age	p_i	n_i	$I(p_i, n_i)$
<= 30	2	2	1
31...40	3	0	
> 40	3	2	0.971

$$Info(D) = I(8,4) = -\frac{8}{12}\log_2\left(\frac{8}{12}\right) - \frac{4}{12}\log_2\left(\frac{4}{12}\right) = 0.918$$

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

$$= \frac{4}{12}(1.\ \ ) + \frac{3}{12}(0) + \frac{5}{12}(0.971) = 0.738$$

income	p_i	n_i	$I(p_i, n_i)$
h	2	2	1
me	4	1	0.723
l	2	1	0.918

$$Gain(age) = Info(D) - Info_{age}(D) = 0.18$$

$$Gain(income) = info(D) - info(income) = 0.034$$

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

$$= 0.864$$