

# Assignment 1

AI1110: Probability and Random Variables

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**12.13.1.1:** Given that E and F are events such that  $Pr(E) = 0.6$  ,  $Pr(F) = 0.3$  and  $Pr(EF) = 0.2$ , find  $Pr(E|F)$  and  $Pr(F|E)$

**Solution:** Given,

$$Pr(E) = 0.6 \quad (1)$$

$$Pr(F) = 0.3 \quad (2)$$

$$Pr(EF) = 0.2 \quad (3)$$

$$\therefore Pr(E|F) = \frac{Pr(EF)}{Pr(F)} = \frac{0.2}{0.3} = \frac{2}{3}$$

$$\therefore Pr(F|E) = \frac{Pr(EF)}{Pr(E)} = \frac{0.2}{0.6} = \frac{1}{3}$$