

Quiz 3

M = Motorcycle, C = Car

$$1) P(M) = 0.85$$

$$P(C) = 0.4$$

$$P(M|C) = 0.75$$

$$P(M \cap C) = 0.75$$

$$P(C)$$

$$P(M \cap C) = 0.75 \times P(C)$$

$$= 0.75 \times 0.4$$

$$= 0.3$$

$$P(C|M) = \frac{P(M \cap C)}{P(M)} = \frac{0.3}{0.85}$$

$$= 35.3\%$$

$$2) P(SH) = 0.8$$

$$P(SH') = 0.2$$

$$P(SH \cap PT) = 0.75$$

$$P(SH' \cap PT) = 0.85$$

$$P(SH|PT) = \frac{P(PT|SH)P(SH)}{P(PT|SH)P(SH) + P(PT|SH')P(SH')}$$

$$= \frac{(0.75 \times 0.8)}{(0.75 \times 0.8) + (0.85 \times 0.2)}$$

$$= \frac{0.6}{0.6 + 0.17}$$

$$= \frac{0.6}{0.77}$$

$$= 0.779$$

$$= 0.779$$

$$= 0.779$$

$$= 0.779$$

$$= 0.779$$