Aim- Implement Named Entity Recognizer for the given text input

Objective:

To study and write program for named entity recognition

Theory:

Named entity recognition is a natural language processing technique that can automatically scan entire articles and pull out some fundamental entities in a text and classify them into predefined categories. Entities may be,

1. Organization
2. Quantities
3. Monetary values
4. Percentages and more
5. Peoples names
6. Company names
7. Geographical locations
8. Product names
9. Dates and times
10. Amounts of money
11. Names of events

In simple words, Named Entity Recognition is the process of detecting the named entities such as person names, location names, company names etc. from the text. It is also known as entity identification or entity extraction or entity chunking.

Program:

```
import spacy

import pandas as pd

nlp = spacy.load('en_core_web_sm')

doc = nlp(u"Tesla Inc. Chief Executive Officer Elon Musk said he's considering taking the electric-car maker private, a surprise move that would end the company's eight-year history as a publicly traded firm.")

for ent in doc.ents:

    print(ent.text, "-", ent.label_, "-", spacy.explain(ent.label_))
```

Output:

Tesla Inc. - ORG - Companies, agencies, institutions, etc.

Elon Musk - PERSON - People, including fictional

eight-year - DATE - Absolute or relative dates or periods

Conclusion: For numerous factors, Named Entity Recognition (NER) is essential in real-world situations. It is essential to the process of extracting information since it aids in finding and classifying in text data elements like names of individuals, companies, places, and dates. In applications like news summaries, content recommendations, and search engines, where accurate entity recognition improves the calibre of results, this functionality is essential. Additionally, NER supports the extraction of crucial data from unstructured documents in industries like banking and healthcare, enhancing decision-making procedures and compliance initiatives. Additionally, NER enhances sentiment analysis by locating entities linked to opinions with strong emotions, which improves the outcomes of sentiment analysis. In summary, NER is a key element in gaining insightful knowledge from enormous amounts of textual data across various businesses.