(1) Using Bayes' theorem and big libraries have more customers so that $P(\text{lib } N) = \frac{\text{Books in } N}{\text{Total books}}$

$$P(\text{lib } A \mid \text{stat book}) = \frac{P(\text{stat} \mid A) \cdot P(A)}{P(\text{stat})}$$

$$= \frac{50/1000 \cdot 1000/(1000+800+1200)}{(50+15+20)/(1000+800+1200)}$$

$$\approx 0,588$$

$$P(\text{lib } B \mid \text{stat}) = \frac{P(\text{stat} \mid B) \cdot P(B)}{P(\text{stat})}$$

$$= \frac{15/800 \cdot 800/(1000+800+1200)}{(50+15+20)/(1000+800+1200)}$$

$$\approx 0,176$$

$$P(\text{lib } C \mid \text{stat}) = \frac{P(\text{stat} \mid C)\ P(C)}{P(\text{stat})}$$

$$= \frac{20/1200 \cdot 1200/(1000+800+1200)}{(50+15+20)/(1000+800+1200)}$$

$$\approx 0,235$$