non - linear assignment - 1 :

manual calculations:

minimum $f(x) = x^2 + 2$

(1) $\eta = 0.1$, iter max = 2, $x = 5$

(2) $m = \left.\frac{df}{dx}\right|_{x=5}$

$= 2x = 2(5) = 10$

(3) iter = 1 :

$\Delta x = \{-0.1(10)\} = -1$

$\Delta x = -1$

iteration = iter + 1 = 1 + 1 = 2

$x = 5 - 1 = 4$

if (2 > 2)

{ not satisfied }

else

$\eta = 0.1$, $x = 4$

$m = 2(4) = 8$

$\Delta x = -0.1(8) = -0.8$

iter = 2 :

$x = 4 - 0.8 = 3.2$

iter = 2 + 1 = 3

if (3 > 2)

{ satisfied }

$x = 3.2$

$f(x) = (3.2)^2 + 2 = 12.24$