



PINQ: Privacy Integrated Queries

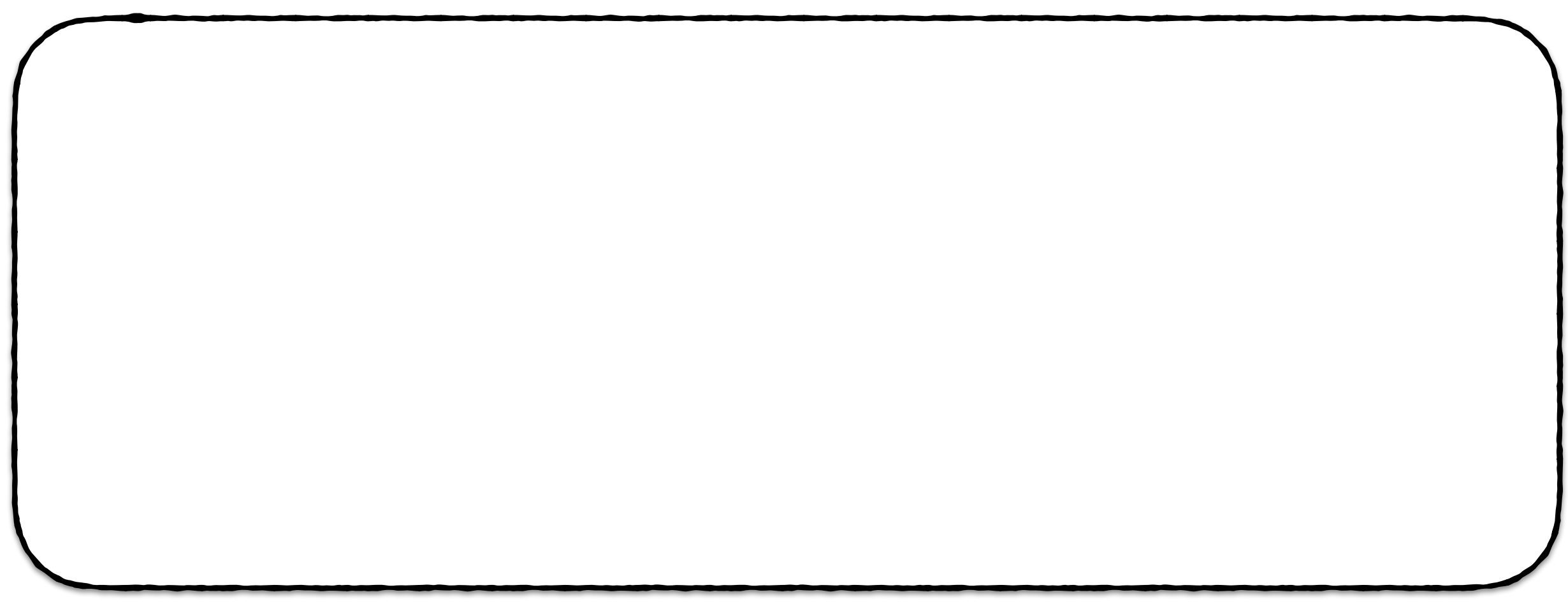
Restricting ourselves to counting questions is hard.

Can we recover that code | thing that MME did?

(MMWreallyneedscountquestions)

Apparently. Meanwhile MCMC with MCMC.

(MCMC: Markov Chain Monte Carlo)





Let  $M(\mathbf{A})$ : repeat until happy ...

1. Use the exp mech to pick a PINQ program  $\mathbf{p}$ ,
2. Evaluate  $\mathbf{p}$  on the the actual data  $\mathbf{A}$ . (call it  $\mathbf{m}$ ).
3. Update estimated distribution  $\mathbf{D}$ , using MCMC.

$$\text{score}(A, p) \equiv -\log \text{Pr}(p(A) | D).$$