03. Python Collections

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Outline

- Objectives

- Structure/Types

- Split and join

- Methods

- List Methods

- Set Methods

- Dictionary Methods

- Unpacking tuples, lists, and sets

- Looping (for loops)

Objectives

- Understand collections better

- Learn about subsetting collections

- Learn about manipulating collections

- Understand some basics of collection functions and methods

- See how strings and collections are related

Structure/Types

- Tuples: 0 indexed collections that cannot be modified ()

- Lists: 0 indexed collections []

- Sets: collections of unique values {}

- Dictionaries: a collection of key:value pairs

Structure/Types (contd)

- Indexing

```python
fruits = ['orange', 'apple', 'guava', 'banana', 'mango', 'grapes', 'cashews']
player = {'name': 'Oliseh', 'position': 'midfield', 'team': 'super eagles'}
team_94 = {'okocha', 'nwanu', 'oliseh', 'amuneke', 'iroha'}
team_98 = {'garba', 'oliseh', 'ogbeche', 'ikpeba', 'okocha', 'taribo'}
story = "As I was going to St. Ives, I met a man with seven wives"
date = '31/5/2022'

olympics = ('united states of america', 'china', 'japan')


print(fruits[0])
print(fruits[-1])
print(fruits[-2])

print(story[5])
print(story[12])
print(player['name'])
```

Structure/Types (contd)

- Slicing

```python
print(fruits[1:4])
print(fruits[2:5])
print(fruits[-1:-4])
print(fruits[-2:-5])
print(story[5:12])
print(story[-5:-12])
```

Structure/Types (contd)

- Updating

```python
fruits[1] = 'water melon'
print(fruits)
fruits[-1] = 'cashew'
print(fruits)
player['team'] = 'ajax'
print(player)
story[7] = '*'
print(story)
story[15] = '*****'
print(story)
```

```python
fruits[1:4] = ['tomatoes', 'onions', 'pepper', 'coconut']
print(fruits)
story[3:20] = '---'
print(story)
```

Structure/Types (contd)

- Deleting

```python
del fruits[3]
print(fruits)
del fruits[2:4]
print(fruits)
story[2:4] = ''
print(story)
del player['name']
print(player)
```

Split and join

- Let's you split words using spaces or some other delimiter

```python
word_salad = story.split()
print(word_salad)
scattered_date = date.split('/')
print(scattered_date[0])
print(scattered_date[1])
print(scattered_date[2])

day = scattered_date[0]
month = scattered_date[1]
year = scattered_date[2]

merge_date = '-'.join(scattered_date)
print(merge_date)
```

- You can join elemtents in a list using a delimiter

- Syntax is -> string_delimiter.join(list)

```python
fruit_salad = ', '.join(fruits)
```

Methods

- Lists
  - .sort()

- – .copy()
- – .index()
- – .insert()

- – .pop()
- Sets
  - – .add()
  - – .union()

  - – .intersection()
  - – .difference()
- Dictionaries
  - – .keys()
  - – .values()

List Methods

```python
fruits.sort()
print(fruits)

plants = fruits
vegitables = fruits.copy()
print(fruits)
print(plants)
print(vegitables)

fruits[-1] = 'pear'
print(fruits)
print(plants)
print(vegitables)

print(fruits.index('mango'))
fruits.insert('almonds')

x = fruits.pop()
print(x)
print(fruits)

y = fruits.pop(3)
print(y)
print(fruits)
```

Set Methods

```python
print(team_94)
print(team_98)

team_94.add('ruffai')
```

```python
team_98.add('babayaro')

print(team_94)
print(team_98)

print(team_94.union(team_98))
print(team_94.intersection(team_98))
print(team_94.difference(team_98))
```

Dictionary Methods

```python
print(player)
print(player.keys())
print(player.values())
```

Unpacking tuples, lists, and sets

- You can unpack tuples, lists, and sets to several variables at once!

```python
first, second, third = olympics
```

Looping (for loops)

```python
for fruit in fruits:
    print(fruit)
```

Gist of the day

- Get the pdf version of todays class

- Get the gist

- The Jupyter Nnotebook will be uploaded

Q&A

Thanks for listening and contributing!