

In [4]:

```
import sys
!{sys.executable} -m pip install spacy
!{sys.executable} -m spacy download en
import spacy
```

```
Requirement already satisfied: spacy in /anaconda3/lib/python3.7/site-packages
(2.3.2)
Requirement already satisfied: catalogue<1.1.0,>=0.0.7 in /anaconda3/lib/python
3.7/site-packages (from spacy) (1.0.0)
Requirement already satisfied: preshed<3.1.0,>=3.0.2 in /anaconda3/lib/python3.
7/site-packages (from spacy) (3.0.2)
Requirement already satisfied: plac<1.2.0,>=0.9.6 in /anaconda3/lib/python3.7/s
ite-packages (from spacy) (1.1.3)
Requirement already satisfied: cymem<2.1.0,>=2.0.2 in /anaconda3/lib/python3.7/
site-packages (from spacy) (2.0.3)
Requirement already satisfied: wasabi<1.1.0,>=0.4.0 in /anaconda3/lib/python3.7
/site-packages (from spacy) (0.8.0)
Requirement already satisfied: requests<3.0.0,>=2.13.0 in /anaconda3/lib/python
3.7/site-packages (from spacy) (2.22.0)
Requirement already satisfied: blis<0.5.0,>=0.4.0 in /anaconda3/lib/python3.7/s
ite-packages (from spacy) (0.4.1)
Requirement already satisfied: thinc==7.4.1 in /anaconda3/lib/python3.7/site-pa
ckages (from spacy) (7.4.1)
Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in /anaconda3/lib/pyth
on3.7/site-packages (from spacy) (1.0.2)
Requirement already satisfied: numpy>=1.15.0 in /anaconda3/lib/python3.7/site-p
ackages (from spacy) (1.16.4)
Requirement already satisfied: srsly<1.1.0,>=1.0.2 in /anaconda3/lib/python3.7/
site-packages (from spacy) (1.0.2)
Requirement already satisfied: setuptools in /anaconda3/lib/python3.7/site-pack
ages (from spacy) (41.0.1)
Requirement already satisfied: tqdm<5.0.0,>=4.38.0 in /anaconda3/lib/python3.7/
site-packages (from spacy) (4.51.0)
Requirement already satisfied: importlib-metadata>=0.20; python_version < "3.8"
in /anaconda3/lib/python3.7/site-packages (from catalogue<1.1.0,>=0.0.7->spacy)
(2.0.0)
Requirement already satisfied: certifi>=2017.4.17 in /anaconda3/lib/python3.7/s
ite-packages (from requests<3.0.0,>=2.13.0->spacy) (2019.6.16)
Requirement already satisfied: chardet<3.1.0,>=3.0.2 in /anaconda3/lib/python3.
7/site-packages (from requests<3.0.0,>=2.13.0->spacy) (3.0.4)
Requirement already satisfied: urllib3!=1.25.0,!1.25.1,<1.26,>=1.21.1 in /anac
onda3/lib/python3.7/site-packages (from requests<3.0.0,>=2.13.0->spacy) (1.24.2
)
Requirement already satisfied: idna<2.9,>=2.5 in /anaconda3/lib/python3.7/site-
packages (from requests<3.0.0,>=2.13.0->spacy) (2.8)
Requirement already satisfied: zipp>=0.5 in /anaconda3/lib/python3.7/site-packa
ges (from importlib-metadata>=0.20; python_version < "3.8"->catalogue<1.1.0,>=0
.0.7->spacy) (0.5.1)
Requirement already satisfied: en_core_web_sm==2.3.1 from https://github.com/ex
plosion/spacy-models/releases/download/en_core_web_sm-2.3.1/en_core_web_sm-2.3.
1.tar.gz#egg=en_core_web_sm==2.3.1 in /anaconda3/lib/python3.7/site-packages (2
.3.1)
Requirement already satisfied: spacy<2.4.0,>=2.3.0 in /anaconda3/lib/python3.7/
site-packages (from en_core_web_sm==2.3.1) (2.3.2)
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ckages (from spacy<2.4.0,>=2.3.0->en_core_web_sm==2.3.1) (7.4.1)
Requirement already satisfied: wasabi<1.1.0,>=0.4.0 in /anaconda3/lib/python3.7
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Requirement already satisfied: urllib3!=1.25.0,!1.25.1,<1.26,>=1.21.1 in /anac
onda3/lib/python3.7/site-packages (from requests<3.0.0,>=2.13.0->spacy<2.4.0,>=
2.3.0->en_core_web_sm==2.3.1) (1.24.2)
Requirement already satisfied: idna<2.9,>=2.5 in /anaconda3/lib/python3.7/site-
packages (from requests<3.0.0,>=2.13.0->spacy<2.4.0,>=2.3.0->en_core_web_sm==2.
3.1) (2.8)
Requirement already satisfied: chardet<3.1.0,>=3.0.2 in /anaconda3/lib/python3.
7/site-packages (from requests<3.0.0,>=2.13.0->spacy<2.4.0,>=2.3.0->en_core_web
_sm==2.3.1) (3.0.4)
Requirement already satisfied: zipp>=0.5 in /anaconda3/lib/python3.7/site-packa
ges (from importlib-metadata>=0.20; python_version < "3.8"->catalogue<1.1.0,>=0
.0.7->spacy<2.4.0,>=2.3.0->en_core_web_sm==2.3.1) (0.5.1)
✓ Download and installation successful
You can now load the model via spacy.load('en_core_web_sm')
✓ Linking successful
//anaconda3/lib/python3.7/site-packages/en_core_web_sm -->
//anaconda3/lib/python3.7/site-packages/spacy/data/en
You can now load the model via spacy.load('en')

```

In [5]:

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

In [6]:

```

text = "BM was founded in 1911 in Endicott, New York, as the Computing-Tabulating-Recording
Company (CTR) and was renamed International Business Machines in 1924. IBM is incorporated
in New York and has operations in over 170 countries."
doc = m(text)

```

In [7]:

```
for ent in doc.ents:  
    print(ent.text, ent.label_)
```

```
BM ORG  
1911 DATE  
Endicott GPE  
New York GPE  
the Computing-Tabulating-Recording Company FAC  
International Business Machines ORG  
1924 DATE  
IBM ORG  
New York GPE  
over 170 CARDINAL
```

In [8]:

```
locs = [('Omnicom', 'IN', 'New York'), ('DDB Needham', 'IN', 'New York'), ('Kaplan Thaler Group', 'IN', 'New York'), ('BBDO South', 'IN', 'Atlanta'), ('Georgia-Pacific', 'IN', 'Atlanta')]
```

In [11]:

```
query = [e1 for (e1, rel, e2) in locs if e2=='New York']
```

In [12]:

```
print(query)
```

```
['Omnicom', 'DDB Needham', 'Kaplan Thaler Group']
```

In []: