

Quiz - 13: Asked in Amazon & Microsoft interviews

50% people who gave first round of interview were called for the second round.

95% of people who got invited for second round felt that they had good first round.

75% of people who did not get invite for the second round also felt that they had a good first round.

Given that a person felt good about his/her first round, what is the probability that he actually cleared the first round (got invited for second round)?

$G1$ = A person felt that he/she had a good 1st round

$R2$ = A person passed the Round-1 and called for Round-2.

$$P(R2) = 0.50$$

$$P(R2 | G1) = (?)$$

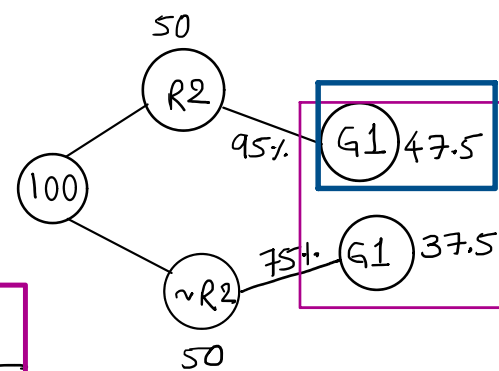
$$P(G1 | R2) = 0.95$$

$$P(G1 | \sim R2) = 0.75$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$



$$P(R2 | G1) = \frac{P(R2 \cap G1)}{P(G1)}$$



$$P(A \cap B) = P(A|B) \cdot P(B)$$

$$P(B|A) = \frac{P(A \cap B)}{P(A)} \Rightarrow$$

$$P(A \cap B) = P(B|A) \cdot P(A)$$

$$P(R2 \cap G1) = P(R2 | G1) \cdot P(G1) \quad \text{OR} \quad P(R2 \cap G1) = P(G1 | R2) \cdot P(R2)$$

$P(G1)$ = A person felt that they had good first round

= people who passed & felt good + people who could not pass and felt good.

$$= P(R2 \cap G1) + P(\sim R2 \cap G1)$$

$$P(G1) = P(G1 | R2) \cdot P(R2) + P(G1 | \sim R2) \cdot P(\sim R2)$$

$$\therefore P(R_2|G_1) = \frac{P(R_2 \cap G_1)}{P(G_1)} \quad \text{will become:}$$

$$P(R_2|G_1) = \frac{P(G_1|R_2) \cdot P(R_2)}{P(G_1|R_2) \cdot P(R_2) + P(G_1|\sim R_2) \cdot P(\sim R_2)}$$

$$P(R_2|G_1) = \frac{0.95 \times 0.5}{0.95 \times 0.5 + 0.75 \times 0.5} = \frac{0.475}{0.475 + 0.375}$$