Why use programming?

- As a general rule: you don't understand something if you can't program it.
- Programming helps you check your answers.
- In exams, I see many answers that can never be true
  - probabilities outside of [0,1]
  - instances when $P(A \cap B) > P(A)$
  - squares that give negative answers
  - and many other exotics
- My guess is that the reason is that the material is abstract.

Why use programming?

- A computer program makes things more real: it allows you to throw a die $N = 1000$ times.
- Probability of seeing 2 eyes or less?
- Simply count how many of these 1000 throws show 2 eyes or less. Call this number N_1.
- Calculate N_1/N.
- Of course, $N_1 \leq N$, so $N_1/N \leq 1$.

R

- All this coin flipping and dice throwing is a lot of work.
- It helps to have a computer.
- We will use R (Python is also quite similar), a freely available programming tool that is used a lot for statistical purposes.
- I recommend using RStudio from rstudio.com (or Google Colab where you can also find interesting materials on Python coding). You may find useful information on R coding from this website.
- Let's do a short tour on R and Python. Pick one you like. The textbook uses R though.