Data Structures

* Lists
* Tuples
* Dictionaries
* Sets

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Data Type | Description | Dynamic | Mutable |
| Ordered | List | Indexed collection of related objects; like an array | Yes | Yes |
| Tuple | Indexed collection of related objects that cannot be increased or decreased in length | No | No |
| Unordered | Dictionary | Unordered set of key/value pairs, each key is unique | Yes | Yes |
| Set | Unordered set of related unique objects | Yes | Yes |

* Dynamic
  + Size can be increased or decreased during runtime
* Mutable
  + Able to be changed
    - If not mutable terminology is IMMUTABLE
* Ordered
  + Items are organized
    - Usually by number
* Unordered
  + Items stored without order

Lists

* Creation
  + myList = [listItem1, listItem2]
* Adding new items
  + myList.append(value)
* Removing
  + myList.remove(value)
* Outputting list values
  + for Var in myList:  
     print(Var)
* Slicing lists
  + Slicing is getting a part of an object in a list
* find() looks for the where the parameter starts

PYTHON:  
rawData = “monsterprincessmonster”  
theStart = rawData.find(“princess”)  
theEnd = theStart + len(“princess”)  
print(rawData[theStart:theEnd])

* + It does not find the parameter for direct manipulation

PYTHON  
badNews = “Princess Peach was taken once again in New Super Mario Bros.”  
print(badNews)  
marioResponse = ‘ ‘.join([badNewsList[25], badNewsList[13], badNewsList[8], badNewsList[3], badNewsList[53])

Print(“Mario said: “, marioResponse)

Tuples:

* Declaration
  + myTuple = (tupleItem1, tupleItem2)
* Tuples cannot be changed

Dictionaries

* Declaration

PYTHON  
playerData = {‘psnName’ : “the\_ed\_85”,  
 ‘playerLevel’ : ‘80’,  
 ‘hp’ : ‘37649’,  
 ‘mp’ : ‘10000’,  
 ‘playerClass’ : ‘Red Mage’}

* Calling parts of a dictionary
  + playerData[‘psnName’]
* Calling all of a dictionary
  + playerData

Sets

* declaration
  + ages = {value1, value2}
    - printing a set will only show unique values, it will not repeat values

Terminology

* built-in
  + part of the core python programming language, is available without having to import anything
* Data Structure
  + Formalized structure for organization and storage of data
* Dictionary
  + Unordered set of key/value pairs
* Dynamic
  + Size is changeable
* Immutable
  + Not able to be changed
* Key/Value
  + A pair of data consisting of a unique key and the associated value
    - Key : value
* List
  + Indexed collection of related objects
* Mutable
  + Able to be changed
* Set
  + Unordered group of unique objects
* Slice
  + A subset of a sequence
* Slice Notation
  + Syntax used to obtain a slice
* Slicing
  + Obtaining a subset using slice notation
* Tuple
  + Like a list but immutable
* Unordered
  + Items stored without a specific organization