6.6. The Slice Operator

A substring of a string is called a **slice**. Selecting a slice is similar to selecting a character:

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```
singers = "Peter, Paul, and Mary"
print(singers[0:5])
print(singers[7:11])
print(singers[17:21])

```

```
Peter
Paul
Mary
```

Activity: 1 -- ActiveCode (ac5_6_1)

The `slice` operator `[n:m]` returns the part of the string starting with the character at index n and go up to but *not including* the character at index m. Or with normal counting from 1, this is the (n+1)st character up to and including the mth character.

If you omit the first index (before the colon), the slice starts at the beginning of the string. If you omit the second index, the slice goes to the end of the string.

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```
fruit = "banana"
print(fruit[:3])
print(fruit[3:])

```

```
ban
ana
```

Activity: 2 -- ActiveCode (ac5_6_2)

What do you think `fruit[:]` means?

6.6.1. List Slices

The slice operation we saw with strings also work on lists. Remember that the first index is the starting point for the slice and the second number is one index past the end of the slice (up to but not including that element). Recall also that if you omit the first index (before the colon), the slice starts at the beginning of the sequence. If you omit the second index, the slice goes to the end of the sequence.

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```
a_list = ['a', 'b', 'c', 'd', 'e', 'f']
print(a_list[1:3])
print(a_list[:4])
print(a_list[3:])
print(a_list[:])

```

```
['b', 'c']
['a', 'b', 'c', 'd']
['d', 'e', 'f']
['a', 'b', 'c', 'd', 'e', 'f']
```

Activity: 3 -- ActiveCode (ac5_6_3)

6.6.2. Tuple Slices

We can't modify the elements of a tuple, but we can make a variable reference a new tuple holding different information. Thankfully we can also use the slice operation on tuples as well as strings and lists. To construct the new tuple, we can slice parts of the old tuple and join up the bits to make the new tuple. So `julia` has a new recent film, and we might want to change her tuple. We can easily slice off the parts we want and concatenate them with the new tuple.

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```
julia = ("Julia", "Roberts", 1967, "Duplicity", 2009, "Actress", "Atlanta, Georgia'
print(julia[2])
print(julia[2:6])

print(len(julia))

julia = julia[:3] + ("Eat Pray Love", 2010) + julia[5:]
print(julia)
```

```
1967
(1967, 'Duplicity', 2009, 'Actress')
7
('Julia', 'Roberts', 1967, 'Eat Pray Love', 2010, 'Actress', 'Atlanta, Georgia')
```

Activity: 4 -- ActiveCode (ac5_6_4)

Check your understanding

sequences-6-1: What is printed by the following statements?

```
s = "python rocks"
print(s[3:8])
```

- A. python
- B. rocks
- C. hon r
- D. Error, you cannot have two numbers inside the [ ].

Check me Compare me

✔ Yes, start with the character at index 3 and go up to but not include the character at index 8.

Activity: 5 -- Multiple Choice (question5_6_1)

sequences-6-2: What is printed by the following statements?

```
alist = [3, 67, "cat", [56, 57, "dog"], [ ], 3.14, False]
print(alist[4:])
```

- A. [[ ], 3.14, False]
- B. [[ ], 3.14]
- C. [[56, 57, "dog"], [ ], 3.14, False]

Check me Compare me

✔ Yes, the slice starts at index 4 and goes up to and including the last item.

Activity: 6 -- Multiple Choice (question5_6_2)

sequences-6-3: What is printed by the following statements?

```
L = [0.34, '6', 'SI106', 'Python', -2]
print(len(L[1:-1]))
```

- A. 2
- B. 3
- C. 4
- D. 5

Check me Compare me

✔ Yes, there are 3 items in this list.

Activity: 7 -- Multiple Choice (question5_6_3)

Create a new list using the 9th through 12th elements (four items in all) of `new_lst` and assign it to the variable `sub_lst`.

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```
1 new_lst = ["computer", "luxurious", "basket", "crime", 0, 2.49, "institution", "sli
2 sub_lst = new_lst[8:12]
3
```

Activity: 8 -- ActiveCode (ac5_6_5)

Result	Actual Value	Expected Value	Notes
Pass	['sun... 2.7]	['sun... 2.7]	Testing that sub_lst has the correct elements assigned.

Expand Differences

You passed: 100.0% of the tests

You have attempted 9 of 8 activities on this page

6.5. Length">
gth">
6.7. Concatenation and Repetition">
✔ Completed. Well Done!

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