Lecture 4

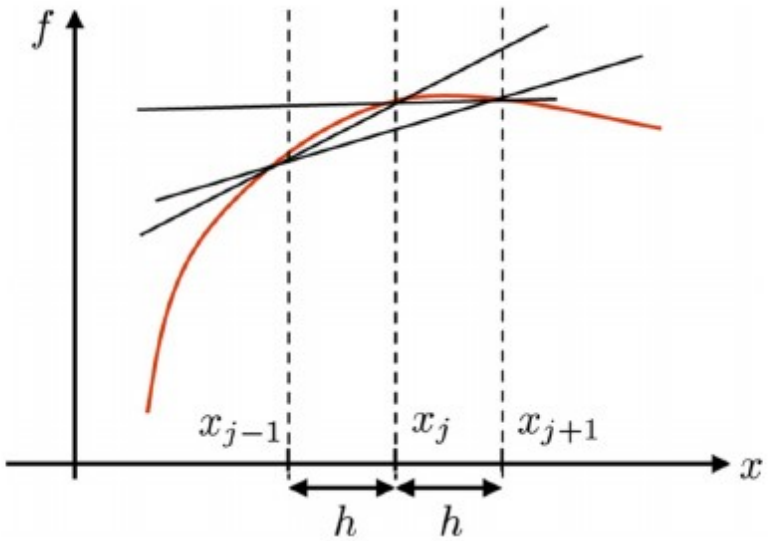
Finger exercise 1:

Lets step together over the pandas notebook:
01_python_basics_python_data_analysis_lib.ipynb

Finger exercise 2:

-Lets compute the slope of this function: sin(x) for x = [0..2*pi] by using finite differences.

- Vary the size of h to see how the close we are to the true solution.
(try h = 0.5, 0.1, 0.01, 0.0001)



$$f'(x_j) \approx \frac{f(x_j) - f(x_{j-1})}{h}$$

Finger exercise 3:

Lets look at this code to compute the minimum of the function together.

03_gradient_descent.py

Compute the minimum value of f(x) = - sin(x) for x = [0..1.5*pi]
Start the algorithm at x = 0.01
What happens if you start the algorithm at x = 1.5*pi + 0.00001 ?

Finger exercise 4:

Lets step together over the JAX notebook:

03_JAX_basics.ipynb

This is of key importance to get gradients automatically (Algorithmic differentiation, etc...).