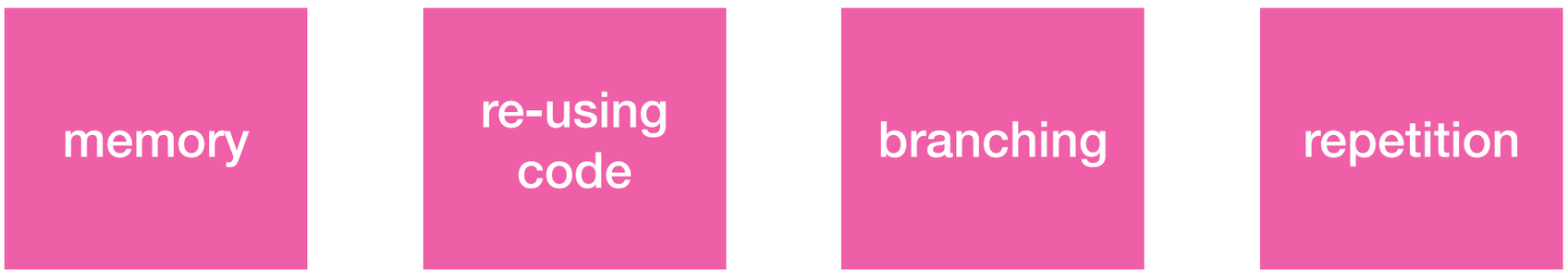
The final class time!

Disclaimers:
- you should absolutely be talking to your academic and co-op advisors
- we all follow different paths! That's a-okay!

Wow! we've done so much!

- Our programs have four main super powers:



Wow! we've done so much!

- Our programs have four main super powers:

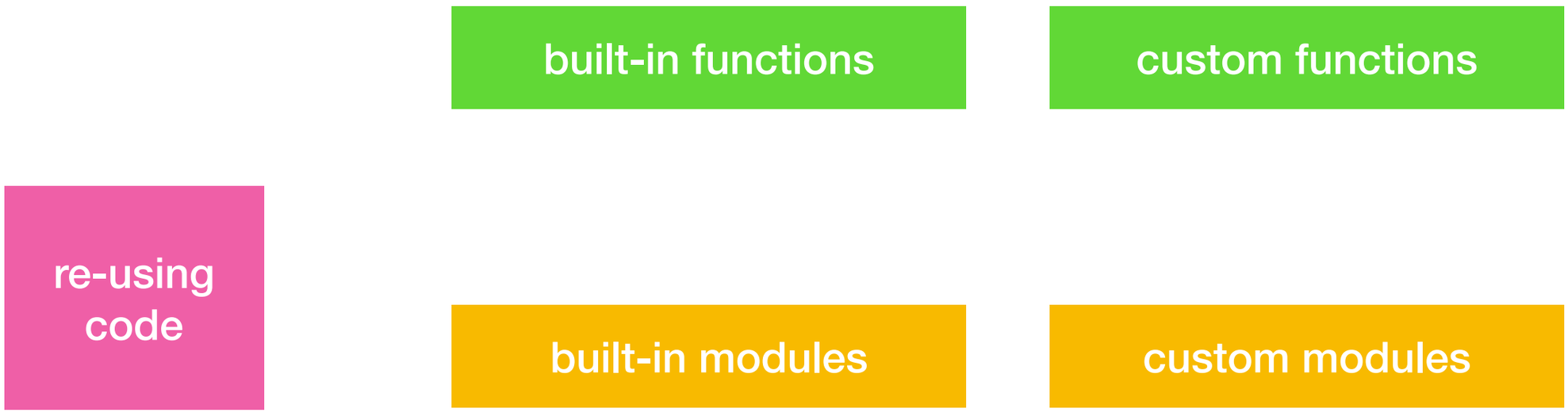
data types

memory

"variables store values"

Wow! we've done so much!

