A string is a sequence of characters

- Str1 = ‘Hello’
- Str2 = ‘there’

A string uses literal quotes

- ‘Hello’ or “Hello”

In strings + means concatenate

- Add = ‘a’ + ‘b’ + ‘c’
  print(Add)
  abc

When numbers are wrapped in quotation marks it is still a string

- Str3 = ‘123’
  - ‘123’ or “123”

We can convert numbers in a string to numbers using the int() function

- X = int(Str3) + 1
  124

We prefer to read data in using strings and then parse and convert data as we need

- Name = input(“Enter: ”)

This gives us more control over error situations and/or bad user input

- apple = input(‘Enter’:)

Raw input numbers must be converted from strings

- Apple = 100
  - x = Apple - 10
  - Traceback Error
    - x = int(Apple) - 10
      90

We can get any single character in a string using an index specified in square brackets

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b	a	n	a	n	a
0	1	2	3	4	5

The index value must be an integer and starts with zero

- Fruit = ‘banana’
  Letter = Fruit[1]
  print(Fruit)
  a

The index value can be an expression that is computed

- X = 3
  W = Fruit[X - 1]
  print(W)
  n

You will get a python error if you attempt to index beyond the end of a string

- Zot = ‘abc’
  print(Zot[5])
  Traceback Error

BE CAREFUL when constructing index values and slices

The built-in len() function gives us the length of a string

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b	a	n	a	n	a
0	1	2	3	4	5

  - Fruit = ‘banana’
    print(len(Fruit))
    6

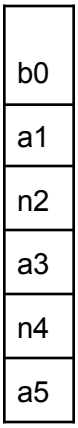
A function is some stored code that we use. A function takes some input and produces an output.

- Fruit = ‘banana’
  x = len(Fruit)
  print(x)
  6

‘Banana’ len() function 6
(a string) (a number)

Using a while statement and an iteration variable, and the len() function, we can construct a loop to look at each of the letters in a string individually

- Fruit = ‘banana’
  index = 0
  while index < len(Fruit):
    Letter = Fruit(index)
    print(index, Letter)
    Index = index + 1



A definite loop using a for statement is much more elegant

- Fruit = ‘banana’
  For letter in Fruit:
    print(letter)
  b
  a
  n
  a
  n
  a

The iteration variable is completely taken care of by the for loop

- index = 0
  while index < len(Fruit):
    letter = Fruit [index]
    print(letter)
    index = index + 1

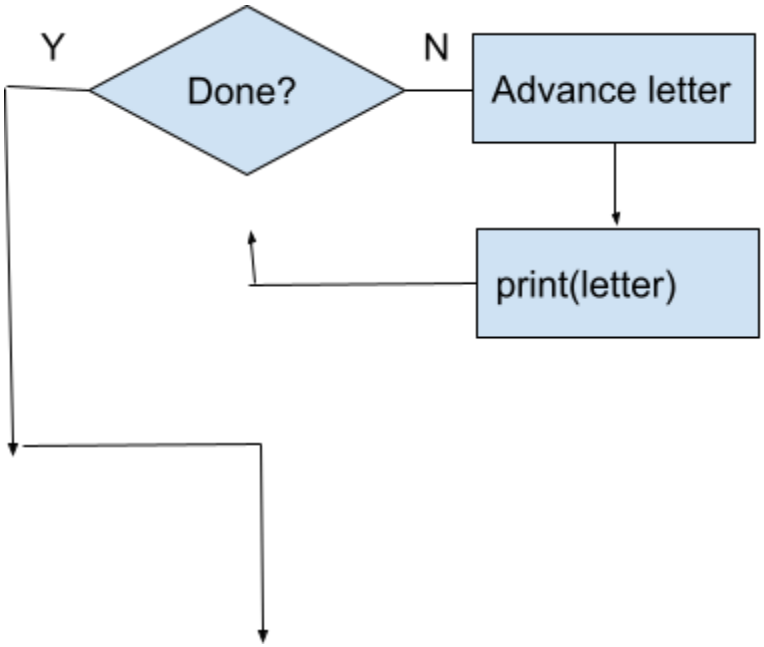
This is a simple loop that loops through each letter in a string and counts of times the loop encounters the ‘a’ character

- word = ‘banana’
  count = 0
  for letter in word:
  if letter == ‘a’:
  count = count + 1
  print(count)

The iteration variable “iterates” through the sequence (ordered set)

The block (body) of code is executed once for each value in the sequence

The iteration variable moves through all of the values in the sequence



The iteration variable “iterates” through the string and the block (body) of code is executed once for each value in the sequence