1. $P(Yes) = \frac{9}{14}$ $P(No) = \frac{5}{14}$

$P(N_1 | Yes) = \frac{3}{9} = \frac{1}{3}$ $P(N_1 | No) = \frac{2}{5}$

$P(N_2 | Yes) = 4/9$ $P(N_2 | No) = 2/5$

$P(N_3 | Yes) = 6/9 = 2/3$ $P(N_3 | No) = 1/5$

$P(N4 | Yes) = 6/9 = 2/3$ $P(N4 | NO) = 2/5$

$P(Yes|N) = P(N_1|Yes) \cdot P(N_2|Yes) \cdot P(N_3|Yes) \cdot P(N_4|Yes) \cdot P(Yes)$

$= 1/3 \times 4/9 \times 2/3 \times 2/3 \times 9/14$

$= 8/189 \approx 0.042$

$P(No|N) = P(N_1|No) \cdot P(N_2|No) \cdot P(N_3|No) \cdot P(N4|No) \cdot P(No)$

$= 2/5 \times 2/5 \times 1/5 \times 2/5 \times 5/14$

$= 40/8750 \approx 0.025$

Normalization

Yes : $0.042/(0.042+0.025) \approx 63\%$

No : $0.025/(0.042+0.013) \approx 37\%$

so, the predict result is Yes.

2. $P(Yes) = 9/14$ $P(No) = 5/14$

$P(Overcast \mid Yes) = 5/12$ $P(Overcast \mid No) = 1/8$

$P(temp. = 60 \mid Yes) = 0.007$ $P(temp = 60 \mid No) = 0.009$

$P(hum. = 62 \mid Yes) = 0.01$ $P(hum. = 62 \mid No) = 0.002$

$P(windy = Yes \mid Yes) = 4/11$ $P(windy = yes \mid No) = 4/7$

$P(temp. = 60 \mid Yes)$:

$$\mu = \frac{\sum_{i=1}^{n} x_i}{9} = 73 \qquad \sigma^2 = \frac{\sum_{i=1}^{n} (x_i - \mu)^2}{8} = 38$$

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

$$= \frac{1}{\sqrt{34} \cdot \sqrt{2\pi}} e^{-\frac{(60-73)^2}{2\sigma^2}}$$

$$\approx 0.007$$

$P(temp. = 60 \mid No)$

$$\mu = \frac{\sum_{i=1}^{n} x_i}{5} = 75 \qquad \sigma^2 = \frac{\sum_{i=1}^{n} (x_i - \mu)^2}{4} = 62.5 \approx 63$$

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

$$= \frac{1}{\sqrt{63} \cdot \sqrt{2\pi}} e^{-\frac{(60-75)^2}{2\sigma^2}}$$

$$\approx 0.009$$

P(hum. = 62 | Yes)

$$\mu = \frac{\sum_{i=1}^{n} x_i}{9} = 79 \qquad \sigma^2 = \frac{\sum_{i=1}^{n} (x_i - \mu)^2}{8} \approx 104$$

$$f(x) = \frac{1}{\sqrt{104} \cdot \sqrt{2\pi}} e^{-\frac{(62-79)^2}{2\sigma^2}}$$

$$\approx 0.0097 \approx 0.01$$

P(hum. = 62 | NO)

$$\mu = 86 \qquad \sigma^2 = 94.75 \approx 95$$

$$f(x) = \frac{1}{\sqrt{95} \cdot \sqrt{2\pi}} e^{-\frac{(62-86)^2}{2\sigma^2}}$$

$$= 0.00197 \approx 0.002$$

P(Yes | outlook = overcast, temperature = 60, humidity = 62, windy = Yes)

$$= 5/12 \times 0.007 \times 0.01 \times 4/11 \times 9/14$$

$$= 6.773 \times 10^{-6}$$

P(No | outlook=overcast, temperature=60, humidity=62, windy=Yes)

$= 1/8 \times 0.009 \times 0.002 \times 4/7 \times 5/14$

$= 4.59 \times 10^{-7}$

Normalization.

Yes: $6.773 \times 10^{-6} / (6.773 \times 10^{-6} + 4.59 \times 10^{-7}) \approx 93.7$

No: $4.59 \times 10^{-7} / (6.773 \times 10^{-6} + 4.59 \times 10^{-7}) \approx 6.3$

So, the predict resuet is Yes.