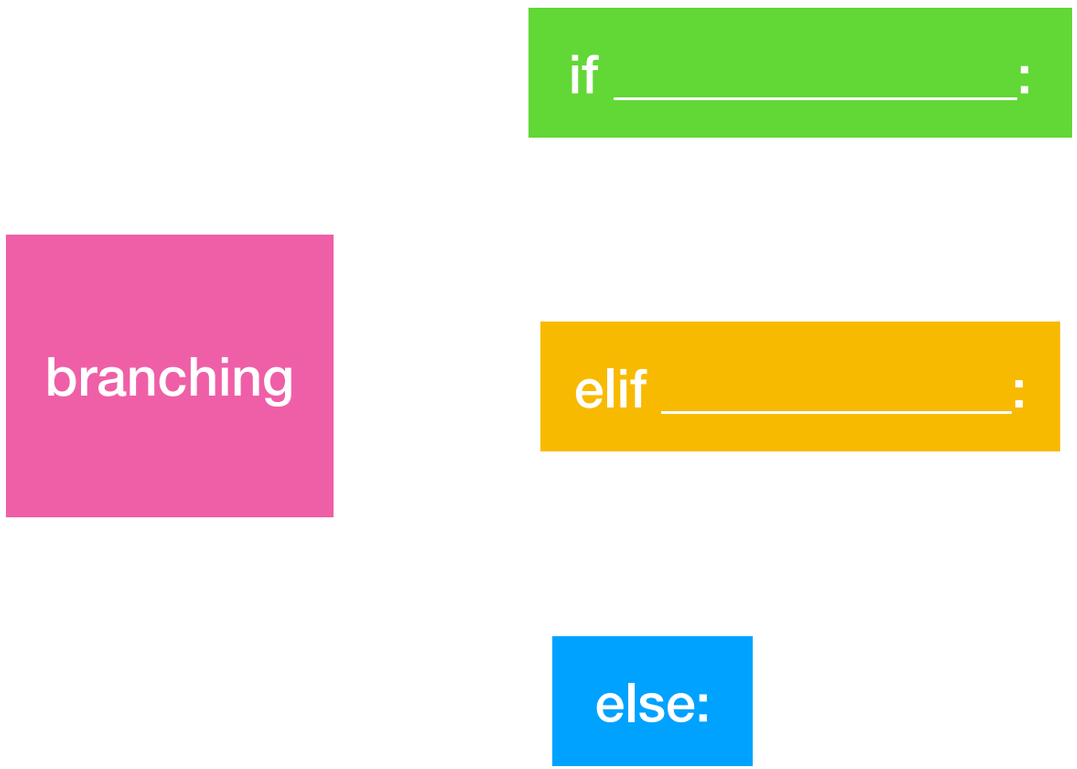
- Our programs have four main super powers:



"functions are hard but also magical"

Wow! we've done so much!

- Our programs have four main super powers:



"these quotes are made up and conditionals are essential, even when we're not simulating gambling"

Wow! we've done so much!

- Use an if/elif/else when:

- Use an if/elif when:

- Use an if followed by another if when:

Wow! we've done so much!

- Our programs have four main super powers:

for _____ in _____:

for _____ in _____:

repetition

while _____:

"Felix loves while loops but we hate them"

"time to discover infinity!"

Wow! we've done so much!

- Use a while loop if:

- Use a for i in range(....) loop if:

- Use a for value in .... loop if:

Wow! we've done so much!

- Our programs can harness the use of many **data structures**:

lists

dicts

sets

tuples

"Everything made sense and then we put lists inside of lists"

Wow! we've done so much!

- Our programs can harness the use of many **data structures**:
  - [[[["hi", "there"], 75], True, False, [3, -7]], "bandana"]
- When indexing into complex data structures, you go from the outside in.

"Everything made sense and then we put lists inside of lists"

Wow! we've done so much!

