Experiment No:2

Aim: Implement Gradient decrent algorithm to minimise given objective function. - Fox eng. 10 port (A111 Mo) 1 = = M3 # 6 M3. by proving in the direction of the theory in the i armanos tragesto the older along all all de declert A ignadient is nothing but derivative that defines other effects on outputs of the function with little bit of variations in Input. + Gradient decreate stands aporta cornectone orchestabing the intricate dance of model 1 poptionis attantament and a cilotite (i As its core Itilisi numerical toptimization algorithm that aims to And the optimal parameters to weights and blaces "i of a neural networks by minimizing a defined cost function. - It works by iteratively adjusting the weights or parameters of the model in the direction of negative gradient of the cost Function until the minimum of the rock Function is reached. The cost function evaluates between the difference obsetween the actual and predicted outputs. - Gradient decreat is not Fundamental aptimization dechalque in ML used to minimise the cost or loss function during model

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Experiencent orce

Aim: Toplement finadient derreginingthis minimise given objective suichten). It it exatively (abjust) model paramieter by moving in the direction of the steepest decrease in the cost withoutenotion The algorithm calculates gradients. todo expresentials distopantial midesivative and for hither cocket function deance ming each sometion with life to a parameter and in the sound entente okeyo steps ateriooh traibord lapour 30 somb atorirate of the pritoches of model i) Initialize the parameters cia tand b location set but at socio houte muticopio bal dab war strikindakt parameterlan laman II) Updaties the riporatinters 12400 III of the order or 24 de si the order of the order or 24 de si the order of the order or book and I a too both on with a fine mother ib Function unal the minimum of the cold Sinction is a eached. difference discourse the detrol and Where stuptus batoitons lationale aring frates tracional asiminim at he zu JM at Supladate not asimitare 13horn paired whomis 2001 is 1-200 ant





W) Repeat step (ii) and (iii) until

For e.g, F(N, N2) = -5N, +6N2

 $\frac{-84^{2}}{9} = \frac{-34^{2}}{9(-4)^{3} + 64^{5}}$

 $\frac{\partial f}{\partial m_2} = \frac{\partial (-m_1^3 + 6m_2^2)}{\partial m_2}$

Update the parameters:

 $M_1 = M_1 - \alpha (-8M_1^2)$ $M_2 = M_2 - \alpha (12M_2)$

 $31 = 31 + 300^2$

Malm