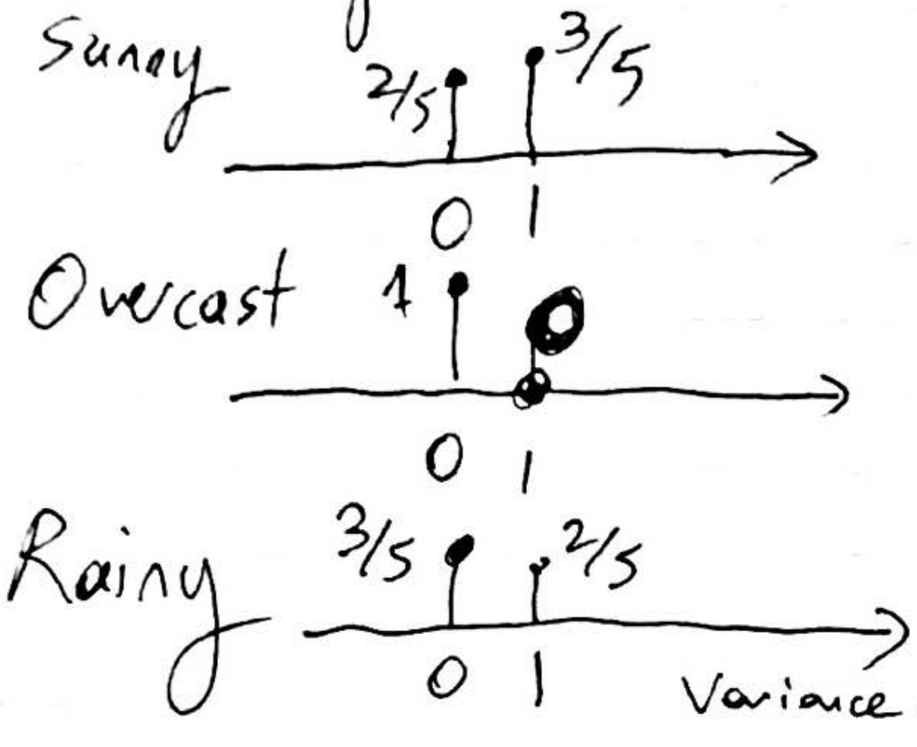
Weighted Variance of "Outlook"



mean1 = $0.2/5 + 1\cdot 3/5 = 3/5$.

$Var1 = \left(0-\frac{3}{5}\right)^2 \frac{2}{5} + \left(1-\frac{3}{5}\right)^2 \frac{3}{5} = 0.24$

mean2 = 1, Var2 = 0

Var2 = Var1

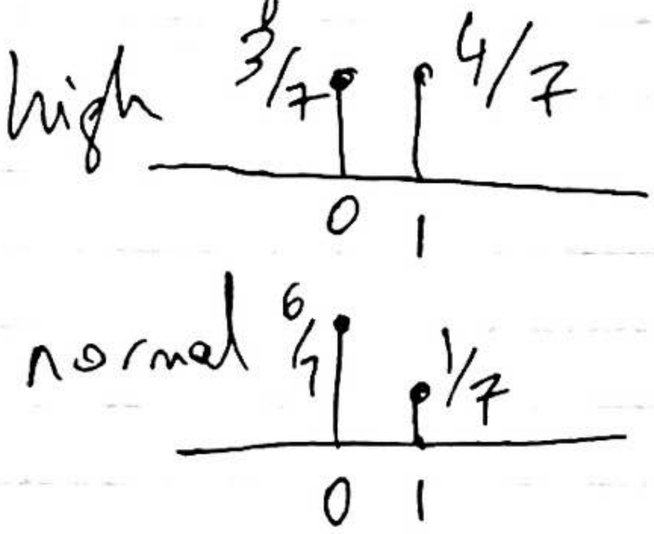
Variance formula: $Var = \sum_{i=0}^{1} (x_i - m)^2 P(x_i)$

Weighted Variance = $\frac{5}{14}(0.24) + \frac{4}{14}\cdot(0)\cdot 0 + \frac{5}{14}(0.24)$

= 0.172

(Sunny days ratio; rainy days ratio)

Weighted Variance of Humidity:



mean1 = $E[X] = 0\cdot\frac{3}{7} + 1\cdot\frac{4}{7} = \frac{4}{7}$

$Var1 = \left(0-\frac{4}{7}\right)^2\cdot\frac{3}{7} + \left(1-\frac{4}{7}\right)^2\frac{4}{7} = 0.245$

mean2 = 1/7

$Var2 = \left(0-\frac{1}{7}\right)^2\cdot\frac{6}{7} + \left(1-\frac{1}{7}\right)^2\frac{1}{7} = 0.122$

Weighted Variance = $\frac{7}{14}(0.245) + \frac{7}{14}(0.122) \simeq 0.184$

So use "Outlook"! Outlook has a smaller variance.