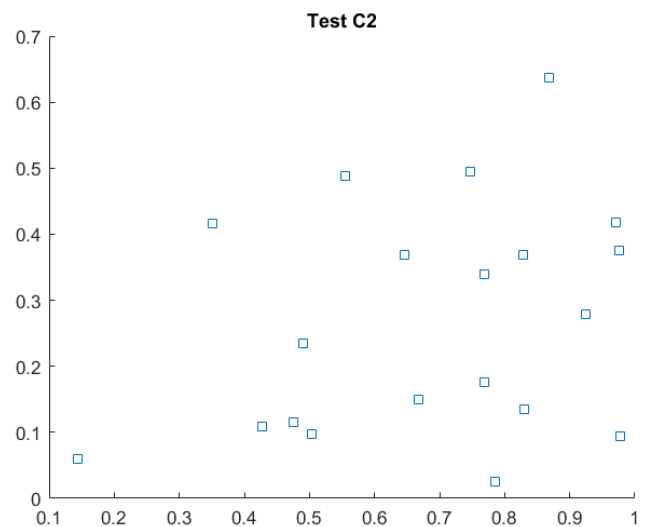
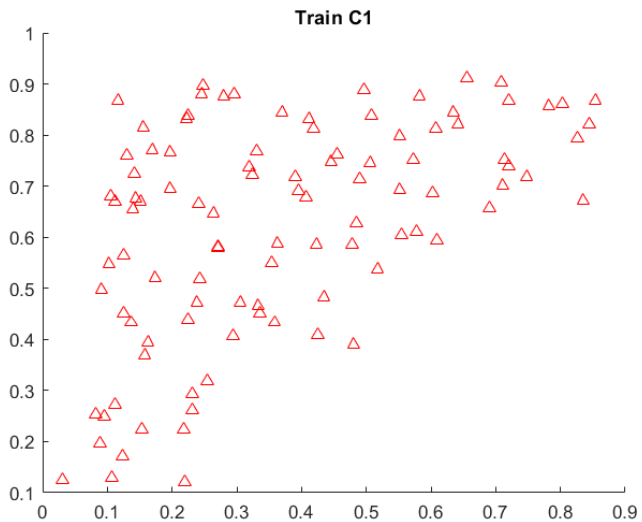


## Lab #6

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EE146 Section (022)

