DFN40323 Programming Essentials in Python

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Differences between List, Tuple and Dictionary

01
List

What is A list

1. List are used to store multiple items in a single variable
2. It is one of 4 built in data types in Python which is used to store collections of data

How to create a list?

```
listname=["yourdata","Yourdata","YOURDATA"]
print(nameofthelist)
```

```
#Syntax for creating list
namelist=[data]
```

Characteristics of a list

Ordered

- The items inside of the list are ordered which means they have a defined order and will not change
- If a new item is added, the new item will be placed at the end of the list

Changeable

- The list is changeable, meaning that we can change, add, and remove items in a list after it has been created.

Allow Duplicates

- Since lists are indexed, lists can have items with the same value

```
entah=["nasi","nasilemak","nasi"]
print(entah)
```

```
['nasi', 'nasilemak', 'nasi']
```

Data types of list

String

```
entah=["nasi","nasilemak","nasi"]
print(entah)
```

```
['nasi', 'nasilemak', 'nasi']
```

Int

```
entah=[2,4,6,8,10]
print(entah)
```

```
[2, 4, 6, 8, 10]
```

Boolean

```
entah = [True, False, True]
print(entah)
```

```
[True, False, True]
```

02

Tuple

What is A tuple

1. List are used to store multiple items in a single variable
2. It is one of 4 built in data types in Python which is used to store collections of data

How to create a tuple?

```
tupleni=("yourdata","Yourdata","YOURDATA")
print(tupleni)
```

```
#Syntax for creating list
namelist=(data)
```

Characteristics of a tuple

Ordered

- The items inside of the tuple are ordered which means they have a defined order and will not change
- If a new item is added, the new item will be placed at the end of the tuple

Unchangeable

- Tuples are unchangeable, meaning that we cannot change, add or remove items after the tuple has been created.

Allow Duplicates

- Since tuple are indexed, lists can have items with the same value

```
tupleni = ("lapo", "makan", "rice", "lapo")
print(tupleni)
```

```
('lapo', 'makan', 'rice', 'lapo')
```

Data types of list

String

```
tupleni = ("lapo", "makan", "rice", "lapo")
print(tupleni)
```
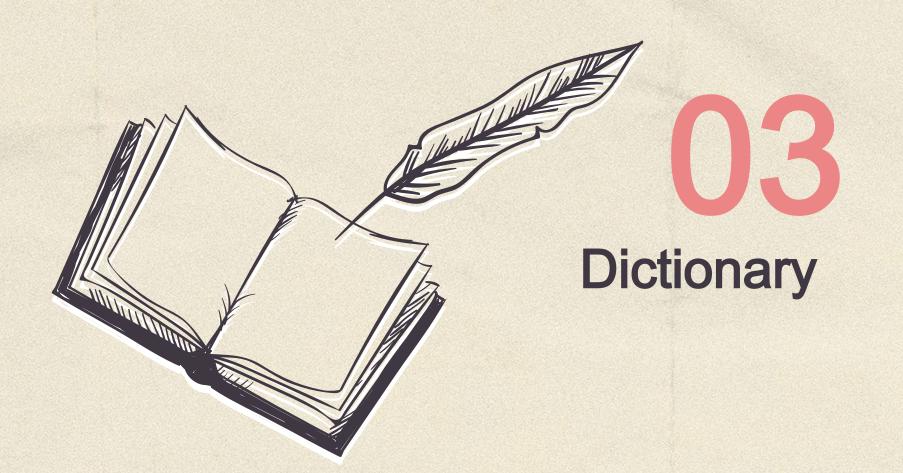
```
('lapo', 'makan', 'rice', 'lapo')
```

Int

```
tupleni = (False,False,True)
print(tupleni)
```

```
(11, 22, 33, 44, 55)
```

Boolean

```
tupleni = (False,False,True)
print(tupleni)
```

```
(False, False, True)
```

03

Dictionary

What is A dictionary

1. Dictionaries are used to store data values in key:value pairs.
2. A dictionary is a collection which is ordered, changeable and do not allow duplicates.

How to create a dictionary?

```
dictionaryini={
    "nasi":"lemak",
    "sambal":"petai",
    "harga":5.90
}
```

```
#Syntax for creating directory
dictionaryname={
    "key1":"value1",
    "key2":"value2"
}
```

Characteristics of a dictionary

Ordered

- The items inside of the dict are ordered which means they have a defined order and will not change
- If a new item is added, the new item will be placed at the end of the dict

Changeable

- The dict is changeable, meaning that we can change, add, and remove items in a dictionary after it has been created.

Does not Allow Duplicates

- Dict cannot have two items with the same key
- If there's duplicate value, it will overwrite existing values

```
dictionaryini={
    "nasi":"lemak",
    "sambal":"petai",
    "harga":5.90,
    "harga":80.99
}
```

```
{'nasi': 'lemak', 'sambal': 'petai', 'harga': 80.99}
```

Data types of dictionary

```
dictionaryini={
    "nasi":"lemak", #String
    "sambal":"petai",#String
    "harga":5, #int
    "harga":80, #int
    "lauk":["paru","kerang"],  #List
    "pedas":True    #Boolean
}
```

Differences between list, tuple and dictionary

Category	List	Tuple	Dictionary
Meaning	Non-Homogeneous Data structure	Non-Homogeneous Data structure	Non-Homogeneous Data structure which stores data in key:value pairs
Symbol	[ ]	( )	{ }
Example	[1, 2, 3, 4, 5]	(1, 2, 3, 4, 5)	Nombor={ "one":1 }
Usage	• Array • Databases	• SQL Query • Parentheses checker	• Used to create a data frame with lists • Used in JSON

References

1. Python Dictionaries. (n.d.). Retrieved October 3, 2022, from https://www.w3schools.com/python/python_dictionaries.asp
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3. Python Tuples. (n.d.). Retrieved October 3, 2022, from https://www.w3schools.com/python/python_tuples.asp

Thank You ☺