Rebecca Dias
19/182027
TE CMPNA

classmate
Date
Page

Q 2b.

Gini (Rainy)

$$= 1 - \left(\frac{4}{10}\right)^2 - \left(\frac{6}{10}\right)^2 = 0.48$$

$$\text{Gini}\left(\frac{windy}{P}\right) = 1 - \left(\frac{4}{7}\right)^2 - \left(\frac{3}{7}\right)^2$$

$$= 0.4897$$

$$\text{Gini}\left(A \, windy = F\right) = 1 - \left(\frac{0}{3}\right)^2 - \left(\frac{3}{3}\right)^2 = 0$$

$$\text{Gini windy }(D) = (7/10) \, \text{Gini}\left(windy = P\right) + 3/10 \left(\text{Gini}\left(windy = F\right)\right)$$

$$= \frac{7}{10} \times 0.4897 + \frac{3}{10} \times 0$$

$$= 0.3427$$

$$\Delta \, \text{gini}\left(windy\right) = \text{Gini}\left(Rainy\right) - \text{Gini windy}\left(D\right)$$

$$= 0.48 - 0.3427$$

$$= 0.1373$$

Rebecca Dias
19/182027
TE CMPNA

CLASSMATE
Date
Page

Rebecca

$$\text{Gini (cloudy = T)} = 1 - \left(\frac{3}{4}\right)^2 - \left(\frac{1}{4}\right)^2$$

$$= 0.375$$

$$\text{Gini (cloudy = F)} = 1 - \left(\frac{1}{6}\right)^2 - \left(\frac{5}{6}\right)^2$$

$$= 0.277$$

$$\text{Gini cloudy (D)} = \frac{4}{10}\left(\text{Gini (cloudy = T)}\right) +$$

$$\frac{6}{10}\left(\text{Gini (cloudy = F)}\right)$$

$$= 0.4 \times 0.375 + 0.6 \times 0.277$$

$$= 0.3162$$

$$\Delta\text{Gini (cloudy)} = \text{Gini (Rainy)} - \text{Gini (cloudy (D))}$$

$$= 0.48 - 0.3162$$

$$= 0.1638$$

Gini cloudy (D) > Gini Windy (D) so
Cloudy would be the splitting attribute