

LENGUAJES y HERRAMIENTA PARA CIENCIAS DE DATOS I

Empaquetado/Desempaquetado de datos



UCO
ONLINE

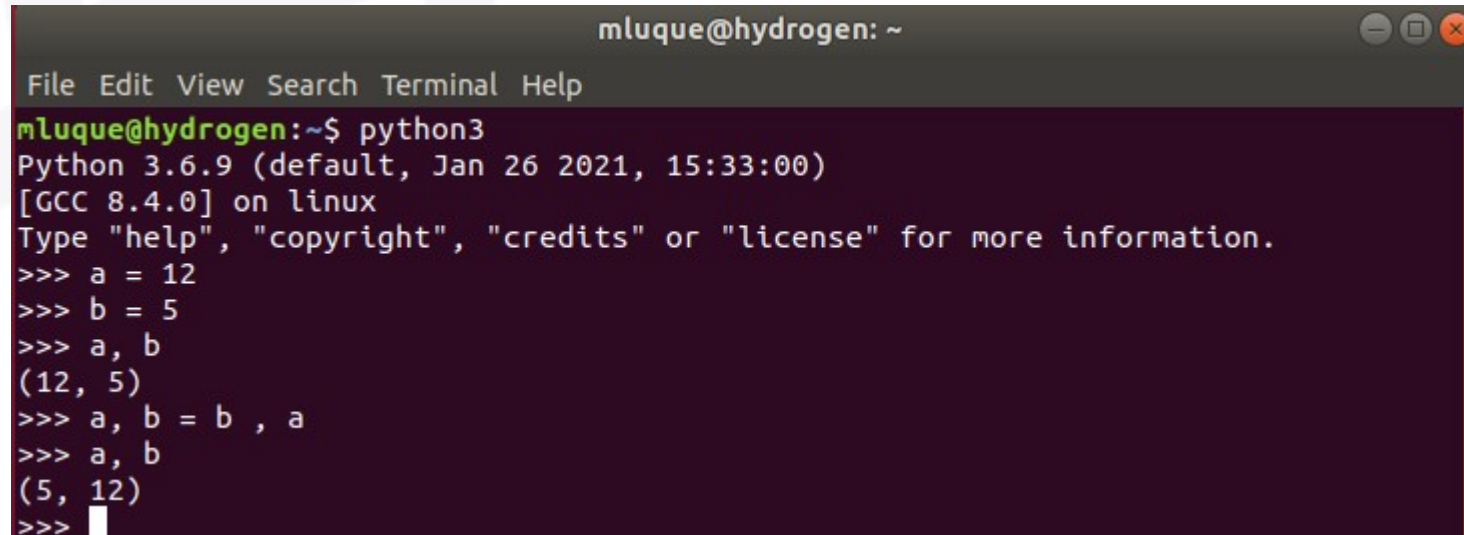
En qué consiste

- Empaquetado
 - ◆ Almacenar múltiples elementos en una única variable
- Desempaquetado
 - ◆ Asignar los valores de un iterable a múltiples variables

```
>>> alumno = 'Ana', 'Perez Soto', 18
>>> alumno
('Ana', 'Perez Soto', 18)
>>> nombre, apellidos, edad = alumno
>>> nombre
'Ana'
>>> apellidos
'Perez Soto'
>>> edad
18
```

Ejemplo aplicación

- Intercambio de variables

A terminal window titled 'mluque@hydrogen: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows a Python 3.6.9 prompt where variables 'a' and 'b' are assigned values 12 and 5 respectively. Then, a tuple assignment 'a, b = b, a' is used to swap their values. The final state shows 'a' as 5 and 'b' as 12.

```
mluque@hydrogen: ~  
File Edit View Search Terminal Help  
mluque@hydrogen:~$ python3  
Python 3.6.9 (default, Jan 26 2021, 15:33:00)  
[GCC 8.4.0] on linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> a = 12  
>>> b = 5  
>>> a, b  
(12, 5)  
>>> a, b = b, a  
>>> a, b  
(5, 12)  
>>>
```

