Part A: Slicing

1. Strings:

In [1]:
```
s = "ProgrammingIsFun"
```

In [2]:
```
print(s[-3:])
```

```
Fun
```

In [3]:
```
print(s[ ::3])
```

```
Pgmnsn
```

2. Lists:

In [116…
```
lst = [10, 20, 30, 40, 50, 60, 70, 80]
```

In [6]:
```
print(lst[0:3])
```

```
[10, 20, 30]
```

In [11]:
```
print(lst[-2: ])
```

```
[70, 80]
```

In [23]:
```
print(lst[3:7])
```

```
[40, 50, 60, 70]
```

In [13]:
```
print(lst[ ::2])
```

```
[10, 30, 50, 70]
```

In [119…
```
print(lst[ ::-2])
```

```
[80, 60, 40, 20]
```

3. Tuples:

In [19]:
```
tup = (5, 10, 15, 20, 25, 30, 35, 40)
```

In [20]:
```
print(tup[1])
```

```
10
```

In [21]:
```
print(tup[-3: ])
```

```
(30, 35, 40)
```

In [22]:
```
print(tup[2:5])
```

```
(15, 20, 25)
```

Part B: Methods of Data Structures

1. Strings

In [24]:
```
print(s)
```

```
ProgrammingIsFun
```

In [27]:
```
substring = s[7:11]
print(substring)
```

```
ming
```

In [30]:
```
print(s.lower())
```

```
programmingisfun
```

In [36]:
```
replace = "Amazing"
s.replace("Fun", replace)
```

Out[36]:
```
'ProgrammingIsAmazing'
```

2. Lists:

In [49]:
```
lst = [10, 20, 30, 40, 50, 60, 70, 80]
print(lst)
lst2 = [90 ,100]
print(lst2)
lst.extend(lst2)
print(lst)
```

```
[10, 20, 30, 40, 50, 60, 70, 80]
[90, 100]
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
```

In [56]:
```
lst.remove(20)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[56], line 1
----> 1 lst.remove(20)
      2 print(lst)

ValueError: list.remove(x): x not in list
```

In [57]:
```
print(lst)
```

```
[10, 30, 40, 50, 60, 70, 80, 90, 100]
```

In [60]:
```
lst.reverse()
```

In [61]:
```
print(lst)
```

```
[100, 90, 80, 70, 60, 50, 40, 30, 10]
```

In [62]:
```
lst.index(50)
```

Out[62]:
```
5
```

3. Tuples:

In [87]:
```
tup = (5, 10, 15, 20, 25, 30, 35, 40)
```

In [63]:
```
print(tup)
```

```
(5, 10, 15, 20, 25, 30, 35, 40)
```

In [64]:
```
print(tup.count(20))
```

```
1
```

In [88]:
```
tup = list(tup)
type(tup)
```

Out[88]:
```
list
```

In [89]:
```
tup.insert(8, 45)
```

Out[89]:
```
[5, 10, 15, 20, 25, 30, 35, 40, 45]
```

In [93]:
```
tup = tuple(tup)
type(tup)
print(tup)
```

```
(5, 10, 15, 20, 25, 30, 35, 40, 45)
```

4. Dictionaries

In [94]:
```
S_Doo_ = {"Scooby": 4, "Shaggy": 19, "Velma": 18, "Daphne": 20}
```

In [95]:
```
S_Doo_["Phred"] = 21
```

In [96]:
```
print(S_Doo_)
```

```
{'Scooby': 4, 'Shaggy': 19, 'Velma': 18, 'Daphne': 20, 'Phred': 21}
```

In [98]:
```
print(S_Doo_.get("Velma"))
```

```
18
```

In [99]:
```
del S_Doo_["Scooby"]
print(S_Doo_)
```

```
{'Shaggy': 19, 'Velma': 18, 'Daphne': 20, 'Phred': 21}
```

In [100…
```
S_Doo_.keys()
```

Out[100]:
```
dict_keys(['Shaggy', 'Velma', 'Daphne', 'Phred'])
```

In [101…
```
S_Doo_.values()
```

Out[101]:
```
dict_values([19, 18, 20, 21])
```

Bonus:

In [106…
```
Jinkies = S_Doo_.keys()
Jinkies = list(Jinkies)
print(Jinkies)
```

```
['Shaggy', 'Velma', 'Daphne', 'Phred']
```