2.12 Computer assignment.

u1 = [1, 1]';

u2 = [1.5 1.5]';

% Generate 100 feature vectors form each class.

for i=1:100

rnd1(i,:,:)=u1+0.2\*randn(2,1);

rnd2(i,:,:)=u2+0.2\*randn(2,1);

end

class1=sum(rnd1,2);

class2=sum(rnd2,2);

% Calcaluate the percentage of error

fprintf('\nFor minimizing the error probablity\n\n');

val1 = class1>2.5;

val2 = class2>2.5;

fprintf('Percentage error for case of minimum probability error: %f\n', sum(val)/100);

fprintf('Percentage error for case of minimum probability error: %f\n', sum(val2)/100);

% Now, for minimizing the risk %

class1\_1=sum(rnd1.^2,2)-(sum(rnd1,2))-0.5;

class2\_1=sum(rnd2.^2,2)-(sum(rnd2,2))-0.5;

val1\_1 = class1\_1>0;

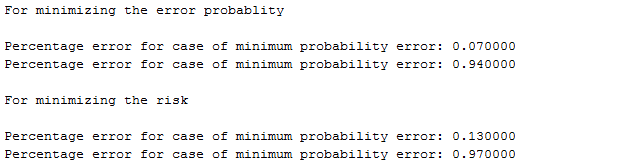
val2\_1 = class2\_1>0;

fprintf('\nFor minimizing the risk\n\n');

fprintf('Percentage error for case of minimum probability error: %f\n', sum(val1\_1)/100);

fprintf('Percentage error for case of minimum probability error: %f\n', sum(val2\_1)/100);

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*Note:* The decision surface was derived for both cases in the handwritten solution. That was used here to perform the classification.