### Problem1



1	19	1
2	2	18
	1	2

**The Classification Error Rate is 3/40 or 7.5%**

## Problem 2

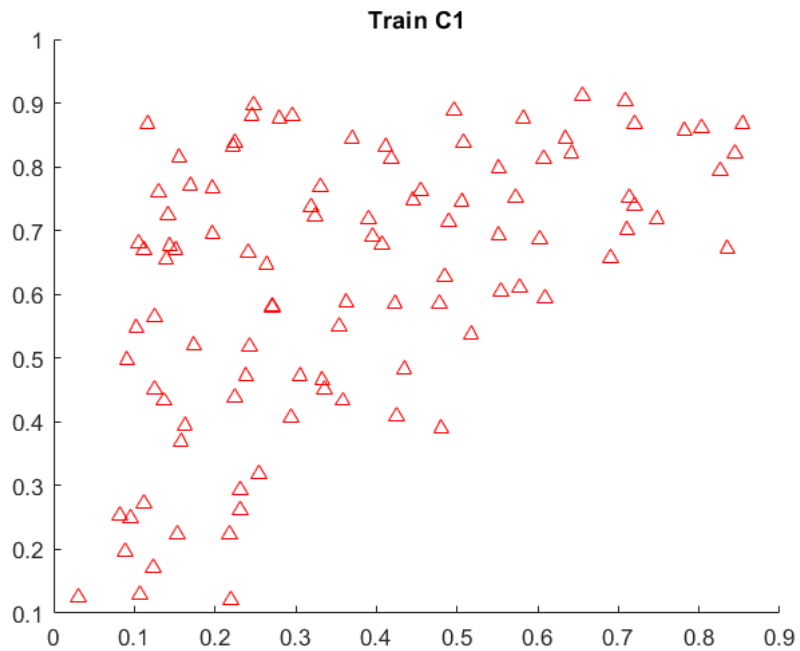


$K=8$

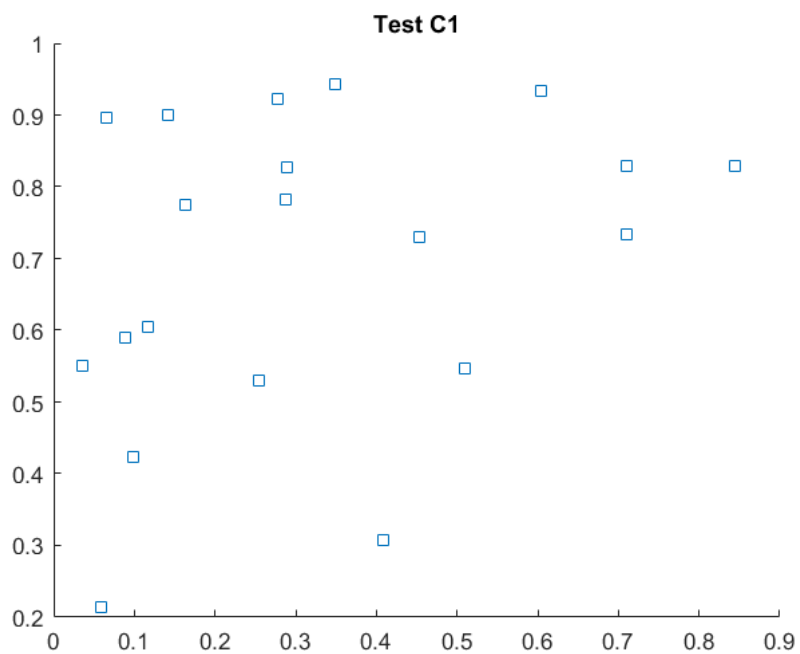
## Lab Code

### Problem 1

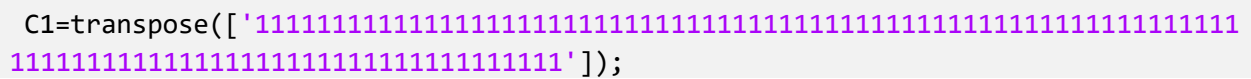
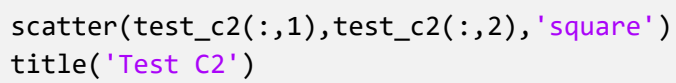
```
clear all;  
close all;  
load('lab6.mat')  
train_c1=C1Train;  
test_c1=C1Test;  
train_c2=C2Train;  
test_c2=C2Test;  
  
scatter(train_c1(:,1),train_c1(:,2),'red','^')  
title('Train C1')
```



```
scatter(test_c1(:,1),test_c1(:,2),'square')
title('Test C1')
```



```
scatter(train_c2(:,1),train_c2(:,2),'red','^')
title('Train C2')
```









