pssignment-5 HTNO: 18k HAOSAS so manual calculations for two exterations with batch size 2 S = P = 201 = dn 18 pors let consider a sample dataset have one object (x; a) & one output (y; a) and number of samples 4. Develop a simple linear regression model using MBGD 1903 + ( 8 ample (i) Xi<sup>2</sup> 4i<sup>9</sup> 0.2 3.4 0.6 3.8 [a+p.03.8) +. a+c 0:800 4-60 30 x Pyp ... Brtch A 0 012 1 003,9 = 012 13 9018 EP 9 = 8.4.3 (3.8. 581-1= her 0-x = 1000+100 = 100 1 = 1-130 Batch 2

0.8 4.6.

sup 91 it (batch=176).

566

1312 ota A

```
Step 1! (x,4), m=1, c=-1, n=0.1, epochs=2,
  mounted collectations for two Herations
 Step 2! nb = \frac{ns}{bs} = \frac{4}{2} = 2 as in stand when
   at consider a familie datalet have one
Step 3! litr = | topto mo & (1/2) duylo
 stip 4! Batch = Japanes a galares + wymos to
8/45: 3t = -1 5 (yi-mai = ) aises los ara
            = -1 [((3.4-()(0.2)+1)0.2]+
                              [3,8-0.4+1]0.4
          = -1.34
      3€ = - [(3,4-0.2+1)+(3,8-0,4+1)]
                = -43
          Sm = - (0.1) (-1.34) = 0.134
  8ty 6!
          DC = - (0.1) (-4.3) = 0.43
          m= m+0m= 1+0.134=1.134
 step +!
            C= C+DC = -1+0.43 = -0.57
Step 8: Batch = 1+1=2.
step 9! if (batch>nb).
              Goto Steps
```

```
86p 5!
  \frac{3\xi}{3m} = -\frac{1}{2} \left[ (4.2 - (1.134)(0.6) + 0.6) \right]
         0, 6+(4,6-(1.134)(0.8)+0.23)0.8)
  DC = -10.000
         -1 ((4.2 - (1.13 4) (0.6) +0.5+)+
               (4.6 - (1.134) (0.8) +0.23)
     + 00 00 (20 0) 4 00 00
 step 6: DM = -(0.1) (-2.932) = 0.2932
        DC=-(0.1) (-4.1762) = 0.41762.
 8tip 21 m = 1.134 +0.2932
                 m=1-42727018 2903
              [c=-0.1523]
8tep 8! Batch = 2+1=3 9 1 565 P 1 = 100
Step 91 if (batch > nb)
           ceotostep - 1021.
Step 10! itr = 1+1=2110=9
Step 11: if (it & > cpochs)
         01-478 FOU
                2 90/20/010/ 22/0
```

```
step 4: Batch=1
                                       g te
sap 5. 3E = = = [(3.4 - (1.4272)(0.2)+
                 0.1523)0.2+
  + ( 0 · 0 + ( 3.8 - (1.42 72) (0.4) +0.1523)04)
[(62.0+(8.0)(21.9029.0.2)
  \frac{\partial E}{\partial c} = \frac{-1}{2} \left[ (3.4) - (1.4272)(0.2) + (3.8 - (1.4272)(0.4) \right]
  361P.0 = (2361-P-) (10) -+0.1523)
 Stape: Dm=(-0.1)(-1.0029)
           = 0.1002
         DC=(-0.1)(-3,3291).
             = 0.332.
 Step 21 m=1.4272+0.1002
            m=1.5274
         c = -0.1523+0.832
             C=0.1793
  step 95 it (Batch > n6) (200 0100)
             40 to step - 60
           elle Cerotosiep 5
```

```
step-5!
     3e = -1 ((4.2 - (1.5274)(0.6)-0.1793)
         0.6+(4.6-(1.5274)(0.8)-
                 0,1797)0,8]
     ac = -3.151
Step-6! DM=-0.1x-2.21 = 0.221
        AC=-0.1x-3.151=0.315
Step-31 m= m+sm=1,5274+0.221
            c = 0.1797 to.315
8tep 8: Batch + 1=1
         2+1=3
Step-91: if (batch=nb) 3>2 +
           Coto step co.
8tep10! itr = 2+1=3.
step-11: if (it > epochs)
            372
              Cotostep 12
 8tep-121 m=1.748, C=0.494.
```