

In-Class-12

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1. a)

Output	Weight	w*d
0.2	0.12	0.024
0.3	0.18	0.054
0.7	0.21	0.147
0.2	0.18	0.036
0.9	0.17	0.153
0.4	0.14	0.056
	Sum	0.47

Weighted average = Sum (w*d) = 0.47

b) Outputs – 0.2, 0.2, 0.3, 0.4, 0.7, 0.9

Median = $(0.3 + 0.4) / 2 = 0.35$

2. Set – (A, B, C, D)

m1 – A and B

m2 – A and C

m3 – A and D

m4 – B and C

m5 – B and D

m6 – C and D

3. a) d1 : A and B = 0.6

d2 : A and C = 0.7

d3 : B and C = 0.5

p1(A) = 0.6; p1(B) = 0.4

p2(A) = 0.7; p2(C) = 0.3

p3(B) = 0.5; p3(C) = 0.5

$p(A) = p1(A) * p2(A) = 0.6 * 0.7 = 0.42$

$p(B) = p1(B) * p3(B) = 0.4 * 0.5 = 0.2$

$p(C) = p2(C) * p3(C) = 0.3 * 0.5 = 0.15$

b) Class A has highest probability, 0.42. Ensemble will classify the test sample as Class A

4. Total features = $X = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

Features to be selected = $N = 5$

Number of base learners = 4

L1 feature set = $\{2, 4, 6, 8, 10\}$

L2 feature set = $\{1, 3, 5, 7, 9\}$

L3 feature set = $\{1, 4, 5, 8, 10\}$

L4 feature set = $\{2, 2, 6, 7, 9\}$