# For Loops (part 1)

September 19

# Doing something with each element in a list

So, now we have this list:

Grocery_list = [“Milk”, “Eggs”, “Cereal”, “Coffee”, “Apples”, “Strawberries”, “Broccoli”, “Cucumber”, “Tomatoes”, “Green Onions”]

We want to print the list, one item on a line, so that we can send someone else to the store.

Use a “for” each loop.

Remember that reserved word “in”? We’ll use it here.

# Example

```
For item in Grocery_list:

    print(item)
```

Indent!!!
Just like with if-else. White space is important in Python

“Item in Grocery_list” is a boolean conditional. The colon ends the conditional. This continues to execute as long as there are more items.

# Side note: indentation

You should always indent using tabs in this class.

But if you were to indent with spaces, how many spaces do you have to indent in order for Python to recognize it?

Answer: just one!!

Most tools and style guides want you to use four spaces.

But Google released a bunch of open source tools that only indent two spaces by default!! So a lot of people write a lot of utilities to convert two spaces to four spaces, and vice versa.

This is why you use tabs; it’s safer.

# Pseudocode

Pseudocode is a description of what a computer algorithm is intended to do, written in a natural language rather than an interpretable computer language.

Pseudocode cannot be executed on the computer

Example:

- Ask the user to input her age
- Calculate age in 2050 by adding 31 to age
- Print user’s age in 2050

# Flowcharts

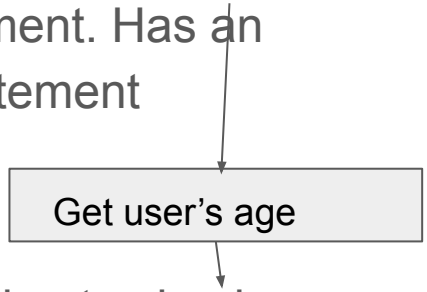
A graphical way of showing how statements in a program will be executed

Three types of control flow:

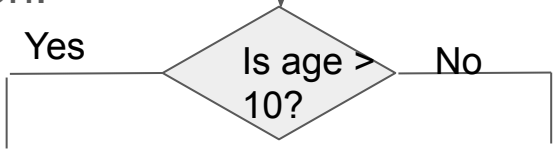
- Sequential: execute the statement once, then move to the next statement in the program
- Conditional: execute a statement or set of statements once, if a condition is true. Skip the statement(s) if the condition is false.
- Iterative: a statement or set of statements is executed over or over until some condition is true

# Flowchart symbols

Sequential: rectangle. Contains pseudocode describing the statement. Has an arrow in from the previous statement; an arrow out to the next statement




Conditional: diamond. Contains pseudocode describing the condition to check. Has an arrow in from the previous statement; has one arrow out to each possible set of code to be executed depending on the condition.




Iterative: arrows indicate looping through code, with diamond to indicate the condition to be checked to cause the iteration to stop.

# A flowchart example

Example from

https://www.tutorialspoint.com/python/python_for_loop.htm