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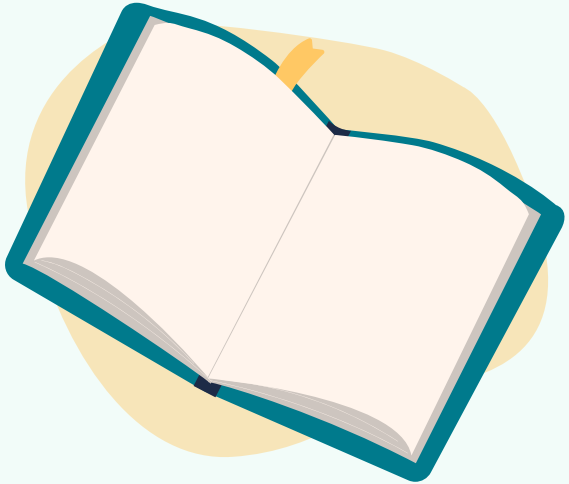
Numpy Group Summary #2

Python Data Type : List,Tuple,Dictionary,Set



The Teams

Atika Rahma

Muhammad Atthariq Ramadhan

Muhammad Iqbal Rustan

Daril Hana Salsabila

Donny P.Tambunan

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01

List

Data strings that store various data types
and their contents can be changed

Lists are used to store multiple items in a single variable.

```
[ ]  #example
     list = [1,"two",3.0]
```

```
[ ]  # extract element
     list[0]
```

```
'1'
```

```
[ ]  type(list[0])
```

```
str
```

```
[ ]  list[-2]
```

```
'two'
```

```
[ ]  type(list[2])
```

```
str
```

```
[ ]  # extract range
     list[0:3]
```

```
['one', 'two', 'three']
```

```
list[ :3]
```

```
['1', 'two', '3.0']
```

- display the specified contents of a list by using an index
- use negative index to display data from behind

```
[ ] list[0:3:2]
```

```
['1', '3.0']
```

```
[ ] #len -> Return the number of items in a list
    len(list)
```

```
4
```

```
[ ] #del -> delete an element in list
    del list[0]
    print(list)
```

```
['two', 3.0]
```

```
[ ] #append -> To add an item to the end of the list
    list.append("four")
    print(list)
```

```
['two', 3.0, 'four']
```

```
[ ] #extend ->  merges another list L to the end
    list.extend([5,"six",7.0])
    print(list)
```

```
['two', 3.0, 'four', 5, 'six', 7.0]
```

- Delete an item from the list using the del statement. With this statement, we can remove any index from the list item.
- append() menambahkan elemen baru pada list
- The len () function is used to find the length (number of items or members) of an object such as a sequence
- extend is used to add multiple elements to an existing list

- remove () removes the item from the list according to the defined value

- insert () Adds a new item to the list at a specified position

- pop () Removes the last item in the list, or it can also delete the item at a defined position

- index () Returns the first index of the defined item

- count () Returns the number of items in the specified list

```
[ ] list2 = ["eight",9.0,10]
    list.extend(list2)
    print(list)
```

```
['two', 3.0, 'four', 5, 'six', 7.0, 'eight', 9.0, 10]
```

```
[ ] #insert -> inserts the specified value at the specified position.
    list.insert(3,3.5)
    print(list)
```

```
['two', 3.0, 'four', 3.5, 5, 'six', 7.0, 'eight', 9.0, 10]
```

```
[ ] #remove -> removes the specified element in list
    list.remove(10)
    print(list)
```

```
['two', 3.0, 'four', 3.5, 5, 'six', 7.0, 'eight', 9.0]
```

```
[ ] #pop -> removes the specified index in list
    list.pop(0)
    print(list)
```

```
[3.0, 'four', 3.5, 5, 'six', 7.0, 'eight', 9.0]
```

```
[ ] #index -> return the first index of the value in the list
    list.index(3.0)
```

```
0
```

```
[ ] #count -> returns the number of elements with the specified value in list
    number = [2,2,2,2,3,3,3,1,1,1,1,1,4,4,5]
    number.count(4)
```

```
2
```

```
[ ] #sort -> sorts the list ascending by default in list
    number.sort()
    print(number)
```

```
    [1, 1, 1, 1, 1, 2, 2, 2, 2, 3, 3, 3, 4, 4, 5]
```

```
[ ] #reverse -> reverses the sorting order of the elements in list
    number.reverse()
    print(number)
```

```
    [5, 4, 4, 3, 3, 3, 2, 2, 2, 2, 1, 1, 1, 1, 1]
```

```
[15] list = [1,"two",3.0]
```

```
#slice -> returns a slice object in list
print(list[0])
print(list[1])
print(list[2])
```

```
1
two
3.0
```

- sort () Sorts a list
- reverse () Reverses the position of each item in the list
- Slicing list is a technique for values in a list

02

Tuple

Data strings that store various data types and their contents can be changed

- Tuples are the same as lists. It is equally used to store set data. Both can accommodate various types of data in one set. It's just that once assigned a value, the tuple cannot be changed anymore.

```
[14] Data = (2022,"Universitas Indonesia","march")

     #Create a Tuple
```

```
print(Data[1])

#Accessing Tuple values
```

```
Universitas Indonesia
```

03

Set

A data type used to store multiple values in a single variable and which are irregular and have unique values (no duplication)

- Set puts its members in curly braces {}.
- Sets do not have an index sequence number unlike lists and tuples.
- Sets have unique data / no duplication.
- Set members cannot be changed, but we can add, update and delete sets.
- Sets are separated by commas.
- Sets can be created with the set () function.

Practice

```
[6] Month = {"March","June","May","August","September","October","December","February","January","March","April","May","January","July","June","July","August","September"}
    #Create a Set

[7] print(Month)
    #Accesing Set Values
    {'July', 'June', 'October', 'September', 'May', 'January', 'April', 'March', 'February', 'December', 'August'}

[9] type(Month)
    #Check Data Type
    set
```

04

Dictionary

Data strings that store various data types in the form of a pointer and value pairs

```
[17] Data_Mahasiswa = {"NIM": "46136434","Nama Mahasiswa": "Donny Tambunan","Angkatan": 2019, "IPK":3.51}

     #Create a Dictionary

[18] print(Data_Mahasiswa)

     #Accessing Dictionary Values

     {'NIM': '46136434', 'Nama Mahasiswa': 'Donny Tambunan', 'Angkatan': 2019, 'IPK': 3.51}
```

```
[19] Data_Mahasiswa["NIM"]

     '46136434'

[20] type(Data_Mahasiswa)

     dict

     Data_Mahasiswa["Nama Mahasiswa"]

     'Donny Tambunan'

[22] Data_Mahasiswa["Angkatan"]

     2019

[23] Data_Mahasiswa["IPK"]

     3.51
```

Practice

- Python dictionaries are different from lists or tuples. Because each sequence contains a key and a value. Each key is separated from its value by a colon (:), Items are separated by commas, and are all enclosed in curly braces. An empty dictionary without items is written with just two curly braces, like this: {}.
- The dictionary value can be of any type, but the key must be an immutable data type such as a string, number, or tuple.

ThankYou

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