Python Data structures

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|  | **Lists** | **Sets** | **Dictionaries** | **Tuples** |
| A list is a data structure in Python that is a mutable, or changeable, ordered sequence of elements.  Each element or value that is inside of a list is called an item.  Use [ ] | A Set is an unordered collection data type that is iterable, mutable, and has no duplicate elements.  This is based on a data structure known as a hash table  Use { } | A dictionary is a collection which is unordered, changeable and indexed.  In Python dictionaries have keys and values.  Use { } | A tuple is a collection which is ordered and unchangeable. |
| Create empty | swapnil = list ( )  or  swapnil = [ ] | swapnil = {} | swapnil = {} | swapnil = tuple ( )  or  swapnil = ( ) |
| With values | swapnil = list(1, 2, 3, “hi”)  or  swapnil = [1, 2, 3, “hi”] | swapnil = {1, 2, 3, “hi”} | swapnil = {1 : “one”, 2 : “two”, 3 : “three”} | swapnil = (1, 2, 3, “hi”) |
| Check length | len(swapnil) | len(swapnil) | len(swapnil) | len(swapnil) |
| Check type | type(swapnil) | type(swapnil) | type(swapnil) | type(swapnil) |
| Indexing | All values  swapnil [ : ]  index starts from 0  swapnil [ 1: ]  [2, 3, “hi”, 4, 5]  swapnil [1:4]  [2, 3, “hi”] |  | Access the item values based on keys  swapnil [1]  ‘one’  We can even loop through the dictionaries keys  for x in swapnil:  print (x)  1  2  3  We can even loop through the dictionaries values  for x in swapnil.values():  print(x)  ‘one’  ‘two’  ‘three’  We can also check both keys and values  for x in swapnil.items():  print(x)  (1, ‘one’)  (2, ‘two’)  (3, ‘three’) |  |
| Inbuilt functions | | | | |
| Append | Append is used to add elements in the list. It adds elements to the end of the list.  swapnil.append (4)  Append only adds one element. If you try to add more than one element, you have to use [ ]  swapnil.append([4,5])  However, this is what you’ll get  [1, 2, 3, “hi”, [4, 5]]  To avoid this, we have to use  .extend |  |  |  |
| Extend | swapnil.extend ([4,5])  [1, 2, 3, “hi”, 4, 5] |  |  |  |
| pop | .pop takes the last item out  swapnil.pop( )  [1, 2, 3, “hi”, 4]  swapnil.pop (1)  [1, 3, “hi”, 4, 5] |  |  |  |
| count | Calculates total occurrence of given element of List  swapnil.count( 1 )  1  since, there is only one 1. |  |  | Calculates total occurrence of given element of List  swapnil.count( 1 )  1  since, there is only one 1. |