tossing 2 Coins

SS = {HH, HT, TH, TT}

1H and 1T {HT, TH}

Head on 1st coin {HH, HT}

Atleast 1 head {HH, HT, TH}

LH = 0.09

RH = 0.91

P(All 5 are RH) = 0.91 X 0.91 X 0.91 X 0.91 X 0.91

= 0.91^5 =

P(All 5 are LH)

$$= 0.09 \times 0.09 \times 0.09 \times 0.09 \times 0.09$$

$=$

P(not all are RH) —

$$= 1 - P(\text{All are RH})$$

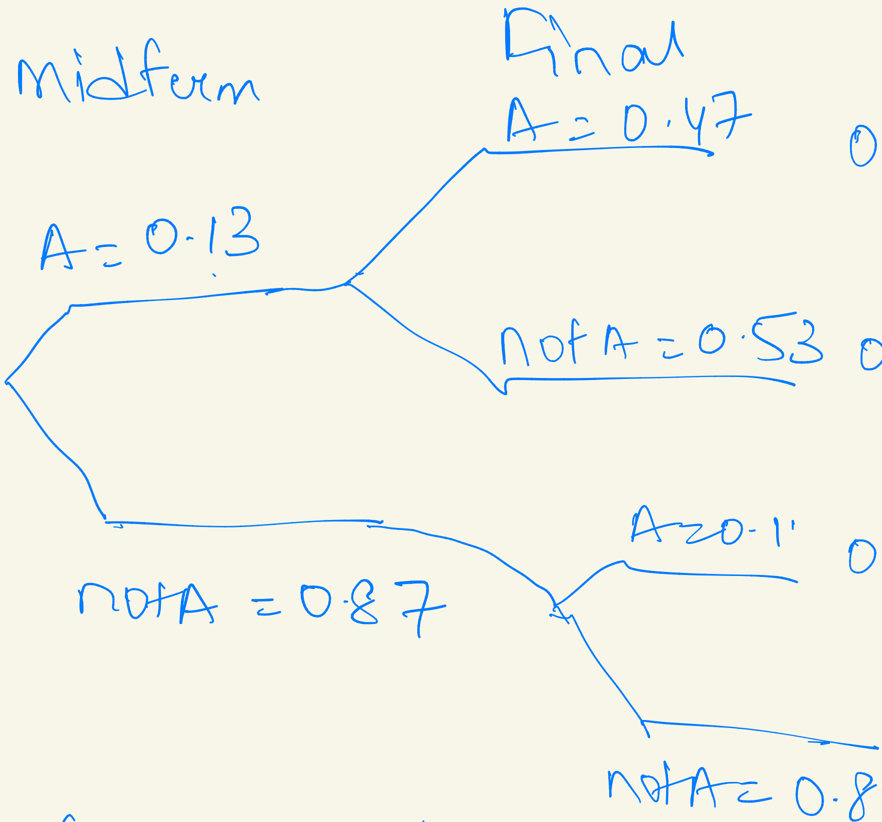
$= 1 -$

| | CD | NO CD | total |
|---|---|---|---|
| AC | 0.2 | 0.5 | 0.7 |
| NO AC | 0.2 | 0.1 | 0.3 |
| | 0.4 | | |

$$P(CD \mid AC) = \frac{P(CD \cap AC)}{P(AC)}$$

$$= \frac{0.2}{0.7}$$

$$= \frac{2}{7}$$




$0.13 \times 0.47 = 0.0611$

$0.13 \times 0.53 = 0.0689$

$0.87 \times 0.11 = 0.0957$

$0.87 \times 0.89 = 0.7743$

$$P(A \text{ on midterm} \mid A \text{ on final}) = \frac{P(A \text{ on mid} + A \text{ on final})}{P(A \text{ on final})}$$

$$= \frac{0.0611}{0.0611 + 0.0957} = 0.3816$$

Disease

+ve 0.98

Yes - 0.005

-ve 0.02

No - 0.995

+ve 0.03

-ve 0.97

$$P(\text{Positive}) = 0.005 \times 0.98 + 0.995 \times 0.03$$

$$= 0.03475$$

$$P(\text{disease} \mid \text{positive}) = \frac{P(\text{disease and +ve})}{P(\text{Positive})}$$

$$= \frac{0.005 \times 0.98}{0.03475}$$

$$= 0.141$$

| Event | $X$ | $P(x)$ | $xP(x)$ |
|---|---|---|---|
| Heart (not ace) | 1 | $\frac{12}{52}$ | $\frac{12}{52}$ |
| Ace | 5 | $\frac{4}{52}$ | $\frac{20}{52}$ |
| King | 10 | $\frac{1}{52}$ | $\frac{10}{52}$ |
| Other | 0 | $\frac{35}{52}$ | 0 |

$$E(x) = \frac{12}{52} + \frac{20}{52} + \frac{10}{52} = \frac{42}{52}$$

$$= \$0.81$$

| $X$ | $P(x)$ | $XP(x)$ | $[X - E(x)]^2$ | $P(x)[X - E(x)]^2$ |
|---|---|---|---|---|
| 1 | $\frac{12}{52}$ | $\frac{12}{52}$ | $(1 - 0.81)^2$ | 0.0083 |
| 5 | $\frac{4}{52}$ | $\frac{20}{52}$ | $(5 - 0.81)^2$ | 1.3505 |
| 10 | $\frac{1}{52}$ | $\frac{10}{52}$ | $(10 - 0.81)^2$ | 1.6242 |
| 0 | $\frac{35}{52}$ | 0 | $(0 - 0.81)^2$ | 0.4416. |

$E(x) = 0.81$

$V(x) = 3.4246$

$SD(x) = \sqrt{3.4246}$

$= 1.85$

$$Var = \sum_{i=1}^{n} [X - E(x)]^2 P(x)$$

$H =$ one job

$E(H) = 36$ man hours

$SD(H) = 3$ man hours.

$E(3H)$ $SD(3H)$

$E(3H) = 3E(H)$

$= 3 \times 36$

$= 108$ man hours.

$Var(cH) = c^2 Var(H)$

$= 3^2 Var(H)$

$= 9 \times 9 = 81$

$SD(cH) = \sqrt{81} = 9$