Suppose a company offers three different delivery methods for their products: standard delivery, express delivery, and same-day delivery

60% of customers choose standard delivery, 30% choose express delivery, and 10% choose same-day delivery

The delivery success rates are 95% for standard delivery, 90% for express delivery, and 85% for same-day delivery

If a customer's delivery fails, what is the probability that they chose express delivery?

P(A) = 60%, P(B) = 30%, P(C) = 10%

P(Suc | A) = 0.95, P(Suc | B) = 0.9, P(Suc | C) = 0.85

P(B | Fail) = ?

Jawab:

P(B | Fail) = P(Fail | B) * P(B) / P(Fail)

P(Suc) = P(Suc | A) * P(A) + P(Suc | B) * P(B) + P(Suc | C) * P(C)

P(Suc) = 0.95 * 0.6 + 0.9 * 0.3 + 0.85 * 0.1 = 0.925

P(Fail) = 0.075

P(B | Fail) = P(Fail | B) * P(B) / P(Fail)

P(B | Fail) = 0.1 * 0.3/0.075 = 0.4

If a medical test is 95% accurate in detecting a disease and 1% of the population has the disease

Calculate the probability of having the disease given a positive test result!

P(Pos | D) = 0.95

P(Neg | noD) = 0.05

P(D) = 0.01

P(noD) = 0.99

Jawab:

P(D | Pos) = P(Pos | D) * P(D) / P(Pos) = 0.95 * 0.01 / P(Pos)

P(Pos) = P(Pos | D) * P(D) + P(Neg | noD) * P(noD) = 0.95 * 0.01 + 0.05 * 0.99 = 0.059

P(D | Pos) = 0.95 * 0.01 / 0.059 = 0.161