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Quiz 8

Input : Age 31...40, income = high, student = yes,
credit_rating = fair

* $P(C_i)$: P(buys_computer = "yes") = 9/14 = 0.643
P(buys_computer = "NO" = 5/14 = 0.357

* Compute $P(X|C_i)$ for each class
P(age = "31...40" | buys_computer = "Yes") = 4/9 = $\frac{4+1}{9+2} = \frac{5}{11}$ = 0.455

P(age = "31...40" | buys_computer = "NO") = 0/5 = $\frac{0+1}{5+2} = \frac{1}{7}$ = 0.143

P(income = "high" | buys_computer = "yes") = 2/9 = 0.222

P(income = "high" | buys_computer = "NO") = 2/5 = 0.4

pcstudent = "yes" | buy_computer = "Yes" = 6/9 = 0.667

pcstudent = "yes" | buy_computer = "No" = 1/5 = 0.2

p(credit_rating) = "fair" | buy_computer = "Yes" = 6/9 = 0.667

p(credit_rating) = "fair" | buy_computer = "No" = 2/5 = 0.4

$P(X|C_i) = P(X|\text{buys\_computer} = \text{"Yes"}) = 0.455 \times 0.222 \times 0.667 \times 0.667$

$= 0.045$

$= P(X|\text{buys\_computer "No"}) = 0.443 \times 0.4 \times 0.2 \times 0.4$

$= 0.002$

$P(X|C_i) * P(C_i)_{Yes} = 0.045 \times 0.643 = 0.029$

Yes

$P(X|C_i) * P(C_i)_{No} = 0.002 \times 0.357 = 0.001$