Assignment -9
Htno: 18 K & 1 AOSAS

O ataset let us consider a sample deataset have 2 input (x:) and one output (y:) and number of samples 4. Develop a simple l'énear regresséen model using momentures

MILMISO.	•	
(Sample (i)	ai a 80	yia.
1	0.2	3.4
2	0.4	3.9
4-10-0-	0.6	4.2
4	0.8	4.6

Do mamual calculations for 2 iterations wilts 1st 2 samples.

8tep-1! [x,y], m=1, c=-1, $\eta=0.1$, epoche=3, N=0, 9, Vm=Vc=0, ns=2.

8tep-2! it =1

8tep-3: Sample =1

step-4! $gm = \frac{\partial c}{\partial m} = -(y_1^2 - ma_1^2 + c)a_1^2$ = $-(3\cdot 4 - (1)(0\cdot 2) + 1)(0\cdot 2)$

= -0.84.

$$9c = 3c = -(y_1 - mn_1 - c)$$

$$2 = 3c = -(y_1 - mn_1 - c)$$

$$= -(3.4 - 0.2 + 1)$$

$$= -4.2$$

$$2 = -4.2$$

$$2 = -4.2$$

$$2 = -0.42$$

$$2 = -0.42$$

$$2 = -0.42$$

$$2 = -0.916$$

$$2 = -0.42$$

$$2 = -1.42$$

$$3 = -1.42$$

$$3 = -1.42$$

```
step-8: if (sample >ns)
          leoto step-9
          272
           goto step-4 depress ) 17 3 gra
Step-4! gm = 3E = -(3.8-10.916)(0.4)+
               1.12) (0,4)
          = -1.94) 12+84 18-903
step-5! gc = de = -4.853-111
    1 = Vm = 19m = 19 10 13 101901
        = (0.9) (-0.084) - [-0.1x-1.941)
           = -0.2697 Wap
       Nc = 12-19-1-19-18-908
(co) (2p3,0)=,(0;9) (-0,42)-[-0,1x-4.853]
            = -0.863 - - 11908
Step-6: m=m+Von
  (80) (5 0.916 + (-0.2697)
   2 0.6463
    c = c + Ve
= -1.42 - 0.863
              c - 2.283.
```

```
Step-7! Sample = Sample +1
                  = 2+1=3.
8tep-8: 9f (sample > ns)
 + (+0)(3) + 0) goto step +9
                         Fors - mo
       else goto step-4
8tip-9! itx+=1 (PP)-
          1+1=228.7- 35 = 37
 else goto step-4
rabio; st Citis chockers
8tep-3! Sample=1 300 -31/ - 31.
stip 4! gm= 2t = - (3,4-co,646) (0,2)+2.283)
                                   (0.2)
      q = \frac{36}{36} = -(3.4 - (0.646)(0.2)
q = \frac{36}{36} = -(3.4 - (0.646)(0.2)
         838.0- [=] -5.553.
```

```
step-5! Vm = VVm - 79m
        = (0,9) (-0,2697) - (-0,1x-1.110)
 (11-2-x1-03) = (=0.353 (no) = mv 12-903
      Nc = (Nc - ngc
= (0.9)(-0.863) - (-0.1x-5.53)
= -1.332
Step-6; m=m+Vm
            = 0.6463 + (-0.353)
              = 0.293 - +00 - 0-908
       218 0 C = C + V c 0 - 0 120 0
                = -2.283-1.332
     E+2.2 = 200.7 - 210.0
 8tep-7: Sample + =1
              1+1=2 = + 16 pmnb :1-908
Step-8: it (sample > ns)
272 goto 8tep-9
            elle goto step-9
8up-4! 9m=-(3.8-(0.293)(0.4)+3.615)
```

```
9c = -(3.8-(0,293)(0.4)+3.615_
      1-7.2770-)(190)
8ty-5! Vm = (0,9) (-0,353) - (-0,1x-2.919)
(222-X1-0] -2-0.6676
       V_{c} = (0.9)(-1.332) - (-0.1x-7.299)
            = -1.9283 m = 10-928
 8tep-6: m+= Vm
     0,293-0.609=-0.316
        C+=Vc
         -3.615-1.928=-5.543
                 1= + elgrans : F-918
 8tep-7: Sample+=1
          2+1=3
8tep-8! 9f (8ample > ns) 29mm2) 41 18-93
             goto step-9
        der goto step-y
Step-9: it x + 2/ (2:0) - 2.5) - = mp 1p-90
        2+1=3.
            MIPS - -
```

step-10: "if (it's reporti)
goto step-1/11 else Step-11: print m; coss

m=-0.316, c=-5.543. Mestany accdorded gradient (NAG) optimble DIN Sample (1) 0:0