Operador *

- Desempaquetar los valores de un iterable
 - ◆ Aplicación: dividir un iterable en varios trozos

```
m luque@hydrogen: ~  
File Edit View Search Terminal Help  
m luque@hydrogen:~$ python3  
Python 3.6.9 (default, Jan 26 2021, 15:33:00)  
[GCC 8.4.0] on linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> first, *body, end = [1, 2, 3, 4]  
>>> first  
1  
>>> body  
[2, 3]  
>>> end  
4
```

Operador *

- Ignorar valores → variable _

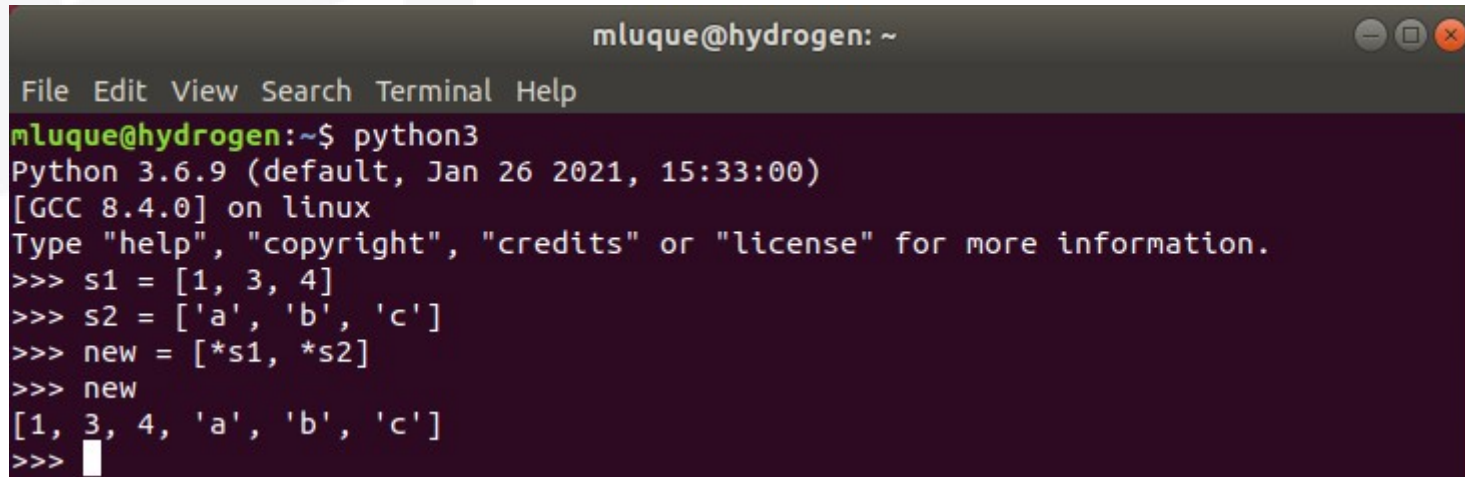
```
>>> first, *_ , end = [1,2,3,4]
>>> first
1
>>> _
[2, 3]
>>> end
4
>>>
```

- Podemos utilizarlo en cualquier posición

```
>>> *first, body, end = [1, 2, 3, 4]
>>> first
[1, 2]
>>> body
3
>>> end
4
>>>
```

Operador *

- Fusionar iterables con *



```
m luque@hydrogen: ~  
File Edit View Search Terminal Help  
m luque@hydrogen:~$ python3  
Python 3.6.9 (default, Jan 26 2021, 15:33:00)  
[GCC 8.4.0] on linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> s1 = [1, 3, 4]  
>>> s2 = ('a', 'b', 'c')  
>>> new = [*s1, *s2]  
>>> new  
[1, 3, 4, 'a', 'b', 'c']  
>>>
```

