4) to find probability of passing midsem given the midsem performance was average and all assignment were submitted.

$X_1$ = 'average' midsem performance

$X_2$ = all assignments were submitted

$Y$ = passing midsem.

$X = \langle X_1, X_2 \rangle$

Assuming conditional independence of features

$$P(Y|X) = \frac{P(X|Y)\,P(Y)}{P(X)}$$

$$P(Y|X) = \frac{P(X_1|Y)\,P(X_2|Y)\,P(Y)}{\sum_{i=1}^{2} P(X_1|Y_i)\,P(X_2|Y_i)\,P(Y_i)}$$

$$P(Y|X_1, X_2) = \frac{\left(\frac{3}{6}\right)\left(\frac{5}{6}\right)\left(\frac{6}{11}\right)}{\left(\frac{12}{5}\right)\left(\frac{1}{5}\right)\left(\frac{5}{11}\right) + \left(\frac{3}{6}\right)\left(\frac{5}{6}\right)\left(\frac{6}{11}\right)}$$

$$P(Y|X_1, X_2) = \frac{\frac{15}{6}}{\frac{2}{5} + \frac{15}{6}} = \frac{25}{29}$$