

04 Named Entity Recognition

December 20, 2025

1 Named Entity Recognition(NER)

- **Entity Classification:** NER identifies and categorizes entities like names, locations, and dates in text, helping to extract key information.
- **Broad Application:** It enhances tasks like information extraction , question answering, and summarization by highlighting important entities in the text.



```
[1]: import spacy
from prettytable import PrettyTable

nlp = spacy.load('en_core_web_sm')
```

```
[2]: nlp.get_pipe('ner').labels # pre-trained model --> ner
```

```
[2]: ('CARDINAL',
      'DATE',
      'EVENT',
      'FAC',
```

```
'GPE',
'LANGUAGE',
'LAW',
'LOC',
'MONEY',
'NORP',
'ORDINAL',
'ORG',
'PERCENT',
'PERSON',
'PRODUCT',
'QUANTITY',
'TIME',
'WORK_OF_ART')
```

```
[3]: text = """
On December 20, 2025, Satya Nadella announced that Microsoft would invest $5
    ↳billion to build a new research hub in London. This facility, located near
    ↳Kings Cross, aims to rival the innovation seen at Google in Mountain View,
    ↳California.
"""
```

```
[4]: from spacy import displacy
doc = nlp(text = text)
displacy.render(doc, style = 'ent', jupyter = True)
```

<IPython.core.display.HTML object>

```
[5]: table = PrettyTable()
table.field_names=['token', 'label', 'explanation', 'Star Char', 'End Char']
for ent in doc.ents:
    table.add_row([ent.text, ent.label_, spacy.explain(ent.label_), ent.
        ↳start_char, ent.end_char])

print(table)
```

```
+-----+-----+-----+-----+
---+-----+
|      token      | label |      explanation      | Star
Char | End Char |
+-----+-----+-----+-----+
---+-----+
| December 20, 2025 | DATE  | Absolute or relative dates or periods | 4
| 21 |
| Satya Nadella    | PERSON | People, including fictional | 23
| 36 |
| Microsoft        | ORG   | Companies, agencies, institutions, etc. | 52
| 61 |
```

	\$5 billion		MONEY		Monetary values, including unit		75
	85						
	London		GPE		Countries, cities, states		117
	123						
	Kings Cross		ORG		Companies, agencies, institutions, etc.		153
	164						
	Google		ORG		Companies, agencies, institutions, etc.		203
	209						
	Mountain View		GPE		Countries, cities, states		213
	226						
	California		GPE		Countries, cities, states		228
	238						
+-----+-----+-----+-----+-----+							
---+-----+							