**EMPLOYING HMM FOR POS TAGGING:**

import nltk

from nltk.corpus import treebank

from nltk.tag import hmm

# Download necessary resources

nltk.download("treebank")

nltk.download("universal\_tagset")

# Load training and test data (POS-tagged sentences)

tagged\_sents = treebank.tagged\_sents(tagset="universal")

# Split data into train and test

train\_data = tagged\_sents[:3000]

test\_data = tagged\_sents[3000:]

# Train HMM tagger

trainer = hmm.HiddenMarkovModelTrainer()

hmm\_tagger = trainer.train\_supervised(train\_data)

# Test on a sample sentence

sentence = ["I", "love", "deep", "learning", "models"]

print("=== Tagged Sentence ===")

print(hmm\_tagger.tag(sentence))

# Evaluate accuracy on test data

accuracy = hmm\_tagger.evaluate(test\_data)

print("\n=== Accuracy on Test Data ===")

print(round(accuracy, 4))