Qiuz 6

$P(C_i)$: buys_computer = 'yes' → 9/14 = 0.643

buys_computer = 'no' → 5/14 = 0.357

$P(X|C_i)$

P(age = "31...40" | buy_computer = "yes") = 4/9 = 0.44 +1

P(age = "31...40" | buy_computer = "no") = "no") = 0/5 = 0 → 1/5 = 0.2

P(income = "high" | buy_computer = "yes") = 2/9 = 0.22

P(income = "high" | buy_computer = "no") = 2/5 = 0.4

P(std = "yes" | buy_computer = "yes") = 6/9 = 0.67

P(std = "yes" | buy_computer = "no") = 1/5 = 0.2

P(Cradit = "fiar" | buy_computer = "yes") = 6/9 = 0.67

P(Cradit = "fiar" | buy_computer = "no") = 2/5 = 0.4

$P(X|C_i)$: P(X | buys_computer = "yes") = 1.44 × 0.22 × 0.67 × 0.67 = 0.142

P(X | buys_computer = "no") = 0.2 × 0.4 × 0.2 × 0.4 = 0.0064

$P(X|C_i) * P(C_i)$: P(X | buys_computer = "yes") * P(buys_computer = "yes") = 0.142 × 0.643 = 0.091

P(X | buys_computer = "no") * P(buys_computer = "no") = 0.0064 × 0.357 = 0.002

Therefore, X belongs to class ("buys_computer = yes") #

age	income	student	credit_rating	buys_computer
<=30	high	no	fair	no
<=30	high	no	excellent	no
31…40	high	no	fair	yes
>40	medium	no	fair	yes
>40	low	yes	fair	yes
>40	low	yes	excellent	no
31…40	low	yes	excellent	yes
<=30	medium	no	fair	no
<=30	low	yes	fair	yes
>40	medium	yes	fair	yes
<=30	medium	yes	excellent	yes
31…40	medium	no	excellent	yes
31…40	high	yes	fair	yes
>40	medium	no	excellent	no