

Left Node

$$P_{\text{benign}} = \frac{16}{40}$$

$$P_{\text{malignant}} = \frac{30}{40}$$

$$G_{\text{left}} = 1 - (.25)^2 - (.75)^2 = .375$$

Right Node

$$P_{\text{benign}} = \frac{50}{60}$$

$$P_{\text{malignant}} = \frac{10}{60}$$

$$G_{\text{right}} = 1 - (.83)^2 - (.167)^2 = .2778$$

Weighted Split

$$\frac{40}{100} \cdot .375 + \frac{60}{100} \cdot .2778 =$$

$$0.317$$