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# A Critical Review on Next Word Prediction

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**Abstract:** *One area of natural language processing that can assist with next word prediction is next word prediction, which is also known as language modeling. It is one application of machine learning. Previous researchers had discussed it using other models, including federated text models and recurrent neural networks. To make the prediction, each researcher utilized their own model. LSTMs use a built-in mechanism for selectively choosing which information to preserve in the hidden state and which to discard, which helps to prevent overfitting. Activation functions, such as ReLU and softmax, are also used in next word prediction to introduce non-linearity into the model and generate a probability distribution over the vocabulary for predicting the next word. Combining techniques such as pre-training, advanced architectures, and large datasets can further improve the performance of next word prediction using LSTM. This paper summarizes the different approaches taken to achieve the above-stated aim. The primary focus is on the next word prediction to get the best result. It chose to make the model using Long Short Term Memory (LSTM), a sequential activation model, and a 2000 epoch for the training. For the libraries, I have used TensorFlow, pickle, Keras, NumPy, and OS This model can be used to predict the next word.*

**Keywords:** Language Modeling (LM), Natural Language Processing (NLP), Recurrent Neural Network (RNN), Long Short-Term Memory (LSTM), Neural Language Model (NLM), Natural Language Generation (NLG), Next Word Prediction (NWP), Coupled Input and Forget Gate (CIFG), Federated Learning (FL)

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