

Tuples

Tuples ()

List []

Tuples are immutable

list are mutable

```
In [4]: A=(1,2,3,4,5)  
A
```

```
Out[4]: (1, 2, 3, 4, 5)
```

```
In [5]: A[0]
```

```
Out[5]: 1
```

```
In [6]: A[-1]
```

```
Out[6]: 5
```

```
In [8]: A.sort() ## it is not allowed because it is immutable
```

```
-----  
AttributeError                                Traceback (most recent call last)  
Input In [8], in <cell line: 1>()  
----> 1 A.sort()  
AttributeError: 'tuple' object has no attribute 'sort'
```

```
In [9]: sorted(A)
```

```
Out[9]: [1, 2, 3, 4, 5]
```

sorted is allowed but convert it into list / it is not a permanent change

```
In [11]: A = (10,34,45,32,12)  
A
```

```
Out[11]: (10, 34, 45, 32, 12)
```

```
In [12]: len(A)
```

```
Out[12]: 5
```

```
In [13]: A*2
```

```
Out[13]: (10, 34, 45, 32, 12, 10, 34, 45, 32, 12)
```

```
In [15]: A ## because it is immutable gives you original value
```

```
Out[15]: (10, 34, 45, 32, 12)
```

```
In [17]: A**2 ## it is not allowed in tuple
```

```
-----
TypeError                                Traceback (most recent call last)
Input In [17], in <cell line: 1>()
----> 1 A**2

TypeError: unsupported operand type(s) for ** or pow(): 'tuple' and 'int'
```

```
In [18]: max(A)
```

```
Out[18]: 45
```

```
In [19]: min(A)
```

```
Out[19]: 10
```

```
In [20]: A.index(10)
```

```
Out[20]: 0
```

```
In [21]: A.count(12)
```

```
Out[21]: 1
```

```
In [22]: sum(A)
```

```
Out[22]: 133
```

```
In [24]: A.reverse() ## it cannot be done
```

```
-----
AttributeError                            Traceback (most recent call last)
Input In [24], in <cell line: 1>()
----> 1 A.reverse()

AttributeError: 'tuple' object has no attribute 'reverse'
```

```
In [25]: amazon_cart = [("watch",5000),("phone",10000),("laptop",50000),]
```

```
amazon_cart
```

```
Out[25]: [('watch', 5000), ('phone', 10000), ('laptop', 50000)]
```

tuples are not use frequently it is only used for immutable elements.

```
In [26]: A[::-1]
```

Out[26]: (10, 34, 45, 32, 12)

In [27]: A[1:]

Out[27]: (34, 45, 32, 12)

In [28]: A[2:]

Out[28]: (45, 32, 12)

In [29]: A[1:3:]

Out[29]: (34, 45)

In [30]: amazon_cart = [("watch",5000),("phone",10000),("laptop",50000),]
amazon_cart

Out[30]: [('watch', 5000), ('phone', 10000), ('laptop', 50000)]

In [31]: *## item_name, amount*

total_cost = 0
print(f"empty cart: {total_cost}")
for item in amazon_cart:
 print(item[1])
 total_cost = total_cost + item[1]
 print(f"cart after adding {item[0]}: {total_cost}")
print(f"total payable amount:{total_cost}")

empty cart: 0
5000
cart after adding watch: 5000
10000
cart after adding phone: 15000
50000
cart after adding laptop: 65000
total payable amount:65000

In [32]: *## user input what you want to purchase*

amazon_website = amazon_cart = [("watch",5000),("phone",10000),("laptop",50000),]

my_choice = input("what do you want to purchase? : ")

what do you want to purchase? : phone

In [35]: for item in amazon_website:
 if item[0] == my_choice:
 print(item)

('phone', 10000)

In []: