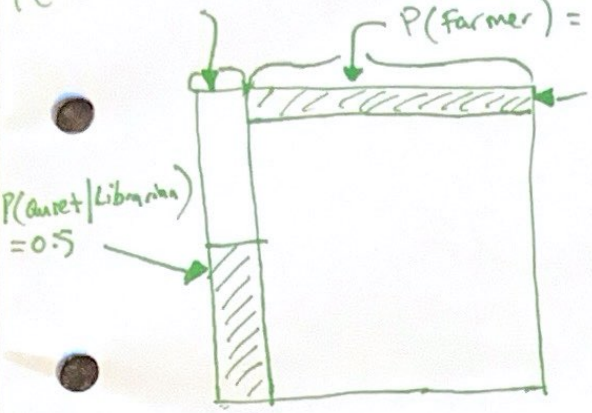
Bayes Theorum

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

Concept. Reasonably weighting on probability

Example. If you meet a quiet man what is the probability they are a farmer vs librarian?



Therefore $P(\text{Librarian}|\text{Quiet}) = \frac{P(\text{Quiet}|\text{Librarian}) \times P(\text{Librarian})}{P(\text{Farmer})}$

$$= \frac{0.5 \times \frac{1}{21}}{\frac{20}{21}} \approx 0.02.$$

Watch 3blue1brown on youtube for more.