

TX00FL42-3001

# LIST STRUCTURES & ITERATIVE LOOP STRUCTURES

MUATH OTHMAN



# LET'S CHECK HOMEWORKS!



# ASSISTANT TIME



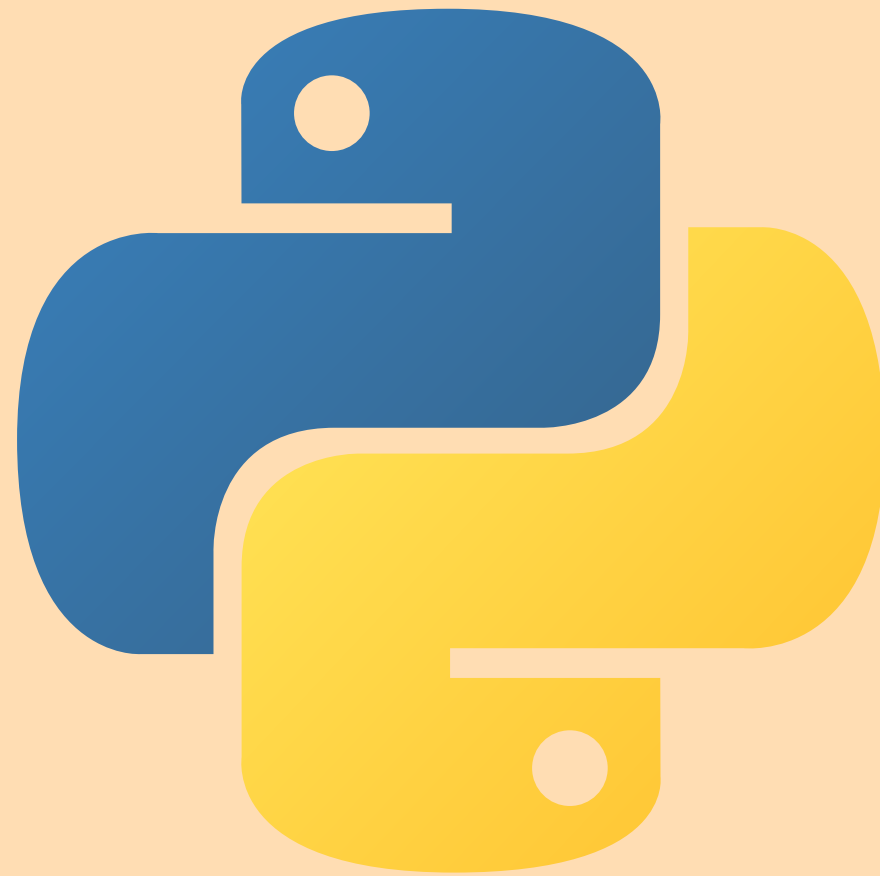
WHILE  
TRUE



# REPETITION IS ONE OF THE BASIC PRINCIPLES OF PROGRAMMING

White  
loops

.....



.....

