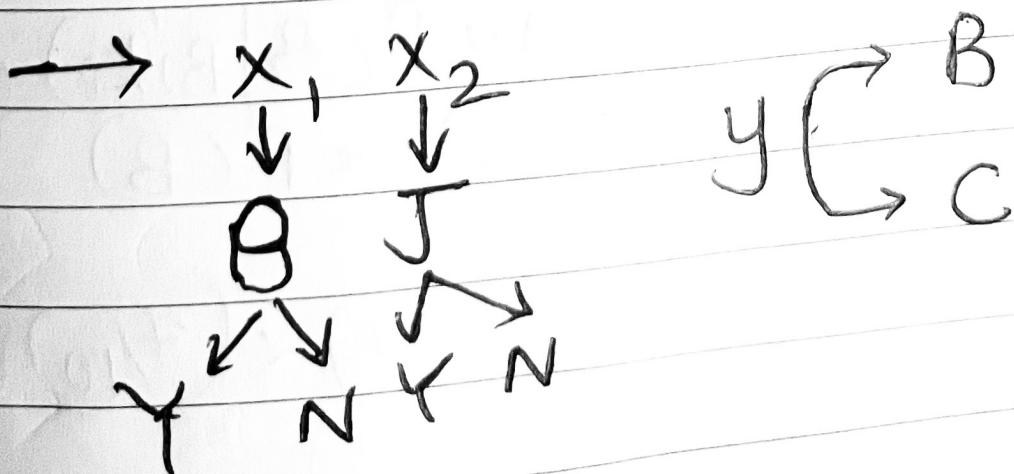


$$P(A|B) = \frac{P(B|A) \cdot P(A)}{P(B)}$$

$$P(y|x) = \frac{P(x|y) \cdot P(y)}{P(x)}$$

$$P(y|x_1, x_2, \dots, x_n) = J$$

$$\frac{P(x_1|y) \times P(x_2|y) \cdots P(x_n|y) \times P(y)}{P(x_1) \times P(x_2) \cdots P(x_n)}$$



$$P(\text{Car}) = 3/10 \quad P(\text{Bike}) = 7/10$$

$$P(\text{Car} | J, B) \downarrow$$

$$\frac{P(J | \text{Car}) \times P(B | \text{Car}) \times P(\text{Car})}{P(J) \times P(B)}$$

↓

$$(1/3) \times (2/3) \times (3/10)$$

$$= 2/30 = 0.0666$$

$$P(\text{Bike} | J, B) \downarrow$$

$$\frac{P(J | \text{Bike}) \times P(B | \text{Bike}) \times P(\text{Bike})}{P(J) \times P(B)}$$

↓

$$(2/7) \times (5/7) \times (7/10)$$

$$= 0.142$$

(Marks)	
5ME	Y 80, 70, 90, 75, 70, 86, 96, 80, 65
	N 70, 90, 91, 95, 85

$$\mu(Y) \rightarrow 79.1$$

$$\mu(N) \rightarrow 86.2$$

$$\sigma(Y) \rightarrow 10.2$$

$$\sigma(N) \rightarrow 9.7$$

$$P(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

$$P(M=74 \mid 5ME=Y)$$

$$= \frac{1}{\sqrt{2\pi(10.2)^2}} e^{-\frac{(74-79.1)^2}{2(10.2)^2}}$$

$$= 0.034$$

$$P(M=74 \mid 5ME=N)$$

$$= \frac{1}{\sqrt{2\pi(9.7)^2}} e^{-\frac{(74-86.2)^2}{2(9.7)^2}}$$

$$= 0.018$$