SY201
Strings, Lists, and Dictionaries

Operation	String	List	Dictionary
Initialize to "null"	S = ""	L = []	D = {}
Initialize to "non-null"	S = "abcde"	L = [45, 56, 43, 4, 5]	D = {"a":4, "b":3, "c":5}
Append	S = S + "a" *"abcdea"*	L.append(22) *[45, 56, 43, 4, 5, 22]*	D["d"] = 56 *{"a":4, "d": 56, "b":3, "c":5}* *Note: Dictionaries are unordered*
Access an element	print(S[4]) *'e'*	print(L[4]) *5*	print(D["a"]) *4*
Change an element	Immutable (can't do)	L[3] = L[2] + 10 *[45, 56, 43, 53, 5, 22]*	D["d"] = D["d"] + 1
Insert an element	S = S[:4] + "r" + S[4:] *"abcdre"*	L.insert(4,45) *[45, 56, 43, 53, 45, 5, 22]*	D["d"] = 56 *{"a":4, "d": 56, "b":3, "c":5}* *Note: Dictionaries are unordered*

Iterate over the elements	for c in S:
	    print(c)
		for item in L:
		    print(item)
			for key in D
			    print(D[key])

Delete an item	S = S[:4] + S[4:] *"abcd"*	X = L.pop(2) *[45, 56, 53, 45, 5, 22]* *X = 43*	del(D["a"]) *{"b":3, "c":5}*

Slicing in Python:

```
S[start:end] # index start through end-1
S[start:]    # index start through remaining string
S[:end]      # index from the beginning [0] through end-1
S[:]         # a complete copy of S
```