

COMP
110

for loops + sequences

Sequences

What is a Sequence?

An Abstract Data Type that is an ordered, 0-indexed set of values.

There are many specific types of sequences with their own properties. Common, built-in sequence types in Python include:

- str: a sequence of character data
- list: a dynamically sized sequence of values of a specific type
- tuple: a fixed size sequence of values of any types
- range: a sequence of integers at intervals between a start and end

Tuples

- Tuples types are made of a specific, fixed-length sequence of any mixed type(s).
- Example:

```
3d_coordinate: tuple[float, float, float] = (1.0, 1.0, 1.0)
```

- Other example:

```
Player = tuple[str, int]
```

```
lebron : Player = ("James", 6)
```

```
mj: Player = ("Jordan", 23)
```

- *This is pretty much everything you need to know about tuples for this class, I just want you to familiar with them! 😊*

Looping Through Sequences

- You can use a loop to iterate over every element in a sequence!
- We've done this with while loops, but there's another type of loop specifically designed for this!

for ... in ... loops

```
xs: list[str] = ["w", "x", "y", "z"]
```

Print every element of xs

while



for ... in ...



```
xs: list[str] = ["w", "x", "y", "z"]
```

```
while idx < len(xs):
```

iterates over

```
idx: int = 0
while idx < len(xs):
    print(idx)
    idx += 1
```

Output:

```
0
1
2
3
```

list[str]	
0	"w"
1	"x"
2	"y"
3	"z"

```
for elem in xs:
```

iterates over

```
for elem in my_list:
    print(elem)
```

Output:

```
w
x
y
z
```

for ... in ... loops in Memory

```
1  """Practice of for Loops"""
2
3  my_list: list[str] = ["hello", "world"]
4  new_list: list[str] = []
5  for elem in my_list:
6  |   new_list.append(elem)
7  print(new_list)
```

Writing for loops

```
pets: list[str] = ["Louie", "Bo", "Bear"]
```

Using a **for ... in ...** loop, write code to tell each pet they're a good boy!

Challenge: call each elem something other than "elem"

Output should be:

Good boy, Louie!

Good boy, Bo!

Good boy, Bear!

for ... in ... loops in Memory

```
1  """Practice with for loops + functions"""
2
3  √ def even_words(inp_list: list[str]) -> list[str]:
4      |     """What it does is a mystery! ;)"""
5      |     even_list: list[str] = []
6      |     for elem in inp_list:
7      |         |     if len(elem) % 2 == 0:
8      |         |         |     even_list.append(elem)
9      |         |     return even_list
10
11  a: list[str] = ["Alyssa", "Katie", "Anusha"]
12  even_words(a)
```