For  
loops

# WHAT IS A LIST?

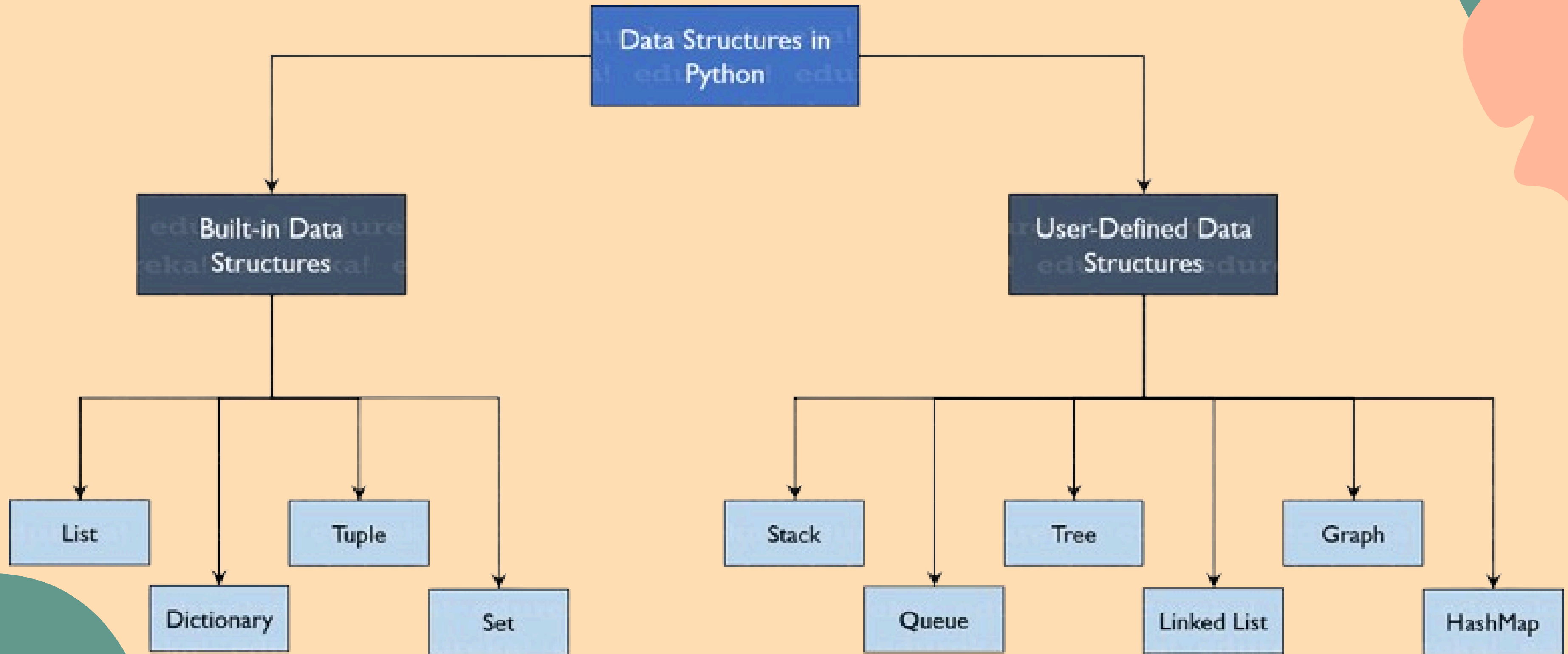


The background is a solid light orange color. It features abstract, organic shapes in teal and a darker orange. One teal shape is in the top right corner, and another is in the bottom left corner. A darker orange shape is also in the bottom left, partially overlapping the teal one. The text is centered in the middle of the image.

**LIST STORES AN ORDERED  
GROUP OF ITEMS.**







# CREATING A LIST



```
names = ["Viivi", "Ahmed", "Pekka", "Olga", "Mary"]
```

Viivi

Ahmed

Pekka

Olga

Mary

# STRUCTURE OF A LIST



0

1

2

3

4

```
names = ["Viivi", "Ahmed", "Pekka", "Olga", "Mary"]
```

Viivi

0

Ahmed

1

Pekka

2

Olga

3

Mary

4

# PRINTING ITEMS FROM LIST

```
print(listName[index])
```

# ACCESSING LIST ITEMS

`names = [Viivi, Ahmed, Pekka, Olga, Mary]`

How to print Olga?

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

```
print(names[3])
```

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

A list named `names` containing five names: Viivi, Ahmed, Pekka, Olga, and Mary. Each name is represented by a teal circle with its index (0, 1, 2, 3, 4) written below it. The list is enclosed in orange square brackets, and the names are separated by orange commas.

```
print(names[3])
```

The code `print(names[3])` is shown, where `print` is in magenta and `names[3]` is in white. The `3` is highlighted in magenta.

Olga

The output of the code is the name `Olga`, displayed in a teal font.

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

```
print(names[1])
```



# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

A list named `names` containing five names: Viivi, Ahmed, Pekka, Olga, and Mary. Each name is represented by a teal circle with its index (0 to 4) written below it. The list is enclosed in orange square brackets, with orange commas separating the elements.

```
print(names[1])
```

The code `print(names[1])` is shown, where `print` is in magenta and `names[1]` is in white. The `1` in the index is highlighted in magenta.

Ahmed

The output of the code is the name `Ahmed`, displayed in teal text.

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

```
print(names[-2])
```

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

A list named `names` containing five names: Viivi, Ahmed, Pekka, Olga, and Mary. Each name is represented by a teal circle with its index (0, 1, 2, 3, 4) written below it. The list is enclosed in orange square brackets, with orange commas separating the elements.

```
print(names[-2])
```

Olga

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

```
print(names[1:3])
```

# ACCESSING LIST ITEMS

`names = [` `]`

`print(names[1:3])`

`[Ahmed, Pekka]`

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

```
print(names[2:])
```

# ACCESSING LIST ITEMS

`names = [` `]`

`print(names[2:])`

`[Pekka, Olga, Mary]`

# LENGTH OF A LIST

`names = [` `]`

`print(len(names))`

5



# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

```
print(names[5])
```

# ACCESSING LIST ITEMS

```
names = [Viivi, Ahmed, Pekka, Olga, Mary]
```

A list named `names` containing five names: Viivi, Ahmed, Pekka, Olga, and Mary. Each name is represented by a teal circle with its index (0, 1, 2, 3, 4) written below it. The list is enclosed in orange square brackets, with orange commas separating the elements.

```
print(names[5])
```

`IndexError`

# LIST OPERATIONS



names.append("Matti")

# LIST OPERATIONS

names = [ Viivi, Ahmed, Pekka, Olga, Mary ]

names.remove("Pekka")

# LIST OPERATIONS



```
names.insert(4, "Teppo")
```

LET'S CHECK ALSO:

```
names.extend(["Allu", "Ninni"])
```

```
names.index("Olga")
```

```
if "Matti" in names:
```

```
    numbers.sort()
```

The background is a solid light orange color. In the top right corner, there is a teal shape and an orange shape. In the bottom left corner, there is a teal shape and an orange shape.

**EXERCISE**

# ITERATING THROUGH A LIST



```
for n in names:  
    print(f"Hello, {n}!")
```

## LET'S DEBUG



# THE RANGE FUNCTION:

```
for number in range(1,4):  
    print(number)
```

# THE RANGE FUNCTION:

```
for number in range(1,4):  
    print(number)
```

1

2

3

# THE RANGE FUNCTION:

```
for number in range(5,0,-1):  
    print(number)
```

# THE RANGE FUNCTION:

```
for number in range(5,0,-1):  
    print(number)
```

5

4

3

2

1

# THE RANGE FUNCTION:

```
for number in range(10,21,2):  
    print(number)
```

# THE RANGE FUNCTION:

```
for number in range(10,21,2):  
    print(number)
```

10

12

14

16

18

20

# THE RANGE FUNCTION:



```
for number in range(6):  
    print("Hello!")
```

The background is a solid light orange color. In the top right corner, there is a teal shape and an orange shape. In the bottom left corner, there is a teal shape and an orange shape.

# EXERCISE