


Class:

C1:buys_computer = 'yes' C2:buys_computer = 'no'

Data to be classified:

X = (age <=30, Income = medium, Student = yes, Credit_rating = Fair)



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

Input Age 31-40, income=high,stu=yes,credit_rating

P(Ci): P(buys_computer = "yes") = 9/14 = 0.643

P(buys_computer = "no") = 5/14 = 0.357

Compute P(X|Ci) for each class

P(age = "31-40" | buys_computer = "yes") = 4/9 = 0.444

P(age = "31-40" | buys_computer = "no") = 0

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

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

P(student = "yes" | buys_computer = "yes") = 5/9 = 0.555

P(student = "yes" | buys_computer = "no") = 1/5 = 0.2

P(credit_rating = "fair" | buys_computer = "yes") = 6/9 = 0.666

P(credit_rating = "fair" | buys_computer = "no") = 2/5 = 0.4

X = (age <= 30 , income = medium, student = yes, credit_rating = fair) P(X|Ci) :

P(X|buys_computer = "yes") = 0.444+0.222+0.555+0.666 = 1.887

P(X|buys_computer = "no") = 0+0.4+0.2+0.4 = 1

P(X|Ci)*P(Ci) : P(X|buys_computer = "yes") * P(buys_computer = "yes") = 0.028

P(X|buys_computer = "no") * P(buys_computer = "no") = 0.007