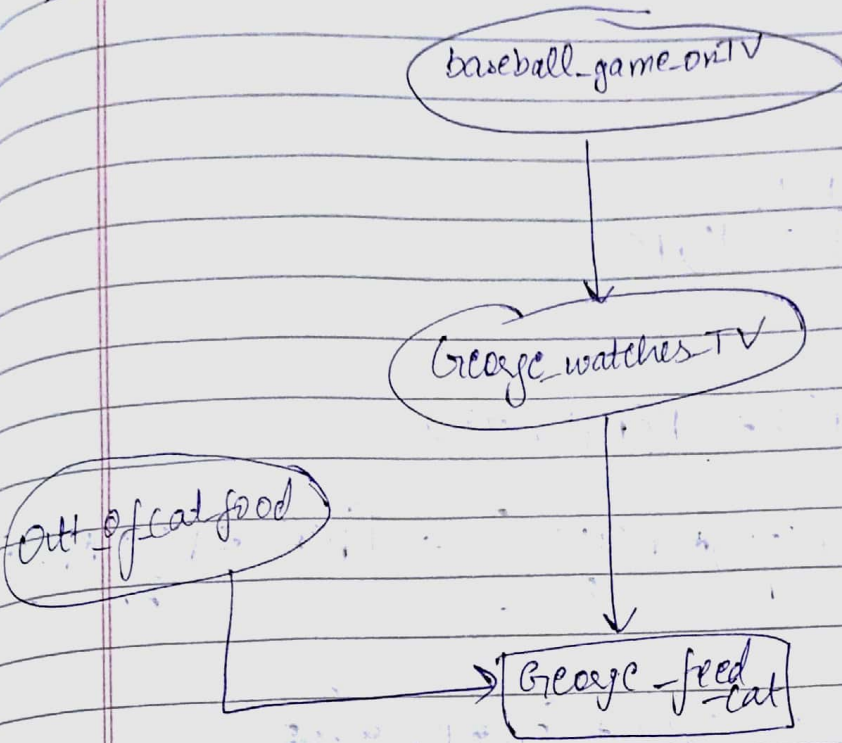
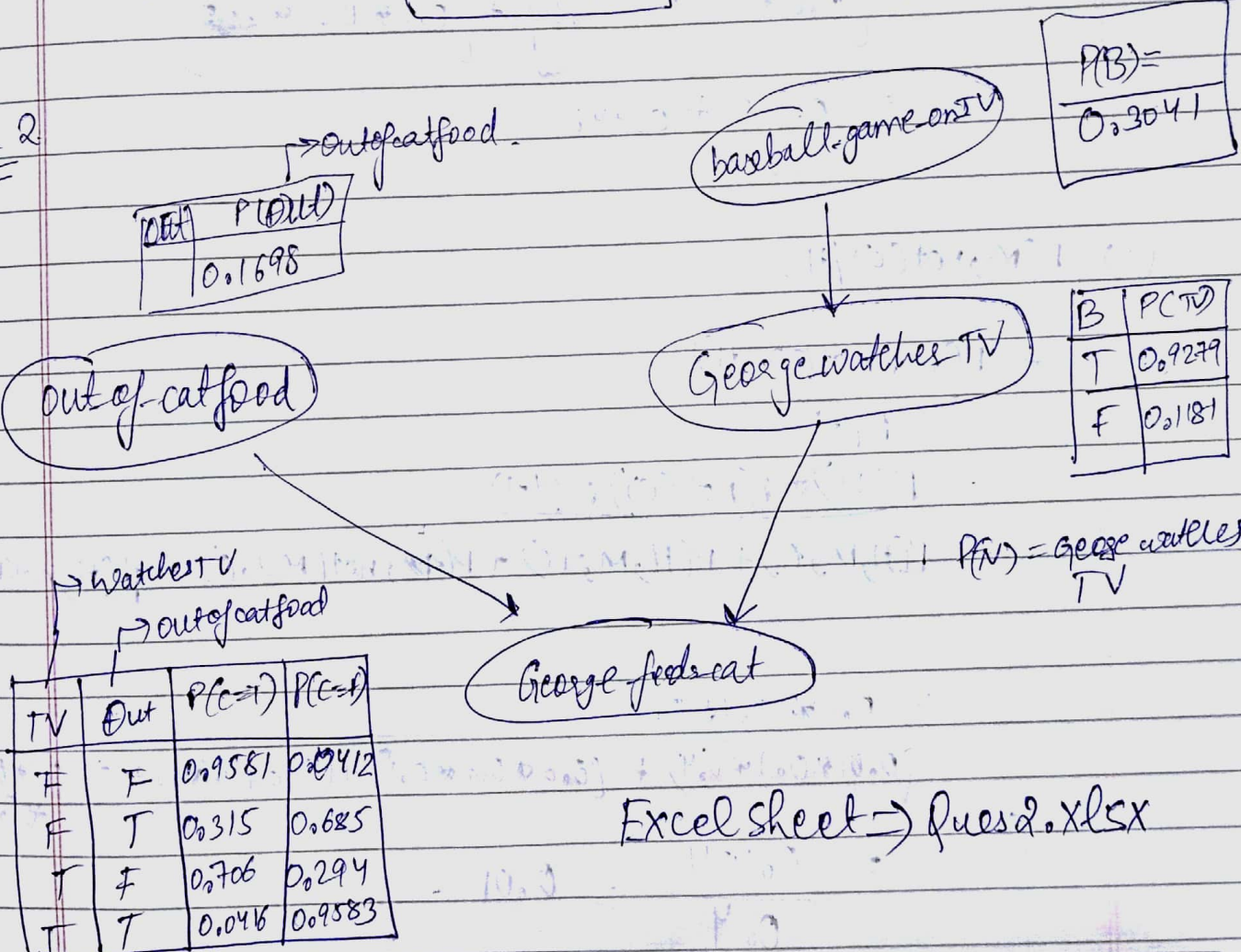


Date / /

Task 1



Task 2



Excel sheet \rightarrow ques 2.xlsx

Date ____/____/____

Task 3

(a) Markovian Blanket

For Node L,

$$\begin{aligned} \text{Parent}(L) &= G \\ \text{Children}(L) &= P, Q \\ \text{Parent}(\text{Children}(L)) &= K, M \end{aligned}$$

$$(b) P(A, F) = P(A, F, K) + P(A, F, \neg K)$$

$$= \left[P(A) * P\left(\frac{F}{A}\right) * P\left(\frac{K}{F}\right) \right] + \left[P(A) * P\left(\frac{F}{A}\right) * P\left(\frac{\neg K}{F}\right) \right]$$

$$= \left[0.8 * 0.8 * 0.3 \right] + \left[0.8 * 0.8 * 0.7 \right]$$

$$= 0.192 + 0.448$$

$$= 0.640$$

$$(c) P(M, \text{not}(C) | H)$$

$$= \frac{P(M, \text{not}(C), H)}{P(H)}$$

$$= \frac{P(M) * P(\text{not}(C)) * P(H)}{P(H)}$$

$$P(H, M, C) + P(H, M, \neg C) + P(H, \text{not}(M), C) + P(H, \text{not}(M), \neg C)$$

$$= \frac{0.1 * 0.4 * 0.1}{0.4}$$

$$+ \frac{0.01 * 0.1 * 0.4}{0.4} + \frac{0.6 * 0.6 * 0.1}{0.4} + \frac{0.1 * 0.1 * 0.4}{0.4}$$

$$= \frac{0.004}{0.4} = 0.01$$