- Also, there were some key programming concepts & vocabulary:
  - parameters/arguments
  - return values
  - scope
  - program flow
  - control structures
  - data structures

Wow! we've done so much!

- We also learned the many moods of turtle

Spicy questions that we could have put on a final exam

- Explain what makes a loop different than a function.
- Identify which of these problems **must** use a "for i in range(...)" loop (as opposed to "for value in .....")
- Identify which of these problems **must** use a while loop (as opposed to a for loop)
- Write a function that...
- Write example function calls for the given functions...

"why in the world would you have programming students write a test on paper"

Life After DS 2000

- DS 2500
  - Focus on continuing to practice coding skills in the context of data manipulation and data analysis techniques
  - Including an introduction to machine learning
  - https://course.ccs.neu.edu/ds2500/
- Data Science for Social Progress (ARTG 5000, Section 5, Prof. Gillani)
  - syllabus: https://docs.google.com/document/d/1v43_3GF5i9ja--wKn2vajdHzAhs7ovk9yV9iz9uTB1M/edit?usp=sharing

Life After DS 2000

Coding for Digital Storytelling

Offers students an opportunity to learn essential skills in coding across a wide range of technologies commonly used today in data-driven, multi-modal, web-based storytelling. Focuses on building skills in basic web development, as well as exploring additional topics and technologies that fit into the broader landscape of data storytelling practice (JavaScript visualization library D3.js, basic Python, working with APIs, and working with databases). Course work consists primarily of team-based projects that focus on reverse-engineering real-world examples of data storytelling to demystify the question, "How did they do that?" Reveals the ways fluency in code can transform storytelling.

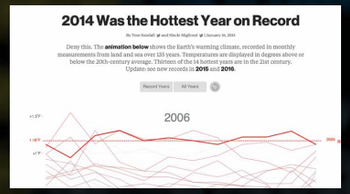
JRNL.5500 / CRN38595

Tue / Fri 9:50-11:30

Spring 2023

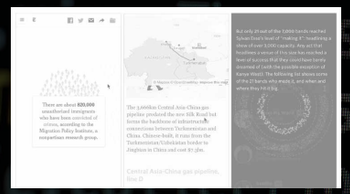
Prof. Rahul Bhargava
r.bhargava@northeastern.edu

data viz

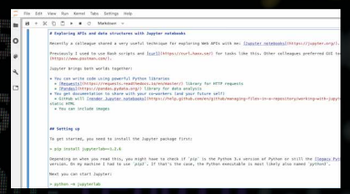


databases & investigations

scrollytelling



APIs



How to keep python skills up/practiced

- If possible, take a coding class next semester or a class that you can use your skills for one or more projects on.

- As new programmers, now is a great time to *not* take a break (if you have that option) because learning works through practice and repetition, and this is a skill that you've just added to your toolbelt!

- Apply to TA for DS 2000!

  - Email me if this is something that you are interested in—I'm always happy to talk to students about what TAing entails.

  - (but you might also just ask your TAs :D)

How to keep python skills up/practiced

- If you do need to take a break before your next programming class—
  - re-do one or two ds 2000 homeworks ***without*** looking at your current solution (or finish some DS 2001 labs that you didn't quite finish)
  - don't panic, give yourself some extra time to attend office hours in the first weeks of the semester—you will remember, you might just find yourself with more questions in the beginning of the semester!

Other topics/research that Prof. Felix has worked on?

- broadening participation in computing & TAs in computing classrooms
- incorporating ethics in computing classes
- natural language processing & digital humanities
- crisis informatics

What other data science topics do you spend a lot of time thinking about?

- legacy database design and real-world ramifications on transgender people

- data. data all the time. data behind everything.

What other data science topics do you spend a lot of time thinking about?

- teaching topics rooted in complex math to folks with humanities backgrounds

- teaching critical reasoning skills and practices in advanced DS/CS courses to folks with "STEM" backgrounds

Wait you did what?

- What we know about Prof. Felix: