```
In [1]:  import spacy

         nlp = spacy.load('en_core_web_sm')

         from spacy import displacy
```

```
In [2]:  doc = nlp(u"Over the last quarter Apple sold nearly 20 thousand iPods fo
```

```
In [5]:  displacy.render(doc, style = 'ent', jupyter = True)
```

Over   the last quarter **DATE**   Apple **ORG**   sold   nearly 20 thousand **CARDINAL**   iPods

PRODUCT   for a profit of $6 million **MONEY**   .

Viewing Sentences Line by Line

```
In [6]:  doc = nlp(u"Over the last quarter Apple sold nearly 20 thousand iPods fo
                   u"By contrast, Sony only sold 8 thousand Walkman Music Players.
```

```
In [7]:  for sent in doc.sents:
             displacy.render(sent, style = 'ent', jupyter = True)
```

Over   the last quarter **DATE**   Apple **ORG**   sold   nearly 20 thousand **CARDINAL**   iPods

PRODUCT   for a profit of $6 million **MONEY**   .

By contrast, Sony only sold 8 thousand Walkman Music Players.   **ORG**   **CARDINAL**

EVENT

```
In [8]:  doc2 = nlp(u'Over the last quarter Apple sold nearly 20 thousand iPods f
                    u'By contrast, my kids sold a lot of lemonade.')
```

In [9]:
```python
for sent in doc2.sents:
    displacy.render(sent, style = 'ent', jupyter = True)
```

Over   the last quarter **DATE**   Apple **ORG**   sold   nearly 20 thousand **CARDINAL**   iPods

PRODUCT   for $6 million **MONEY**   .

```
/Users/jayashrijagannathan/anaconda3/envs/nlp_course/lib/python3.7/run
py.py:193: UserWarning: [W006] No entities to visualize found in Doc o
bject. If this is surprising to you, make sure the Doc was processed u
sing a model that supports named entity recognition, and check the `do
c.ents` property manually if necessary.
  "__main__", mod_spec)
```

By contrast, my kids sold a lot of lemonade.

In [10]:
```python
# Observation: There is a warning that there are no entities.
# To avoid this, check if there are entities and then process the entiti
```

In [11]:
```python
for sent in doc2.sents:
    if sent.ents:
        displacy.render(sent, style = 'ent', jupyter = True)
    else:
        print(sent)
```

Over   the last quarter **DATE**   Apple **ORG**   sold   nearly 20 thousand **CARDINAL**   iPods

PRODUCT   for $6 million **MONEY**   .

By contrast, my kids sold a lot of lemonade.

In [12]:
```python
for sent in doc2.sents:
    if nlp(sent.text).ents:
        displacy.render(nlp(sent.text), style = 'ent', jupyter = True)
    else:
        print(nlp(sent.text))
```

Over   the last quarter **DATE**   Apple **ORG**   sold   nearly 20 thousand **CARDINAL**   iPods

PRODUCT   for $6 million **MONEY**   .

By contrast, my kids sold a lot of lemonade.

In [16]:
```python
# Viewing Specific Entities
options = {'ents': ['PRODUCT']}
displacy.render(doc, style = 'ent', jupyter = True, options = options)
```

Over the last quarter Apple sold nearly 20 thousand   iPods **PRODUCT**   for a profit of $6

million.By contrast, Sony only sold 8 thousand Walkman Music Players.

In [17]:
```python
options = {'ents': ['ORG', 'PRODUCT']}
displacy.render(doc, style = 'ent', jupyter = True, options = options)
```

Over the last quarter   Apple **ORG**   sold nearly 20 thousand   iPods **PRODUCT**   for a profit of

$6 million.By contrast,   Sony **ORG**   only sold 8 thousand Walkman Music Players.

In [23]:
```python
colors = {'ORG' : 'yellow'}
options = {'ents': ['ORG', 'PRODUCT'], 'colors': colors}
displacy.render(doc, style = 'ent', jupyter = True, options = options)
```

Over the last quarter   Apple **ORG**   sold nearly 20 thousand   iPods **PRODUCT**   for a profit of

$6 million.By contrast,   Sony **ORG**   only sold 8 thousand Walkman Music Players.

In [24]:
```python
colors = {'ORG' : 'linear-gradient(yellow, green)'}
options = {'ents': ['ORG', 'PRODUCT'], 'colors': colors}
displacy.render(doc, style = 'ent', jupyter = True, options = options)
```

Over the last quarter   Apple **ORG**   sold nearly 20 thousand   iPods **PRODUCT**   for a profit of

$6 million.By contrast,   Sony **ORG**   only sold 8 thousand Walkman Music Players.

In [27]:
```python
colors = {'ORG' : 'linear-gradient(90deg, yellow, green)'}
options = {'ents': ['ORG', 'PRODUCT'], 'colors': colors}
displacy.render(doc, style = 'ent', jupyter = True, options = options)
```

Over the last quarter   Apple **ORG**   sold nearly 20 thousand   iPods **PRODUCT**   for a profit of

$6 million.By contrast,   Sony **ORG**   only sold 8 thousand Walkman Music Players.

```
In [28]:  colors = {'ORG' : 'radial-gradient(yellow, green)'}
          options = {'ents': ['ORG', 'PRODUCT'], 'colors': colors}
          displacy.render(doc, style = 'ent', jupyter = True, options = options)
```

Over the last quarter   Apple **ORG**   sold nearly 20 thousand   iPods **PRODUCT**   for a profit of

$6 million.By contrast,   Sony **ORG**   only sold 8 thousand Walkman Music Players.

Creating visualizations outside of Jupyter

```
In [ ]:  displacy.serve(doc, style='ent', options = options)
```

Serving on port 5000...
Using the 'ent' visualizer

127.0.0.1 - - [24/Jun/2020 17:40:00] "GET / HTTP/1.1" 200 1753

```
In [ ]:
```