
PYTHON WORKSHOP

Python Fundamentals

Prepared by the Artificial Intelligence Research Center (AIRC), Ajman
University, Ajman, UAE



Workshop Outlines

 ~~Workshop Overview~~

 ~~Project Demo~~

 ~~Introduction to Python~~

 ~~Starting with Colab~~

 ~~Comment and Print~~

 ~~Variables and simple
data types~~

 ~~String manipulation~~

 ~~If Statements~~

 ~~Loops~~

 ~~Functions~~

 ~~Lists~~

 ~~Dictionaries~~

 ~~Final Project~~

Day 3 Outlines

 **Loops**

 **Conditional Statement and Iterative loops tutorial**

2. Loops

Repeat a/an instruction/s until a certain condition is reached



While Loop

Basic Syntax:



```
while (test expression) :  
    Loop Body
```



Convert text to code :


The variable **i=1** as long as **i** is less than **10**, print **i**. Also, at each iteration increment **i** by **1**.



```
i=1  
while (i<10):  
    print(i)  
    i=i+1
```

Exercise

python


 Calculate the total sales for the following list **sales=**
[34,22,14,48,54] using a while loop

 The Expected outputs is 172

Start

Exercise

python

 Write a python program that takes your name as an input, then it checks the name letters. If the letters are vowels, then it prints “*”. Otherwise, it prints the letter as it is.


 The Expected outputs for Noor is

```
N  
*  
*  
r
```

Start

Exercise

python

 Write a python program that takes a week number(1-7) as an input and print the corresponding day of week name using if- elif- else :

- Such that 1 represents Monday, 2 Tuesday, 3 Wednesday, ... , 7 Sunday.
- In case the user input was not a number between 1 and 7 then print “Invalid Input! Please enter week number between 1-7, and ask the user to enter a number again.”

The Expected outputs

Case1

```
Please enter a number from 1 to 7 : 2
Tuesday
```

Case2

```
Please enter a number from 1 to 7 : 13
Invalid Input! Please enter week number between 1-7.
```

Start

For loop – Basic Syntax



```
for var in sequence:  
    Loop Body
```

Sequence examples:

- Word
- List
- range

For Loop – loop sequence

Word as a loop Sequence



```
for var in "Python":  
    print("This loop will iterate as the length of the word python")
```

Exercise

- Write a python program that takes your name as an input, then it checks the name letters. If the letters are vowels, then it prints "*". Otherwise, it prints the letter as it is.
- The Expected outputs for Noor is

```
N  
*  
*  
r
```

For Loop – loop sequence

List as a loop Sequence



```
My_list=["Noor","Abeer","Maram"]
```

```
for var in My_list:
```

```
    print("This loop will iterate as the number of elements in My_list")
```

Exercise

- Calculate the total sales for the following list **sales=[34,22,14,48,54]** using a while loop
- The Expected outputs is 172

For Loop – loop sequence

Range as a loop sequence

- `range(Stop)` → Create a sequence of numbers from 0 to (Stop-1), by default the incremental value is 1.
- `range(Start,Stop)` → Create a sequence of numbers from Start to (Stop-1).
- `range(Start,Stop,Step_Size)` → Create a sequence of numbers from Start to (Stop - 1), with an incremental value of Step_Size.



```
for var in range(5):  
    print("This loop will iterate as the defined range")
```