4.2.7.1 Lift

Q : Association Rule : Tea → Coffee

	coffee	$\overline{coffee}$	
Tea	150	50	200
$\overline{Tea}$	650	150	800
	800	200	1000

Solution ①

confidence (Tea → coffee)

= p(coffee | Tea)

= $\dfrac{150}{200}$

	coffee	$\overline{coffee}$	
Tea	150	50	200
$\overline{Tea}$	650	150	800
	800	200	1000

$p(Tea) = \dfrac{200}{1000} = 0.2$ $p(coffee) = \dfrac{800}{1000} = 0.8$

$p(coffee | \overline{Tea}) = \dfrac{650}{800} = 0.8125$

即使你忽略某人是否喝茶，喝咖啡的概率也是 80%
知道喝茶反而会降低喝咖啡的概率

$Lift (X,Y) = \dfrac{cofidence(X \to Y)}{Support(Y)}$

$$= \frac{P(X \cup Y)}{P(X)} \cdot \frac{1}{support(Y)}$$

$$= \frac{P(X \cup Y)}{P(X)} \cdot \frac{1}{P(Y)}$$

$$= \frac{P(Y|x)}{P(Y)}$$

$$Lift \ (Tea \rightarrow coffee) = \frac{P(coffee|Tea)}{P(coffee)}$$

$$= \frac{150/200}{0.8}$$

$$= \frac{0.75}{0.8}$$

$$= 0.9375 < 1$$

not interesting

负相关