Data Structures

Collections

Collections or Data Structures

1. List
2. Tuple
3. Set
4. Dictionary

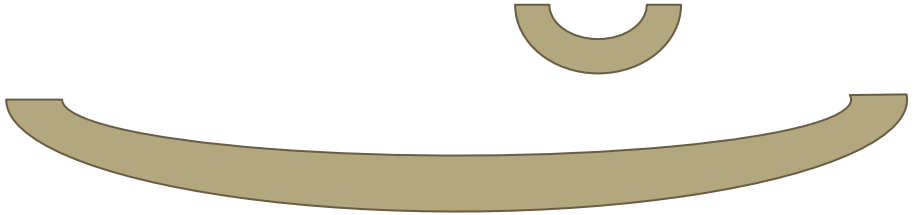
Purpose is to organize data

List

Ordered and changeable collection of values

1. Ordered
2. Changeable
3. Duplicates OK

shoppingCart = [‘apple’, ‘pear’, ‘orange’, ’peach’, ‘banana’]



Element

Sequence

List manipulation

- len()
  - len(shoppingCart) = returns 5
- in
  - ‘apple’ in shoppingCart = returns True
- .index()
  - shoppingCart.index(‘apple’) = returns 0
- slice
  - shoppingCart[1:4] = returns [‘pear’, ‘orange’, ’peach’]

List manipulation: 1, 2, 3 (enumerate)

String manipulation

- Can be similar to list manipulation
  - E.g. sentence = "Now is the winter of our discontent"
- len()
  - len(sentence)
- in
  - ‘winter’ in sentence
- .index()
  - sentence .index(‘winter’)
- slice
  - sentence[1:4]

String manipulation: 1, 2

Demo

1. Lists
2. List manipulation
3. String manipulation

In-class assignment 5a

- Use the sentence: Now is the winter
- Create a function that takes in sentence and splits it into a array using a space as the separator
- Add the following words at the end of the newly created array:
  - of
  - our
  - discontent
- Create a function that'll take the created array and join it into a string adding " - " (space hyphen space) in-between each element
- Add a period at the end of the string
- Print out the final string

Tuples

Ordered and unchangeable collection of values

1. Ordered
2. Unchangeable
3. Duplicates OK

Used to group together related data

Sets

Ordered and unchangeable collection of values

1. Unordered
2. Unindexed
3. NO duplicates

Demo

- Tuples
- Sets

In-class assignment 5b

- You have the following information about a veterinary patient:
  - Animal: Dog
  - Breed: Labrador
  - Name: Lola
  - DOB: October 10, 2015
- Create a tuple (veterinary_patient) linking each piece of information together
- Using this information within the tuple calculate the age of the dog
- Print out the name of the dog and her age

Assignment 5

1. Create a python program that takes an input string from a user. Analyze this string and separate all single letter words into one array, numbers into another array and all longer words into a third array.
    a. Use functions
    b. The program should continue until the user types in “Exit” or “0” (zero)
    c. Type “Print” to print out the results for the previous input string
    d. Use the given unit tests to check your work
    e. Hint: Use can use tuples to group your answers
    f. Extra practice: Delete all punctuation
2. Create two new unit tests to verify edge cases for your code