

## Quiz 6

$$P(C) : P(\text{buy\_computer} = \text{"yes"}) = \frac{9}{14} = 0.643$$

$$P(\text{buy\_computer} = \text{"No"}) = \frac{5}{14} = 0.357$$

$P(X|C_i)$

$$P(\text{age} = \text{"31..40"} | \text{buy\_computer} = \text{"yes"}) = \frac{4}{9} = 0.444$$

$$P(\text{age} = \text{"31..40"} | \text{buy\_computer} = \text{"No"}) = \frac{0}{5} = 0$$

\* In Jm Laplacian correction  $\rightarrow$  NO

$$\begin{aligned} \text{Prob}(\text{age} = 31 \dots 40) &= 0 + 1 \\ &= \textcircled{1} \end{aligned}$$

$$\frac{1}{2} = 0.2$$

$$P(\text{income} = \text{"high"} | \text{buy\_computer} = \text{"yes"}) = \frac{2}{9} = 0.222$$

$$P(\text{income} = \text{"high"} | \text{buy\_computer} = \text{"No"}) = \frac{2}{5} = 0.4$$

$$P(\text{student} = \text{"yes"} | \text{buy\_computer} = \text{"yes"}) = \frac{6}{9} = 0.667$$

$$P(\text{student} = \text{"yes"} | \text{buy\_computer} = \text{"No"}) = \frac{1}{5} = 0.2$$

$$P(\text{credit\_rating} = \text{"fair"} \mid \text{buy\_computer} = \text{"yes"}) = \frac{6}{9} = 0.667$$

$$P(\text{credit\_rating} = \text{"fair"} \mid \text{buy\_computer} = \text{"no"}) = \frac{2}{5} = 0.4$$

$$\begin{aligned} P(X|C_i) &= P(x \mid \text{buy\_computer} = \text{"yes"}) = 0.444 \times 0.222 \times 0.667 \\ &\quad \times 0.667 \\ &= 0.044 \end{aligned}$$

$$\begin{aligned} P(X|C_i) &= P(x \mid \text{buy\_computer} = \text{"no"}) = 0.1 \times 0.4 \times 0.1 \times 0.4 \\ &= 0.0064 \end{aligned}$$

$$P(X|C_i) \times P(C_i) : 0.044 \times 0.643 = 0.028 \text{ — yes}$$

$$0.0064 \times 0.357 = 0.00228 \text{ — no}$$