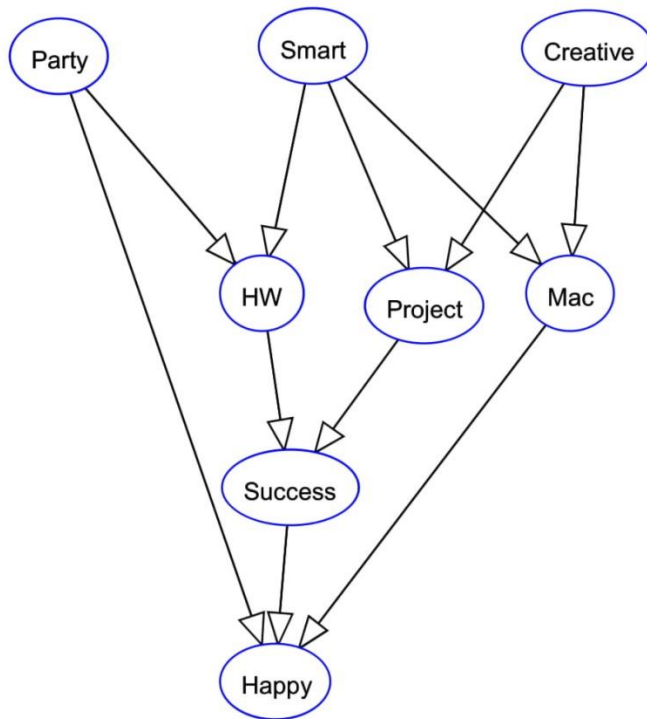


Q6.

i)



ii)

For part ii, please look at “student.xlsx” file. Note that each sheets in the Excel file represent each 1 pivot table.

iii)

$$P(\text{happy} = T \mid \text{party} = T, \text{smart} = T, \text{creative} = F) = 0.6922$$

$$P(h \mid p, s, c)$$

$$= \alpha * \sum_{hw, mac, proj, succ} (P(c)P(s)P(p)P(proj \mid s, c)P(mac \mid s, c)P(hw \mid p, s)P(succ \mid hw, proj)P(h \mid p, s, c))$$

$$= \alpha * ()$$

$$P(-h \mid p, s, c)$$

$$= \alpha * \sum_{hw, mac, proj, succ} (P(c)P(s)P(p)P(proj \mid s, c)P(mac \mid s, c)P(hw \mid p, s)P(succ \mid hw, proj)P(-h \mid p, s, c))$$

$$= \alpha * ()$$

$$\alpha = 1 / (P(h \mid p, s, c) + P(-h \mid p, s, c))$$

iv) $P(\text{Happy} = T \mid \text{Smart} = T, \text{Creative} = T) = 0.58156$

v) $P(\text{Happy} = T \mid \text{Party} = F, \text{HW} = T, \text{Project} = T) = 0.31725$

vi) $P(\text{Happy} = T \mid \text{Mac} = T) = 0.56663$

vii) $P(\text{Party} = T \mid \text{Smart} = T) = 0.6022$

viii) $P(\text{Party} = T \mid \text{Smart} = T, \text{Happy} = T) = 0.79272$