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1. Coin problem

	Normal	Trick	Total
Bag1	30	10	40
Bag2	20	20	40
Total	50	30	80

c = Bag1, o = Normal Coin
P(c|o) = P(o|c) * P(c) / P(o) = 0.75 * 0.5 / 0.625 = 0.6

2. Medical Diagnosis

P(X) = 0.02
P(Y) = 0.015
P(H) = 0.0965
P(A|X) = 0.8
P(A|Y) = 0.1
P(A|H) = 0

2.1 Calculate the probability of a person having Symptom A given that they have Disease X.
P(A|X) = 0.8

2.2 Calculate the probability of a person having Symptom A given that they have Disease Y.
P(A|Y) = 0.1

2.3 Given that a person presents with Symptom A, calculate the probability that they have Disease X.
P(A) = P(A|X)*P(X) + P(A|Y)*P(Y) = 0.8*0.02 + 0.1*0.015 = 0.0175
P(X|A) = P(A|X)*P(X)/P(A) = 0.8 * 0.02 / 0.0175 = 0.9143

2.4 Given that a person presents with Symptom A, calculate the probability that they have Disease Y.
P(Y|A) = P(A|Y)*P(Y)/P(A) = 0.1 * 0.015 / 0.0175 = 0.0857

3. Professor Staab

P(Attend) = 0.4
P(N_Attend) = 0.6
P(Email) = 1/3
P(N_Email) = 2/3

P(Not_View) = P(Email,Attend) + P(N_Email) = 0.8
P(V_Email) = P(Email,N_Attend) = 0.2

P(Attend|Not_View) = P(Not_View|Attend) * P(Attend) / P(Not_View) = 1*0.4/0.8 = 0.5