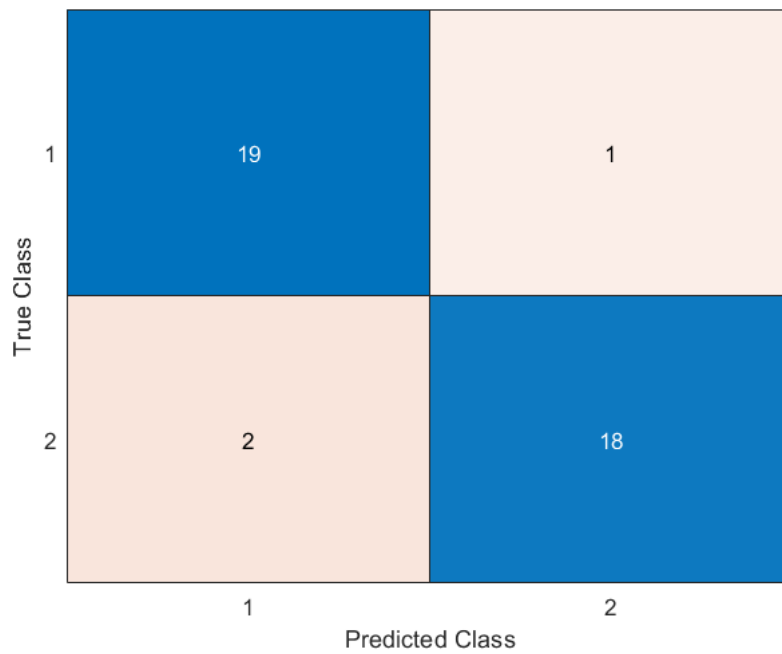
'2'  
'2'  
'2'  
'2'  
'2'

```
actual_class=transpose('111111111111111111222222222222222222')
```

actual\_class = 40x1 char array

[illegible]

```
C=confusionchart(actual_class,total_prediction)
```



C =  
ConfusionMatrixChart with properties:

NormalizedValues: [2×2 double]

ClassLabels: [2×1 char]

Show all properties

## Problem 2

```
I=imread("autumn.tif");  
imshow(I)
```



```
R=I(:,:,1);
```

```

G=I(:,:,2);
B=I(:,:,3);
counter=0;
for x=1:height(R)
for y=1:width(R)
counter=counter+1;
fvector(counter,1)=double(R(x,y));
fvector(counter,2)=double(G(x,y));
fvector(counter,3)=double(B(x,y));

end
end

```

**X=fvector**

```

X = 71070x3
    231    225    207
    233    225    209
    233    224    211
    233    226    210
    234    226    210
    233    228    211
    231    229    213
    234    228    212
    234    226    211
    234    229    212
    :

```

**[idx,C]=kmeans(X,8)**

```

idx = 71070x1
     2
     2
     2
     2
     2
     2
     2
     2
     2
     2
     2
     :
C = 8x3
    118.1891    117.2692    100.9679
    234.2378    226.5967    210.8850
    148.7372    152.0975    146.0931
     33.1336     28.5071     28.1568
     75.0310     58.5592     46.0170
     53.9324     42.4156     36.4874
     89.4311     85.6026     71.1118
    119.4547     76.5895     43.2419

```

```
counter=0;
for x=1:height(R)
for y=1:width(R)
counter=counter+1;
if(idx(counter)==1)
I(x,y,1)=C(1,1);
I(x,y,2)=C(1,2);
I(x,y,3)=C(1,3);
end
if(idx(counter)==2)
I(x,y,1)=C(2,1);
I(x,y,2)=C(2,2);
I(x,y,3)=C(2,3);
end
if(idx(counter)==3)
I(x,y,1)=C(3,1);
I(x,y,2)=C(3,2);
I(x,y,3)=C(3,3);
end
if(idx(counter)==4)
I(x,y,1)=C(4,1);
I(x,y,2)=C(4,2);
I(x,y,3)=C(4,3);
end
if(idx(counter)==5)
I(x,y,1)=C(5,1);
I(x,y,2)=C(5,2);
I(x,y,3)=C(5,3);
end
if(idx(counter)==6)
I(x,y,1)=C(6,1);
I(x,y,2)=C(6,2);
I(x,y,3)=C(6,3);
end
if(idx(counter)==7)
I(x,y,1)=C(7,1);
I(x,y,2)=C(7,2);
I(x,y,3)=C(7,3);
end
if(idx(counter)==8)
I(x,y,1)=C(8,1);
I(x,y,2)=C(8,2);
I(x,y,3)=C(8,3);
end
end
end
end
imshow(I)
```

