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

age	Y	N	
<=30	2	2	4
31..40	3	0	3
>40	3	2	5

student			
No	3	3	6
Yes	6	1	6

income			
h	2	2	4
m	4	1	5
L	2	1	3

credit			
f	6	1	7
e	2	3	5

Class $Info(D) = \sum_{i=1}^{m} p_i \log_2(p_i)$

$= I(8, 4)$

$= -\frac{8}{12}\log_2(\frac{8}{12}) - \frac{4}{12}\log_2(\frac{4}{12}) = 0.918$

Feature $Info_{age}(D) = \frac{4}{12}I(2,2) + \frac{3}{12}I(3,0) + \frac{5}{12}I(3,2) = 0.809$

$Info_{income}(D) = \frac{4}{12}I(2,2) + \frac{5}{12}I(4,1) + \frac{3}{12}I(2,1) = 0.832$

$Info_{std}(D) = \frac{6}{12}I(3,3) + \frac{6}{12}I(5,1) = 0.825$

$Info_{credit}(D) = \frac{7}{12}I(6,1) + \frac{5}{12}I(2,3) = 0.747$

gain ที่ Root node $Gain(age) = 0.918 - 0.809 = 0.109$

$Gain(income) = 0.918 - 0.832 = 0.086$

$Gain(std) = 0.918 - 0.825 = 0.093$

$Gain(credit) = 0.918 - 0.747 = \underline{0.171}$ เลือก credit เป็น root node

Credit

fair	excellent
no	no
yes	no
yes	yes
yes	yes
yes	no
yes	
yes	
Buy	

ต่อจาก credit : 2

$income_h = 2$ Entropy = 0.918

$income_m = 4$ Entropy = 0

$income_L = 3$ Entropy = 0

∴ ถ้า credit : fair ตอบ Yes

ถ้า credit : excellent และ Income : high

ตอบ Yes

income

h	m	L
Buy	No	No