

# Pair Exercise: Tuples

HD Sheets, July 2024 updated 11/13/2024

For DSE5002

Sources

<https://docs.python.org/3/tutorial/datastructures.html>

a tuple is a sequence of values separated by commas, they do not need to be immutable

tuples are *ordered* and can be *iterated*, but they are *immutable*

Think Python

<https://allendowney.github.io/ThinkPython/chap11.html>

Creating a tuple looks weirdly unstructured

Note that the items in a tuple can be of any type

```
In [1]: a=1,2,"bob",3,"cathy"
```

```
In [2]: a
```

```
Out[2]: (1, 2, 'bob', 3, 'cathy')
```

```
In [3]: # comprehension
```

```
[print(val) for val in a]
```

```
1  
2  
bob  
3  
cathy
```

```
Out[3]: [None, None, None, None, None]
```

```
In [4]: #indexing
```

```
a[1]
```

```
Out[4]: 2
```

```
In [5]: #tuples are immutable, no changes allowed
```

```
a[1]=3
```

```
-----
```

```
TypeError
```

```
Cell In[5], line 3
```

```
    1 #tuples are immutable, no changes allowed
```

```
----> 3 a[1]=3
```

```
Traceback (most recent call last)
```

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

```
In [6]: # we can combine tuples, since we can put anything we want in a tuple
```

```
b=a,3,4,5
```

```
b
```

```
Out[6]: ((1, 2, 'bob', 3, 'cathy'), 3, 4, 5)
```

```
In [7]: #b is a tuple
```

```
# the first item in b is a tuple
```

```
b[0]
```

```
Out[7]: (1, 2, 'bob', 3, 'cathy')
```

```
In [8]: len(b)
```

```
Out[8]: 4
```

```
In [9]: #tuple unpacking
```

```
w,x,y,z=b
```

```
print(w)
```

```
print(x)
```

```
print(y)
```

```
print(z)
```

```
(1, 2, 'bob', 3, 'cathy')
```

```
3
```

```
4
```

```
5
```

Tuples are useful for storing constants, as a sequence of fixed values of known length, in a fixed order

Tuples are faster than lists, which is the only meaningful distinction I can find :)

## Question/Action

Go ask an AI LLM what tuples are useful for in Python programming, paste the answer in here

What do you think of the quality of the answer?

*AI: Tuples are useful in Python for storing ordered, fixed collections of data that should not change. They are more memory-efficient than lists and are commonly used to return multiple values from functions or represent grouped data like coordinates or settings. Because tuples are immutable, they can also be safely used as dictionary keys or set elements.*

*I think the answer is good because it gives me a brief introduction to what tuples are and how they are more efficient than lists, but I wish it had shown more ways tuples are used in Python programming.*

In [ ]: