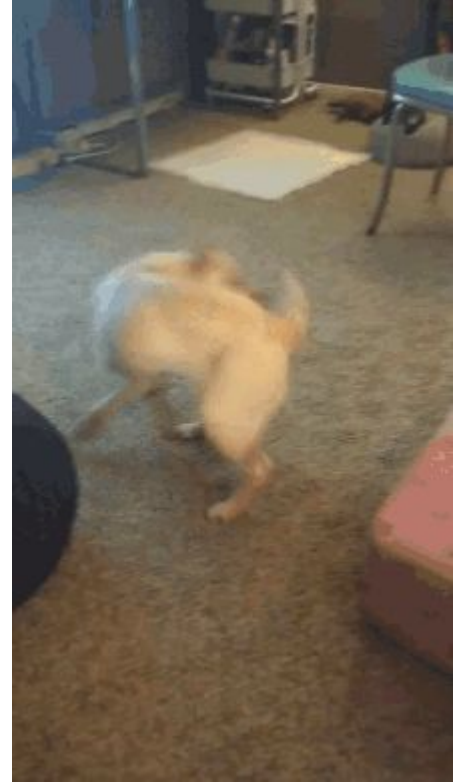


Topic: Loops

goals:

1. learn how to run code more than once
2. decide whether **for** or **while** loops are appropriate

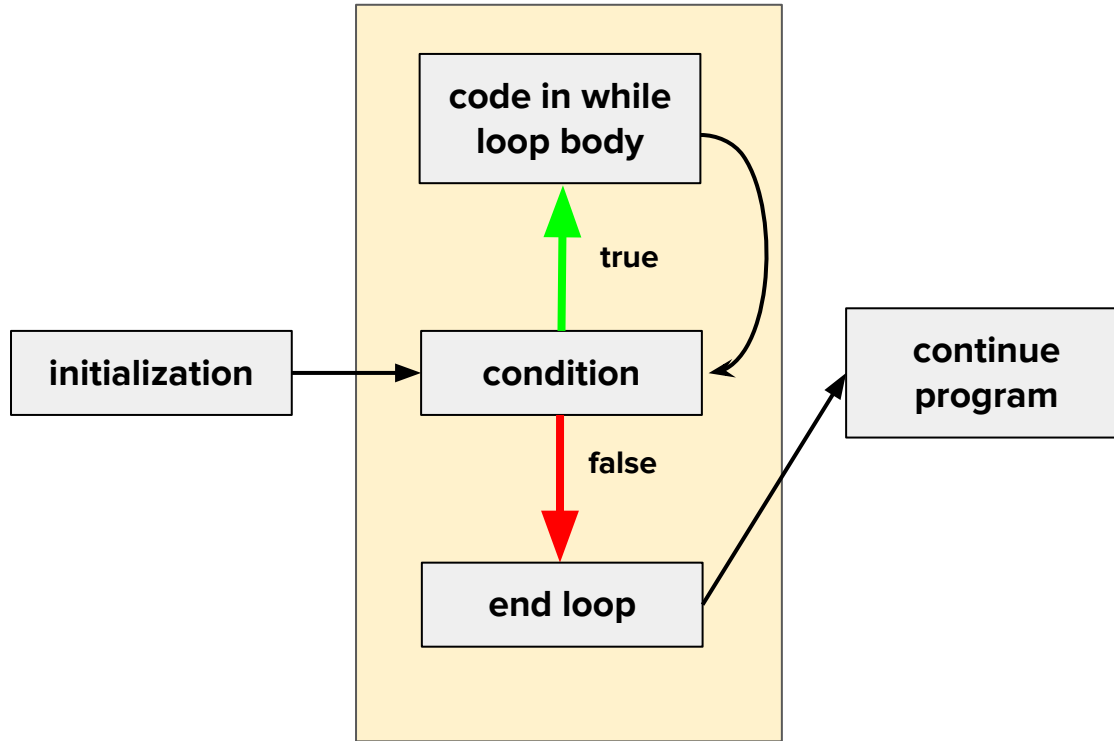


Last time...

- reviewed **logic** (decide if something is true or false) and **conditionals** (use a true/false decision to run only selected code)
 - recipe metaphor: **vegetarian?** if **yes**, add **vegetable stock**, if **no**, add **chicken stock**. *not both!*
- today: what if we want to run code more than once? can we do this flexibly?
 - blend the soup until no chunks remain
 - for every serving, chop 3 carrots
 - once water boils, add noodles
 - line every cupcake tin with paper



WHILE



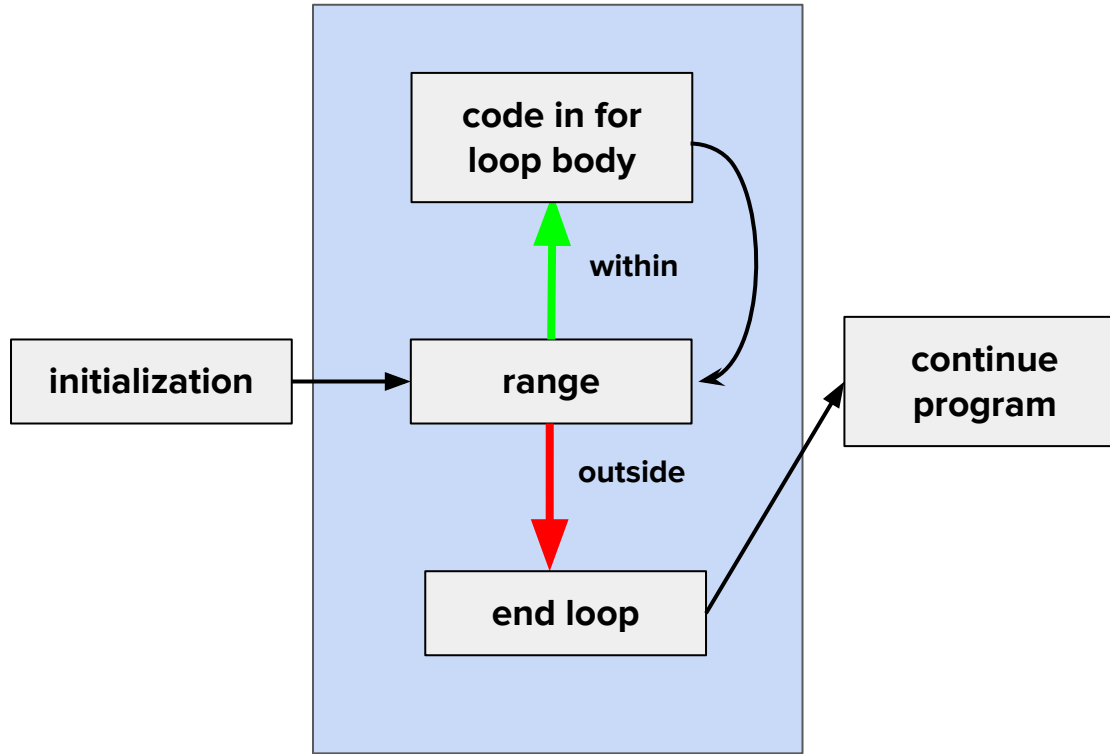
when to use:

- you want to continue doing something UNTIL a condition changes, and you *don't know how long* that will take
- considered 'indefinite' iteration

examples:

- collect coins up to a value
- braid hair
- guess my number/20 questions
- while break pressed, car won't move
- while time hasn't run out, keep working
- search cabinets for object

FOR



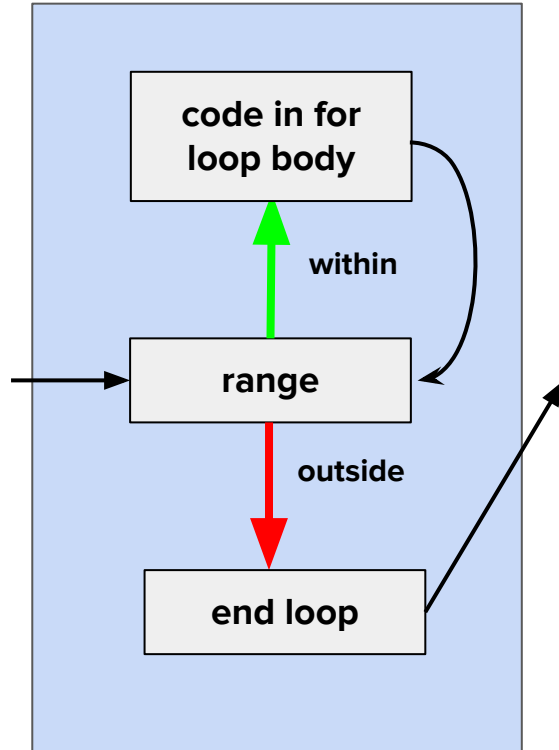
when to use:

- you want to do a process over a *KNOWN* set of information or repetitions
- considered 'definite' iteration

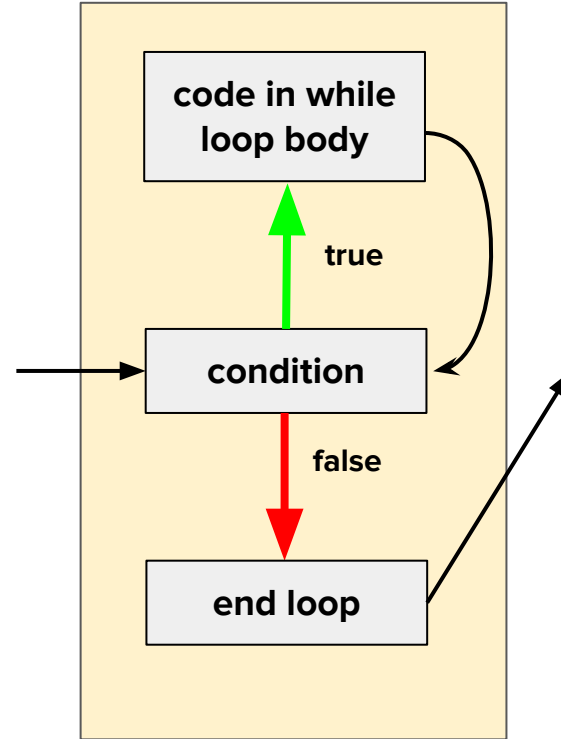
examples:

- put icing on each cupcake
- square a list of numbers
- print a set of pictures
- collect answers to series of questions
- check how many values in list exceed a certain number (think: points)
- push ups/cheer at football game

FOR



WHILE



Think-Pair-Share

First: From the following list, can you identify which should be for loops and which should be while loops? *If you aren't sure, write down why you think it could be one or the other to discuss with your partner*

- you want to check how many of your kids is wearing a seatbelt
- you want to see how many levels a player can pass in 5 minutes
- you want to dig a hole to find buried treasure
- you want to delete all files on your computer which are bigger than 1TB

If time: can you think of one new example (for code or from your life) that would fit in each type of loop?

Some loops can be formatted both ways!



Common Bugs and Looking Ahead

never ending code (especially common with **while** loops)

never starting code (not always a bug!)

next time:

- writing loops which don't have to run
- variable initialization: before or within loops