Operador *

- Desempaquetar diccionarios con **

```
mluque@hydrogen: ~  
File Edit View Search Terminal Help  
mluque@hydrogen:~$ python3  
Python 3.6.9 (default, Jan 26 2021, 15:33:00)  
[GCC 8.4.0] on linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> numeros = {'uno':1, 'dos':2, 'tres':3}  
>>> letras = {'a':'A', 'b':'B', 'c':'C'}  
>>> combinado = **numeros, **letras}  
>>> combinado  
{'uno': 1, 'dos': 2, 'tres': 3, 'a': 'A', 'b': 'B', 'c': 'C'}  
>>> 
```

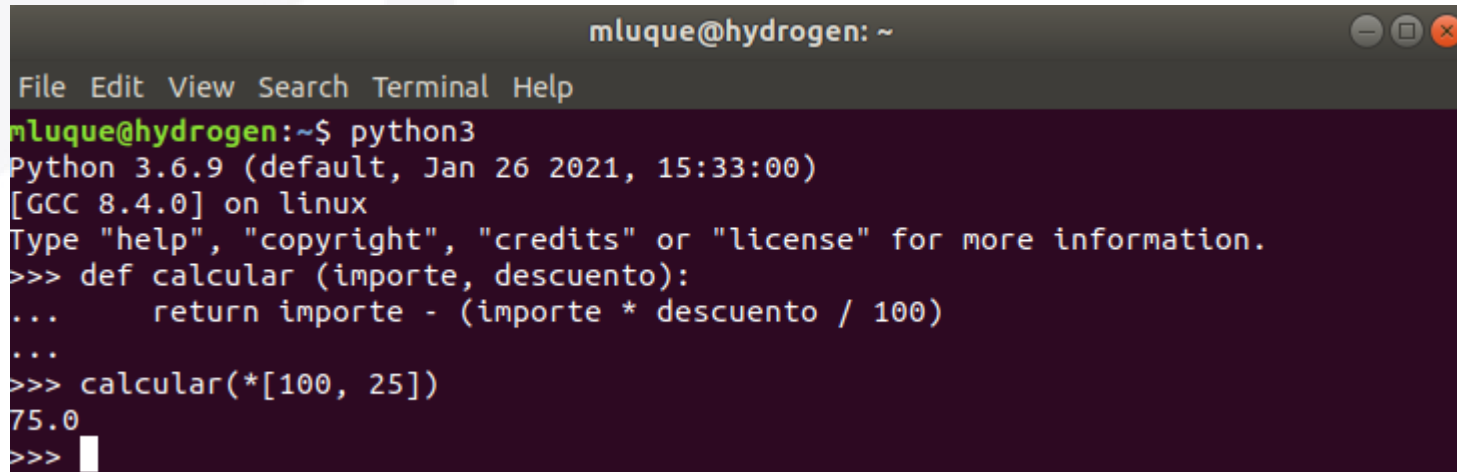
Operador * en funciones

- Definir una función con parámetros indefinidos

```
>>> def parametros_arbitrario(*parametros):  
...     for i in parametros:  
...         print(i)  
...  
>>> parametros_arbitrario(1,2,3)  
1  
2  
3  
>>> parametros_arbitrario('a',2, 7, 8)  
a  
2  
7  
8  
>>> 
```


