

Second iteration

m = 107, b= 201

For (1,3): 9,= 1.7xx +2.1 = 3-8

For (2,6) fo = 1.7x3 +2.1=7.0.

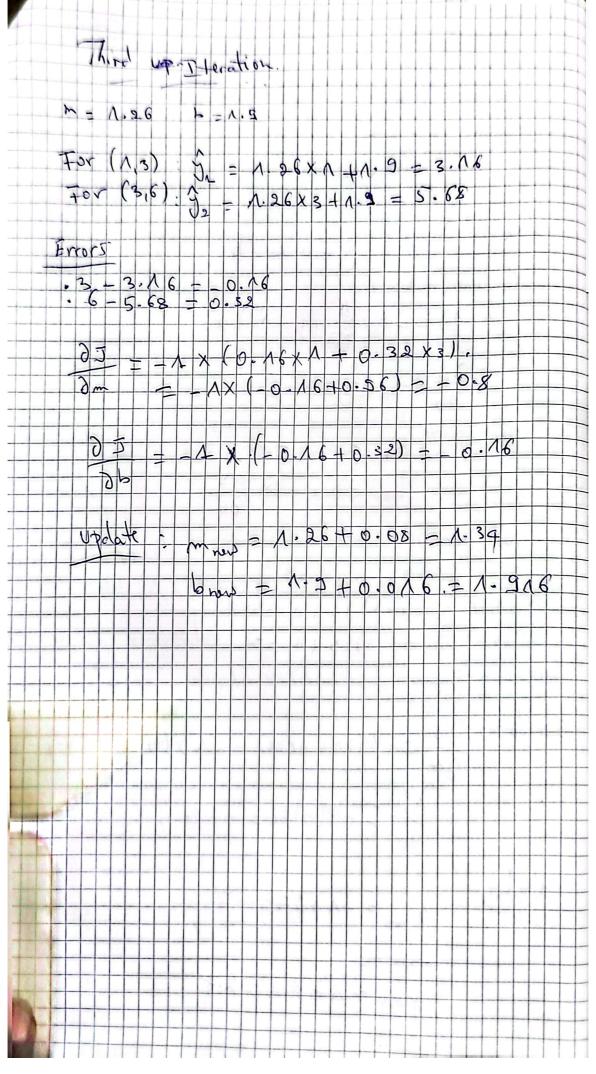
Gor emors:

·3 - 3.8 = -0.8 ·6 - 7-9 = -1.8

Aradients: $\frac{\partial J}{\partial m} = -1 \times (-0.8 \times 1 + 1.2 \times 3)$ $\frac{\partial J}{\partial b} = -1 \times (-0.8 - 1.2) = 4.4$

Updale

Minew = 1.7-0.44 = 1.06 Drew = 2.1-0.2=1.9



Fourth iteration
for (1,3): Jo = 134 x1 + 1.516 = 3.256
for (8,6); j2 = 1.34 xs +1.516 = 4.02+1.916 = 6.036
for emors:
* 3- 3-2F6 = -0.2F6
£ 6 - 6.036 = _0.036
Now, gradients:
∂J = -0 x [(-0.212)x1 + (-0.036)x3]0 x (-0.216 -0.108)
= 0.364
$\frac{\partial J}{\partial b} = -0x \left(-0.256 - 0.036 \right) = 0.292$
update
Mnew = 1-24-0-1 x 0.364 = 1-34-0-0364 = 1.8036
buen = 1.916 - 0.1 x 0.250 = 1.516 = 0.0252 = 1.8868
Trend & conclusion.
* With each step, values of m and b charge to reduce prediction error
* The update stite also shrinks as we approach a better fit for the data (anverging).