

Funciones

Un repaso a cuestiones ya conocidas y algunas otras nuevas.

Sintaxis

```
def <><nombre>> (<><parámetros>>):      <><cuerpo de la función>>
```

```
In [1]: def cubo(n):  
        return n**3
```

```
In [2]: cubo(5), cubo(5*6/2)
```

```
Out[2]: 125
```

```
In [7]: def saludo (nombre, mensaje):  
        print "hola "+nombre+", "+mensaje
```

```
In [8]: saludo("juanita","buenos días")  
hola juanita, buenos días
```

Parámetros de entrada

```
In [9]: def f(p1,p2,p3,p4,p5):  
        return p1, p2, p3, p4, p5
```

```
In [10]: f(1,2,3,4,5)
```

```
Out[10]: (1, 2, 3, 4, 5)
```

```
In [11]: f([1,2,3],"hola",(3,2),41.5,False)
```

```
Out[11]: ([1, 2, 3], 'hola', (3, 2), 41.5, False)
```

```
In [13]: x = 3  
y = 2.6  
l = [x,y,23]  
b = x < 5  
f(x,y,l,b,x*3)
```

```
Out[13]: (3, 2.6, [3, 2.6, 23], True, 9)
```

Variables locales

```
In [14]: def primo(n):  
        div = 2  
        while n%div != 0:  
            div = div + 1  
        return n == div
```

```
In [15]: primo (11)
```

```
Out[15]: True
```

```
In [17]: div
```

```
-----  
NameError Traceback (most recent call last)  
/home/carlos/docencia/curso13-14/inf/sesiones/<ipython-input-17-6a0defb53645> in <module>()  
----> 1 div
```

```
NameError: name 'div' is not defined
```

```
In [18]: f (1,2,3,4,cubo(x))
```

```
Out[18]: (1, 2, 3, 4, 27)
```

Funciones como parámetros

```
In [19]: f (1,2,l,x,cubo)
```

```
Out[19]: (1, 2, [3, 2.6, 23], 3, <function __main__.cubo>)
```

```
In [22]: type(x), type(l), type(cubo)
```

```
Out[22]: (int, list, function)
```

```
In [23]: def meta (f,n):  
         return f(n)
```

```
In [28]: meta(cubo,3)
```

```
Out[28]: 27
```

```
In [25]: meta(primo,19)
```

```
Out[25]: True
```

```
In [26]: meta(abs,-13)
```

```
Out[26]: 13
```

```
In [29]: def filtro (propiedad,l):
    si = []
    no = []
    for x in l:
        if propiedad(x) :
            si += [x] # si = si + [x]
        else:
            no += [x]
    return si,no
```

```
In [35]: l = range(2,20)
```

```
In [36]: filtro(primo,l)
```

```
Out[36]: ([2, 3, 5, 7, 11, 13, 17, 19], [4, 6, 8, 9, 10, 12, 14, 15, 16, 18])
```

Parámetros de salida

```
In [40]: def foo (n):
    if n < 0:
        return True
    elif n > 0:
        return (n,0)
    else:
        return abs
```

```
In [41]: foo(-1), foo(1), foo(0)
```

```
Out[41]: (True, (1, 0), <function abs>)
```

```
In [42]: foo(0)(-34134)
```

```
Out[42]: 34134
```