

# **ES 2: Critical thinking with Python**

aka, Introduction to Computing for Engineers

Steven Bell

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# Making plots

We're using matplotlib, which borrows syntax from MATLAB

*MATLAB plotting library*

There are other libraries for plotting in Python:

Seaborn



# IS THAT A LOT?

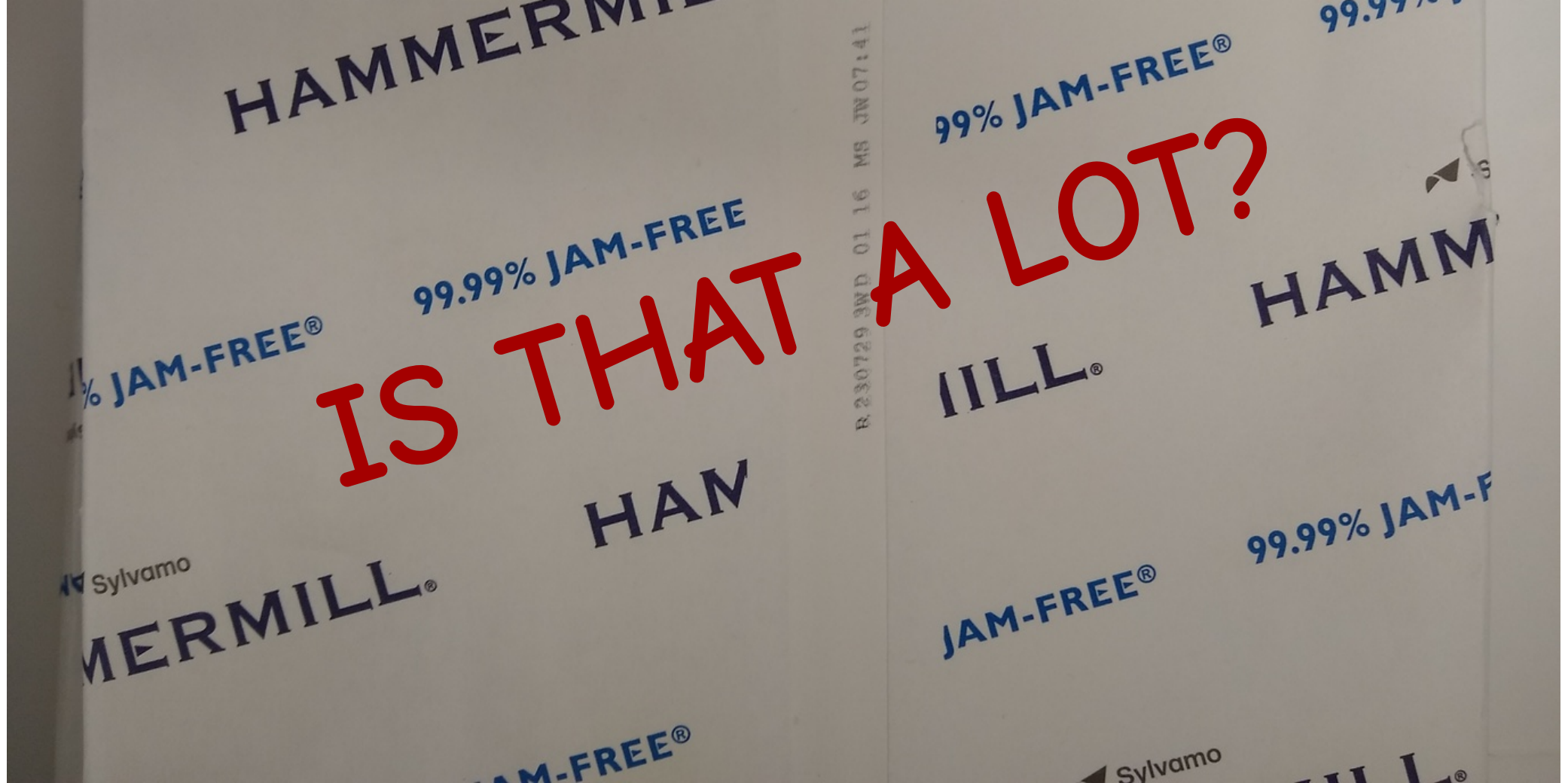
## Rules:

No internet

No calculators

We want thoughtful justification (with numbers),  
but exact answers are not required

Send ideas if you see them!



Let's say this costs \$4 for 500 sheets.  
How much would you (Tufts?) pay for paper that is 99.999% jam free?  
What about 99.9% or 99%?

99.99% 1 jam per 10k sheets

10k sheets / day  
= 1 jam / day

5 minutes / jam  
+ 5 minutes reprint  
=  $\frac{1}{6}$  hour

\$1 - \$2 more?

10¢ / package at \$12/hr  
50¢ / package at \$60/hr

99.999% 1 jam per 100k sheets

200 packages  
\$800 + \$10 jam

99.99

# IS THAT A LOT?

Suppose you're running a major web service  
(Google / Facebook / Amazon EC2 / Cloudflare)

Is 99% reliability/uptime good enough?  
How many nines do you need?

$$99.999 = \frac{1}{100k}$$

# Assignment due dates

We're going to skip this week's reflection

We'll have feedback on Week 0 reflection before the week Week 2 reflection is due

Deadline for Week 01 Homework is Monday

This is set in Codio - can you see it?

Week 02 homework posted soon (Monday at the latest)