
Condicionales

Informática 2015-2016

October 30, 2015

1 Un condicional simple

```
In [9]: def abs(x):  
        """  
        Returns the absolute value of x  
  
        Parameters  
        -----  
        x : int  
            A number  
        Returns  
        -----  
        int  
            the absolute value of x  
        """  
        if x < 0:  
            x = -x  
        return x
```

```
abs(10)
```

```
In [10]: 10
```

```
Out [10]: abs(-10)
```

```
In [11]: 10
```

```
Out [11]:
```

2 Consideramos la negación

```
In [12]: def abs(x):  
        """  
        Returns the absolute value of x  
  
        Parameters  
        -----  
        x : int  
            A number  
        Returns  
        -----  
        int  
            the absolute value of x  
        """  
        if x < 0:  
            return -x  
        else:  
            return x
```

```
abs(-6), abs(7)
```

In [19]: (6, 7)

Out [19]:

3 Podemos anidar condicionales

```
In [13]: def degree(a, b, c):
        """
        Returns the degree of the polynomial a*x^2+b*x+c

        Parameters
        -----
        a,b,c : float
                Coefficients of polynomial

        Returns
        -----
        int
                Degree of the polynomial
        """
        if a == 0:
            if b == 0:
                result = 0
            else:
                result = 1
        else:
            result = 2
        return result
```

```
degree(2, 3, 4), degree(0, 1, 2), degree(1, 0, 0), degree(0, 0, 1)
```

In [14]: (2, 1, 2, 0)

Out [14]:

4 Elecciones múltiples

```
In [15]: def grade(mark):
        """
        Converts the numerical grade to the Spanish word

        Parameters
        -----
        mark : float
                the mark to be translated into a word

        Returns
        -----
        str
                the Spanish word for the numerical mark

        Precondition
        -----
        mark >= 0 and mark <= 10
        """
        if mark < 5:
            return "Suspendido"
        elif mark < 6:
            return "Aprobado"
        elif mark < 9:
            return "Notable"
        else:
            return "Sobresaliente"
```

```
grade(10), grade(1.23), grade(3.45), grade(4.999), grade(7), grade(5)
```

```
In [16]: ('Sobresaliente', 'Suspenso', 'Suspenso', 'Suspenso', 'Notable',
```

```
Out [16]: 'Aprobado')
```

5 Otro ejemplo más complicado

```
In [20]: def solve_linear_system(a, b, c, d, e, f):  
        """  
        Solves the linear system of equations:  
            a*x + b*y = e  
            c*x + d*y = f  
  
        Parameters  
        -----  
        a,b,c,d,e,f : float  
            Coefficients of the equations  
  
        Returns  
        -----  
        (float,float)  
            Pair of values (x,y) that solve the equations  
  
        Precondition  
        -----  
            a*d - b*c != 0  
        """  
        if a == 0:  
            y = e / b  
            x = (f - d*y) / c  
        else:  
            y = (a*f - c*e) / (-c*b + a*d)  
            x = (e - b*y) / a  
        return x, y
```

```
solve_linear_system(1.0,1.0,0.0,1.0,2.0,1.0)
```

```
In [21]: (1.0, 1.0)
```

```
Out [21]:
```

```
In [18]:
```