## Assignment -13 . I was I was a war with

y Develop a simple lineae regression using ADAGRAD
optimizes

Sample (i)	ni a	Machi < slamas ) 17
1	0.2	3.4
2	0.4	3-8
3 = (10	0.6	3-8 4.2
4. 4000	0.8	(4.6)

12-47-52

Do manual calculations for 2 iterations with

Step-1: [x,y], epochs = 2, m=1, c=-1, Gm = Qc=0, 1=0.1, E=10-8.

Aupz: ite = 1

MARCH E

Step-3. cample =1

step4! 3m= - (3.4-(1)(0.2)+1)0.2=-0.84

1 = - (2.4 - (1)(0.2) +D = -4.2

F 61 + FE 7 8

step-s:  $Gm = 0 + (-0.84)^2 = 0.9056$   $GC = 0 + (-4.2)^2 = 19.64$ 

Aleps:  $DM = \frac{-\eta}{\sqrt{9m+2}} \frac{-0.1}{\sqrt{0.7056+10^{-8}}} \times 0.8 = 0.09$ 

 $\Delta C = \frac{-0.1}{\sqrt{19.64 + 10^8}} \times 4.2 = 0.09$ 

1

Step-71 m=m+ Dm = 1+0.09=1.09 Designation Develop a simple linear sequences essue have Step 8: sample = cample +1 =1+1=2 Step-9: il (sample > ns) " 1:0 (1) styrol 2 > 2 (false).
go to step-4 Step-4: 9m=-(2.8-(1.09)(0.4)+0.91)0.4=-1.7 JC = - (3.8- (1.09) (0.4) + 0.91) = -4.27 step-51 Am = 0.7056+ C-1.752= 3:59 January of ac= 17.64 + (-9.27)2 = 35.37 (0=0) spocks = 2) wast, can, can good [hix] Thous  $\Delta m = \frac{-0.1}{\sqrt{3.59 + 10^8}} \times -1.7 = 0.08$ step-6:  $\Delta L = \frac{-0.1}{\sqrt{37.37 + 15^8}} \times -4.27 = 0.07$ step 3: comple of m = m+0m = 1.09+0.08 = 1.17 = me inght Step-7: L- C+ AC = -0.91+0.07 = -0.84 step-5: (m) = to (+0 545) = 0.9003 sample = 2+1=3 120) - "Com.) + 0 = 200 if (sample > ns) 3>2 (True) nent step (step-10) THE STATE OF

2

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step-10: Itel = itel+1 = 1+1=2
step-11: id (itel > epochis)
            2>2 belle
          200 = vigo to step-3 = ma 3 gots
Step-3: sample = 1
Step-4: 3m=-(3.4-(1.12) (0.2) + 0.84) 0.2=-0.80
         gc=-(3.4-(1.12) (02) +0.84) =-4.0
Auf-5: Gm = 3.59 + (-0.86)2=4.23
         ac = 35.89 + (-4.0) = 51.89
\frac{\text{dep-6'}}{\sqrt{4.23+10^8}} \frac{-0.1}{\sqrt{4.23+10^8}} \frac{-0.038}{\sqrt{4.23+10^8}}
                 gold Jordan
         DC = -0.1 400 × 4.0 = 0.05
             J51.89 + 10°8
                       869-10: 1 tes += 1 = 2+1=
       m = m + \Delta m = 0.038 + 1.17 = 1.208
         C= C+ AC = -0.84 +005 = -0.49
             gate treas
       sample += 14 1 = 2
step-8'
                      38.12 M 38-100
Step 9! if (sample > ns)
             272 false (step-4)
        gm= - (3.8- (1.20) (0.4) + 0.79) 0.4 =-1.64
Step-4:
         96= - (3.8-(-1.20) (0.4) +0.49) =-4.11
```

step 5: 9m = 4.23 + (-1.64)2 = 6.9 ac=51.89+(-4.11)2=68.7/1) step-6! Dm = -0.1 x -1.64 = 0.06 56.9+10-8  $DC = \frac{-01}{\sqrt{68.7 + 10^{-8}}} \times -4.11 = 0.04$ stepa: m= 1.208+0.06=11.26 C = -0.38, + 0.04 = -0.35 Step-8: sample += 1 = 2+1=3 step 9: if (sample > ne) 372 true nent step (step-to) step-10: itel +=1 = 2+1=3 is (itu > epochs) 3 > 2 true 14 15 nent step step-18 = + step-18 8-41/2 Step-12: m=1.26 (2H = Dgmm) li ingto e=(+0.45.) ANT = - (3-10- (1-20) (1-21) - 0.5) - = 110 11. N = (PR. 0 + (ma) (ac. (-) - 82) - - 38

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