Practice Lab Neural Network 1

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Batch:-A1

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Neural Network Implementation from Scratch

1.Objectives:- Implement a simple feedforward neural network from scratch in Python without using any in-built deep learning libraries. This implementation will focus on basic components like forward pass, backward propagation (backpropagation), and training using gradient descent.

2. Problem Definition:-

 ● **Dataset:** Describe the dataset being used for training and testing the neural network (e.g., MNIST,Iris, etc.).

● **Task:** The task could be a classification or regression problem. For instance, if you are using the MNIST dataset, the task would be to classify handwritten digits

3. Methodology:-
● Neural Network Architecture:
○ Define the network architecture (e.g., number of input neurons, hidden layers, and output layer).
○ Describe the activation functions used in the hidden layer (e.g., ReLU or Sigmoid) and the output layer (e.g., softmax for classification).
● Forward Pass:
○ Describe the process of how the data moves through the layers of the network during the forward pass. This involves computing weighted sums, applying activation functions, and propagating the data through layers.
● Backpropagation:
○ Explain how the error is propagated backward to adjust the weights based on the loss function. Use gradient descent for optimization.
○ Implement the derivative of the loss function and activation functions for

backpropagation.
● Loss Function:
○ Choose a loss function (e.g., Mean Squared Error for regression or Cross-Entropy for classification).
● Optimization:
○ Implement gradient descent or stochastic gradient descent (SGD) for training the network.

Declaration:

I, Sanket Kolhe, confirm that the work submitted in this assignment is my own and has been completed following academic integrity guidelines. The code is uploaded on my GitHub repository account, and the repository link is provided below:

GitHub Repository Link: **https://github.com/SanketKolhe233/Deep-Learning-Lab-Assignment**

Signature: Sanket Digamber Kolhe