Operador * en funciones

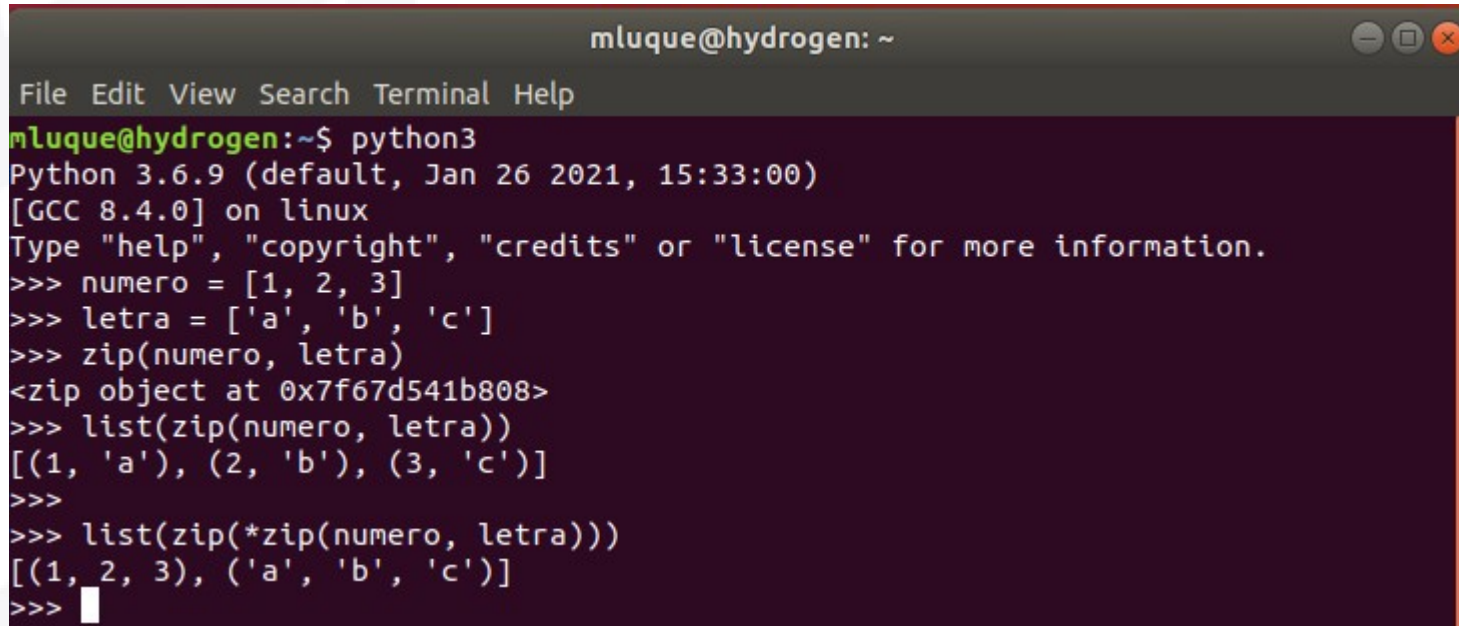
- Invocar función → desempaquetar parámetros

A terminal window titled 'mluque@hydrogen: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows a Python 3.6.9 prompt where a function 'calcular' is defined with two parameters, 'importe' and 'descuento'. The function returns 'importe - (importe * descuento / 100)'. Then, the function is called with the argument '[100, 25]', and the output '75.0' is displayed.

```
mluque@hydrogen: ~  
File Edit View Search Terminal Help  
mluque@hydrogen:~$ python3  
Python 3.6.9 (default, Jan 26 2021, 15:33:00)  
[GCC 8.4.0] on linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> def calcular (importe, descuento):  
...     return importe - (importe * descuento / 100)  
...  
>>> calcular(*[100, 25])  
75.0  
>>> 
```

Función zip

- Emparejar los valores de dos o más secuencias

A terminal window titled 'mluque@hydrogen: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows a Python 3.6.9 prompt where the user defines two lists, 'numero' and 'letra', and uses the 'zip' function to pair them. The output shows the resulting zip object and its iteration as a list of tuples.

```
mluque@hydrogen: ~  
File Edit View Search Terminal Help  
mluque@hydrogen:~$ python3  
Python 3.6.9 (default, Jan 26 2021, 15:33:00)  
[GCC 8.4.0] on linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> numero = [1, 2, 3]  
>>> letra = ['a', 'b', 'c']  
>>> zip(numero, letra)  
<zip object at 0x7f67d541b808>  
>>> list(zip(numero, letra))  
[(1, 'a'), (2, 'b'), (3, 'c')]  
>>>  
>>> list(zip(*zip(numero, letra)))  
[(1, 2, 3), ('a', 'b', 'c')]  
>>>
```

