

[EXERCISE 1]

Gastón Gadea ggadea@austral.edu.ar

Una linda foto con mamá en la Austral



[EXERCISE 2]

```
In [ ]: #recibe alto y ancho de un rectángulo y devuelve el área
def rectangle_area(width, height):
    return width*height
```

[EXERCISE 3]

```
In [4]: #Calcula el área de 3 rectángulos y muestra el resultado
a1=rectangle_area(3,4)
a2=rectangle_area(5,10)
a3=rectangle_area(8,2)
print (f'The area of a rectangle with width 3 and height 4 is {a1}')
print (f'The area of a rectangle with width 5 and height 10 is {a2}')
print (f'The area of a rectangle with width 8 and height 2 is {a3}')
```

The area of a rectangle with width 3 and height 4 is 12
The area of a rectangle with width 5 and height 10 is 50
The area of a rectangle with width 8 and height 2 is 16

```
In [5]: def central_difference(f, x, h):
        return (f(x+h)-f(x))/h
```

```
In [16]: # Calcula la derivada aproximada para la función cuadrática en 2, con h 0.1, 0.01
def f(x):
    return x**2
```

```
d1=central_difference(f, 2, 0.1)
d2=central_difference(f, 2, 0.01)
d3=central_difference(f, 2, 0.001)
print(f'The derivative of f(x) = x^2 at x = 2 using h = 0.1 is {d1}')
print(f'The derivative of f(x) = x^2 at x = 2 using h = 0.01 is {d2}')
print(f'The derivative of f(x) = x^2 at x = 2 using h = 0.001 is {d3}')
```

The derivative of $f(x) = x^2$ at $x = 2$ using $h = 0.1$ is 4.100000000000001

The derivative of $f(x) = x^2$ at $x = 2$ using $h = 0.01$ is 4.0099999999999891

The derivative of $f(x) = x^2$ at $x = 2$ using $h = 0.001$ is 4.0009999999999699