1. **What are Vanilla autoencoders?**

Vanilla autoencoder ,in its simplest form, is a three layers net, i.e. a neural net with one hidden layer. The input and output are the same, and we learn how to reconstruct the input, for example using the adam optimizer and the mean squared error loss function.

1. **What are Sparse autoencoders?**

A Sparse Autoencoder is a type of autoencoder that employs sparsity to achieve an information bottleneck. Specifically the loss function is constructed so that activations are penalized within a layer.

1. **What are Denoising autoencoders ?**

Denoising Autoencoder is an autoencoder that receives a corrupted data point as input. and is trained to predict the original, uncorrupted data point as its output.

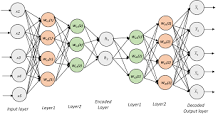
1. **What are Convolutional autoencoders?**

A convolutional autoencoder is a neural network (a special case of an unsupervised learning model) that is trained to reproduce its input image in the output layer. An image is passed through an encoder, which is a ConvNet that produces a low-dimensional representation of the image.

1. **What are Stacked autoencoders?**

A stacked autoencoder is a neural network consist several layers of sparse autoencoders where output of each hidden layer is connected to the input of the successive hidden layer.

*Illustration :*



1. **Explain how to generate sentences using LSTM autoencoders**

-Load the necessary libraries required for LSTM and NLP purposes.

-Load the text data.

-Performing the required text cleaning.

-Create a dictionary of words with keys as integer values.

-Prepare dataset as input and output sets using dictionary.

-Define our LSTM model for text generation.

1. **Explain Extractive summarization?**

Extractive summarization aims at identifying the salient information that is then extracted and grouped together to form a concise summary. Abstractive summary generation rewrites the entire document by building internal semantic representation, and then a summary is created using natural language processing.

1. **Explain Abstractive summarization**

Abstractive summarization, on the other hand is a technique in which the summary is generated by generating novel sentences by either rephrasing or using the new words, instead of simply extracting the important sentences.

1. **Explain Beam search**

Beam search is a heuristic search algorithm that explores a graph by expanding the most optimistic node in a limited set. Beam search is an optimization of best-first search that reduces its memory requirements.

1. **Explain Length normalization**

Document length normalization adjusts the term frequency or the relevance score in order to normalize the effect of document length on the document ranking.

1. **Explain Coverage normalization**
2. **Explain ROUGE metric evaluation**

ROUGE, or Recall-Oriented Understudy for Gisting Evaluation, is a set of metrics and a software package used for evaluating automatic summarization and machine translation software in natural language processing.