

<i>RID</i>	<i>age</i>	<i>income</i>	<i>student</i>	<i>credit rating</i>	<i>Class: buys computer</i>
1	youth	high	no	fair	no
2	youth	high	no	excellent	no
3	middle_aged	high	no	fair	yes
4	senior	medium	no	fair	yes
5	senior	Low	yes	fair	yes
6	senior	Low	yes	excellent	no
7	middle_aged	low	yes	excellent	yes
8	youth	medium	no	fair	no
9	youth	low	yes	fair	yes
10	senior	medium	yes	fair	yes
11	youth	medium	yes	excellent	yes
12	middle_aged	medium	no	excellent	yes
13	middle_aged	high	yes	fair	yes
14	senior	medium	no	excellent	no

作业:  $age=senior, income=medium, student=no$ ,  $credit\ rating=fair$  用

朴素贝叶斯分类求解该条件下是否购买电脑?

解:  $P(\text{buy\_computer} = \text{no}) = \frac{5}{14}$

$$P(\text{age} = \text{senior} | \text{no}) = \frac{2}{5}$$

$$P(\text{income} = \text{medium} | \text{no}) = \frac{2}{5}$$

$$P(\text{student} = \text{no} | \text{no}) = \frac{4}{5}$$

$$P(\text{credit rating} = \text{fair} | \text{no}) = \frac{2}{5}$$

$$P(X | \text{buy\_computer} = \text{no}) = \frac{2}{5} \times \frac{2}{5} \times \frac{4}{5} \times \frac{2}{5} = \frac{32}{625}$$

$$P(X | \text{buy\_computer} = \text{no}) \times P(\text{buy\_computer} = \text{no}) = \frac{32}{625} \times \frac{5}{14} = \frac{16}{875}$$

$$P(\text{buy\_computer} = \text{yes}) = \frac{9}{14}$$

$$P(\text{age} = \text{senior} | \text{yes}) = \frac{3}{9} = \frac{1}{3}$$

$$P(\text{income} = \text{medium} | \text{yes}) = \frac{4}{9}$$

$$P(\text{student} = \text{no} | \text{yes}) = \frac{3}{9} = \frac{1}{3}$$

$$P(\text{credit rating} = \text{fair} | \text{yes}) = \frac{6}{9} = \frac{2}{3}$$

$$P(X | \text{buy\_computer} = \text{yes}) = \frac{1}{3} \times \frac{4}{9} \times \frac{1}{3} \times \frac{2}{3} = \frac{8}{243}$$

$$P(X | \text{buy\_computer} = \text{yes}) \times P(\text{buy\_computer} = \text{yes}) = \frac{8}{243} \times \frac{9}{14} = \frac{4}{189}$$

$$\frac{16}{875} < \frac{4}{189} \quad \therefore \text{样本分类为 yes} \quad \therefore \underline{\text{是}}$$