In-class

10/19

1) $P = TP/(TP+FP)$ $R = TP/P = TP/(TP+FN)$

$P_{cat} = 4/(4+6+3) = 4/13 = 0.31$

$R_{cat} = 4/(4+1+1) = 4/6 = 0.67$ $= 0.31$

$P_{Fish} = 2/(2+1) = 2/3 = 0.67$

$R_{Fish} = 2/(6+2+2) = 2/10 = 0.2$ $= 0.2$

$P_{Hen} = 6/(6+2+1) = 6/9 = 0.67$

$R_{Hen} = 6/(6+3) = 6/9 = 0.67$ $= 0.67$

2) $S = TN/N = TN/(TN+FP)$

$S_{Cat} = \frac{(2+0+2+6)}{(2+2+6)+(6+3)} = \frac{10}{19} = 0.53$

$0.67 = 0.6$

$S_{Fish} = \frac{(4+3+6+1)}{(4+3+6+1)+(1+0)} = \frac{14}{15} = 0.93$

$0.2 = 0.565$

$S_{Hen} = \frac{(6+3+2+0)}{(6+3+2+0)+(2+6)} = \frac{11}{19}$ $0.58 = 0.625$

0.67

$= 0.597$

4) RN = 0.5

r = (5.1, 3.5, 1.4, 0.2)

n = (4.9, 3, 1.4, 0.2)

(5.1 + 0.5(4.9 − 5.1), = 5.1 − 0.1 = 5

3.5 + 0.5(3 − 3.5), = 3.5 − 0.25 = 3.25

1.4 + 0.5(1.4 − 1.4), = 1.4 + 0 = 1.4

0.2 + 0.5(0.2 − 0.2) = 0.2 + 0 = 0.2

Sample =

(5, 3.25, 1.4, 0.2)

3) Euclidean dist = $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

P_1 = (5.1, 3.5, 1.4, 0.2)

P_2 = (4.9, 3, 1.4, 0.2)

$D = \sqrt{(5.1 - 4.9)^2 + (3.5 - 3)^2 + 0 + 0}$

$= \sqrt{0.2^2 + 0.5^2} = \sqrt{0.04 + 0.25} = 0.54$

5) Centroid = (x, y, z, r)

x = (5.1 + 4.9 + 4.7) / 3 = 4.9

y = (3.5 + 3 + 3.2) / 3 = 9.7 / 3 = 3.23

z = 4.1 / 3 = 1.37

r = 0.6 / 3 = 0.2