted Class: 1

Row Number: 787
Actual Class: 2
Predicted Class: 1

Row Number: 790
Actual Class: 2
Predicted Class: 1

Row Number: 791
Actual Class: 2
Predicted Class: 1

Row Number: 833
Actual Class: 2
Predicted Class: 1

Row Number: 835
Actual Class: 2
Predicted Class: 1

Row Number: 836
Actual Class: 2
Predicted Class: 1

Row Number: 846
Actual Class: 2
Predicted Class: 1

Row Number: 850
Actual Class: 2
Predicted Class: 1

Row Number: 852
Actual Class: 2
Predicted Class: 1

Row Number: 886
Actual Class: 2
Predicted Class: 1

```
-----  
-----  
Row Number: 909  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
-----  
Row Number: 912  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
-----  
Row Number: 917  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
-----  
Row Number: 940  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
-----  
Row Number: 963  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
-----  
Row Number: 964  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
-----  
Row Number: 972  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
-----  
-----  
Row Number: 983  
Actual Class: 2  
Predicted Class: 1  
-----
```

```
k = 3
```

```
Confusion_matrix =
```

```
3x3 cell array
```

{ 'P\A' }	{ 'C1' }	{ 'C2' }
{ 'C1' }	{ [910] }	{ [82] }
{ 'C2' }	{ [90] }	{ [918] }