

PYTHON

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POWERUNIT

→ To write comments in python:
use (#) : single line comment
use (""") 3 single cotations: multiple
at the line comment
begining and the ~~end~~ end of comments.

→ To use a library like (math) you
should import it, and when using
the functions of it, the library name
should be written first

←
math.ceil(3.8)

casting data Data type also variable if full basics ←

→ bool(5.0) → True

bool(0.0) → False

bool(0.5) → True

→ libraries only can be imported at the
top of the file.

→ Bitwise operators

بنا، لا، رقم، binary، دمج، نقا، bit مع الی مقابله

0 0 0 0	Reminder: numbers in computer
0 0 1 1	are saved signed in the
0 1 0 2	(2's complement)
0 1 1 3	hence, to know a value of
1 0 0 4	a negative number in two's
1 0 1 5	complement, we should find
1 1 0 6	the complement reversely to know
1 1 1 7	what the number is

shift to the right
" " " left

حسب، لا، رقم، اليمين
للشمار " " "

String Functions

[String methods]

→ title()

types the string in title format

string methods, strings methods, strings methods, strings methods

Escape characters?

\n → new line

\t : tab

\\ : \

Is printing Is printing

→ Ignoring escape characters is done by (r)
(a raw string)

Strings methods:-

title() in

lower() not

upper() in

islower() startswith()

isupper() endswith()

split() join()

strip() lstrip()

rstrip()

split()

it turns the string into a list, separated in indexes

join()

takes an iterable object

والتي هو العنصر هو التي تنقسم
والتي بها هو التي يتحول لعنصر

list:-

→ when printing using indexing, it prints the index.

→ when printing the whole list by its name, it prints a list. → سواريا لاسم او جالاند كسج، نامل

~~→ to print a list without the format using indexing~~

for strings and lists :- (Indexing)

→ start index inclusive

→ End index exclusive

→ Strings are immutable, does not support item assignment using indexing. indexing

Type conversion

→ str()

→ bool()

→ int()

→ float()

User Input

input →

لا يرد نوع string في دالة input

بل يرد نوع input

variable في دالة input +

lab 03 / python.

→ lists in python are mutable

→ functions of class (List):

① append()

(طریقہ سے ڈیٹا ڈالنا)

used this way: list-name.append(element)

→ adding the element after the last one.

② insert()

used this way: (طریقہ سے ڈیٹا ڈالنا)

list-name.insert(index, element)

→ adding the element to the wanted index, and shifting others.

← ادا کرنے کے لئے index اور ڈیٹا کی ضرورت ہے۔
list نام سے ڈیٹا ڈالنا، element نام سے ڈیٹا۔

← ادا کرنے کے لئے index اور ڈیٹا کی ضرورت ہے۔
list نام سے ڈیٹا ڈالنا، element نام سے ڈیٹا۔

③ del → statement (*)

used as:

del list-name [index]

index is removed.

← باقی اہل گانہ
ال index، رقم ساری اہل
ال list او اکرینہ

④ ~~pop~~ pop()

used this way:

list-name.pop()

→ it removes the last element, in addition to return the last element. so it can be used this way.

IndexError: list
assignment index
out of range.

element = list-name.pop()

* pop(index)

same as above, but for a specific element determined by me.

← باقی اہل گانہ ال index اکرینہ اہل او ساری ال

IndexError: pop index is out of range.

⑤ Remove ()

used this way:

list-name.remove(element)

→ element by value not index.

→ only removing the first occurrence of element.

→ putting a value not existing in the list, will give an error, not even a warning.

(ValueError: list.remove(x): x not in list-
~~ValueError~~

⑥ sort() (~~not~~ non-returning value)

used this way:

list-name.sort()

→ Permanent sort → modification on the list its self, which means that the previous order of element is not existing after sorting.

→ When trying to sort a heterogeneous list (list with different elements) it will give an error.

TypeError: '<' not supported between instances of 'type₁' and 'type₂'

error الـ < description بالـ < type₁ و type₂ ،
بعض الأنواع الـ classes هي int و str

⑦ sorted() → it's not a list function

→ returning value

→ not permanent sorting.

→ the result should be saved to a new list variable.

used this way:-

new-list-variable = ~~list_name~~ sorted(list-name)

→ does not work with heterogenous lists.

⑧ reverse() → non-returning value.

looping through the list:-

→ for (list-item) in list-name:

→ Do some thing. →

An item from the list is pulled to be placed in here

range() function:

* For value in range(start num, end num)

↳ Returning value statement
→ returns a list

↓
exclusive

in this way ↙

→ new-list = [x*1 for x in range(1,3)] ✓
(shortcut: (list comprehension) ^{قائمة})

→ new-list = list(range(1,2)) ✓

Direct conversion ✓

fixed interval in range

↳ range(start, end, step)

Statistics with list of numbers ~~(built in functions)~~ (built in functions)

`min(list_name)`

`max(list_name)` → ~~use~~ with value returning.

`sum(list_name)`

→ you can make slicing for a list, and do looping through that slice.

→ `for player in players[:3]:`
do something

→ To copy a list to another one independently use slicing.

lab 04

→ Conditional statements:-

→ one test - one action form:-

```
if conditional-test:  
    do something
```

if else

```
if conditional-test:  
    do something.
```

```
else:
```

```
    do something else.
```

elif:-

```
elif conditional-test: → → if ال  
    do something
```

→ variables of loops are accessible out of them

→ in for loops for dictionaries:-
if you never use `.keys()`, `.values()`,
`.items()`, it will only do the iterations
on keys

→ you can determine type of error you want
to do the exception for, in the exception
statement