**QUESTION-1**

1. Describe Named Entity Recognition.

Named Entity Recognition (NER) is a natural language processing (NLP) task that involves identifying and categorizing named entities within a body of text into predefined categories such as names of persons, organizations, locations, dates, numerical expressions, and more. The primary objective of NER is to pinpoint and classify specific entities mentioned in the text accurately.

NER systems typically utilize machine learning techniques, especially supervised learning approaches like conditional random fields (CRFs) or deep learning methods such as recurrent neural networks (RNNs) or transformer-based models like BERT. These models are trained on annotated datasets where each entity in the text is labeled with its corresponding category.

import spacy

# Load the spaCy English language model

nlp = spacy.load("en\_core\_web\_sm")

from google.colab import drive

drive.mount('/content/drive')

# Function to perform named entity recognition on a textimport spacy

def recognize\_entities(input\_file, output\_file):

    with open(input\_file, "r") as f:  # Opens input file

        text = f.read()

    # Process the text with spaCy NLP pipeline

    doc = nlp(text)

    with open(output\_file, "w") as f:

        # Writing recognized entities to the output file

        for ent in doc.ents:

            f.write(f"{ent.text}\t{ent.label\_}\n")

recognize\_entities("/content/input\_file.txt", "/content/Output file.txt")

link: [https://colab.research.google.com/drive/1VgMFwjc-Xa\_sNtoEotpyb76g9bB-KoA4#scrollTo=nU1XdkMptD28](https://colab.research.google.com/drive/1VgMFwjc-Xa_sNtoEotpyb76g9bB-KoA4%23scrollTo=nU1XdkMptD28)