Tuples

Tuples are very similar to lists. However, they have one key difference - immutability

Once an element is inside a tuple, it can not be reassigned

Tuples use parenthesis (1,2,3)

```
In [1]:   t = (1,2,3)
```

```
In [2]:   mylist = [1,2,3]
```

```
In [3]:   type(t)
```

Out[3]:   tuple

```
In [4]:   type(mylist)
```

Out[4]:   list

```
In [5]:   len(t)
```

Out[5]:   3

Its also fine to mix object types in tuples like so:

```
In [6]:   t = ('one', 2 )
```

Also, just like a list, you can use slicing and indexing

```
In [7]:   t[0]
```

Out[7]:   'one'

```
In [8]:   t[-1]
```

Out[8]:   2

There is also two basic built in methods for tuples, index method and count method

```
In [9]:   t = ('a', 'a', 'b')
```

```
In [12]:  t.count('a')
```

Out[12]: 2

```
In [13]:  t.index('a')
```

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Out[13]:

We indexed 'a' and it first shows up at index 0, hence the 0 returned

In [14]:
```python
t.index('b')
```

Out[14]: 2

Now, lets get to what makes a tuple different, which is the immutability

In [15]:
```python
t
```

Out[15]: ('a', 'a', 'b')

In [16]:
```python
mylist
```

Out[16]: [1, 2, 3]

In [17]:
```python
mylist[0] = 'NEW'
```

In [18]:
```python
mylist
```

Out[18]: ['NEW', 2, 3]

We can re-assign the first elemt in a list as pictured above, however, lets try that with a tuple:

In [19]:
```python
t[0] = 'NEW'
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
~\AppData\Local\Temp/ipykernel_292/2140988817.py in <module>
----> 1 t[0] = 'NEW'

TypeError: 'tuple' object does not support item assignment
```

So whats the benefit of a tuple? Its more advanced but it will assist in ensuring elements do not get changed. Provides data integrity

Tuple Quiz

Question 1 Tuples have a lot of methods associated with them

A. True B. False

Answer: B. False Tuples only have two methods

Question 2 Tuples are immutable

A. True B. False

Answer: A. True

Question 3 Which of the following is a tuple?

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A. [1,2,3] B. (1,2[1,2]) C. (1,2,3] D. None of the above

Answer:

B. (1,2[1,2]) Even though a list is one of the elements, the object constrained with () is a tuple!

In [ ]: