Aluno:	Jefferson Ponte Pessoa
Professor:	Jhonatan Alves
Repositório:	https://github.com/jeffersonkako/N4M5

Título da Prática:
Dando inteligência ao software

Objetivo da Pratica:

- Configurar o ambiente Google Colab;

- Descrever tarefas diversas relacionadas ao Processamento de Linguagem Natural;

- Descrever o processo de identificação de entidades a partir de textos;

- Descrever o processo de extração de frases chave a partir de textos;

- Descrever o processo de identificação de linguagem predominante a partir de textos;

Códigos:

Análise de Sentimentos

Passo 1: Instalando as bibliotecas e recarregando o ambiente

```
!pip install -U pip setuptools wheel

!pip install -U spacy

!python -m spacy download en_core_web_sm

!pip install spacytextblob

import pkg_resources,imp

imp.reload(pkg_resources)
```

```
Requirement already satisfied: spacy>=3.0.0 in /usr/local/lib/python3.10/dist-packages (from spacytextblob) (3.8.2)
Collecting textblob>=0.18.0.post0 (from spacytextblob)
  Downloading textblob-0.18.0.post0-py3-none-any.whl.metadata (4.5 kB)
Requirement already satisfied: spacy-legacy<3.1.0,>=3.0.11 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0
Requirement already satisfied: spacy-loggers<2.0.0,>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0
Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0
Requirement already satisfied: cymem<2.1.0,>=2.0.2 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spac
Requirement already satisfied: preshed<3.1.0,>=3.0.2 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->sp
Requirement already satisfied: thinc<8.4.0,>=8.3.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spac
Requirement already satisfied: wasabi<1.2.0,>=0.9.1 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spa
Requirement already satisfied: srsly<3.0.0,>=2.4.3 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spac
Requirement already satisfied: catalogue<2.1.0,>=2.0.6 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->
Requirement already satisfied: weasel<0.5.0,>=0.1.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spa
Requirement already satisfied: typer<1.0.0,>=0.3.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spac
Requirement already satisfied: tqdm<5.0.0,>=4.38.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spac
Requirement already satisfied: requests<3.0.0,>=2.13.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->
Requirement already satisfied: pydantic!=1.8,!=1.8.1,<3.0.0,>=1.7.4 in /usr/local/lib/python3.10/dist-packages (from s
Requirement already satisfied: jinja2 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spacytextblob) (3
Requirement already satisfied: setuptools in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spacytextblob
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spacytex
Requirement already satisfied: langcodes<4.0.0,>=3.2.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->
Requirement already satisfied: numpy>=1.19.0 in /usr/local/lib/python3.10/dist-packages (from spacy>=3.0.0->spacytextb
Requirement already satisfied: nltk>=3.8 in /usr/local/lib/python3.10/dist-packages (from textblob>=0.18.0.post0->spac
Requirement already satisfied: language-data>=1.2 in /usr/local/lib/python3.10/dist-packages (from langcodes<4.0.0,>=3
Requirement already satisfied: click in /usr/local/lib/python3.10/dist-packages (from nltk>=3.8->textblob>=0.18.0.post
Requirement already satisfied: joblib in /usr/local/lib/python3.10/dist-packages (from nltk>=3.8->textblob>=0.18.0.pos
Requirement already satisfied: regex>=2021.8.3 in /usr/local/lib/python3.10/dist-packages (from nltk>=3.8->textblob>=0
Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.10/dist-packages (from pydantic!=1.8,!
Requirement already satisfied: pydantic-core==2.23.4 in /usr/local/lib/python3.10/dist-packages (from pydantic!=1.8,!=
Requirement already satisfied: typing-extensions>=4.6.1 in /usr/local/lib/python3.10/dist-packages (from pydantic!=1.8
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.13.0->
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.
Requirement already satisfied: blis<1.1.0,>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from thinc<8.4.0,>=8.3.0
Requirement already satisfied: confection<1.0.0,>=0.0.1 in /usr/local/lib/python3.10/dist-packages (from thinc<8.4.0,>
Requirement already satisfied: shellingham>=1.3.0 in /usr/local/lib/python3.10/dist-packages (from typer<1.0.0,>=0.3.0
Requirement already satisfied: rich>=10.11.0 in /usr/local/lib/python3.10/dist-packages (from typer<1.0.0,>=0.3.0->spa
Requirement already satisfied: cloudpathlib<1.0.0,>=0.7.0 in /usr/local/lib/python3.10/dist-packages (from weasel<0.5.
Requirement already satisfied: smart-open<8.0.0,>=5.2.1 in /usr/local/lib/python3.10/dist-packages (from weasel<0.5.0,
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/dist-packages (from jinja2->spacy>=3.0.0->
Requirement already satisfied: marisa-trie>=0.7.7 in /usr/local/lib/python3.10/dist-packages (from language-data>=1.2-
Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python3.10/dist-packages (from rich>=10.11.0->t
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in /usr/local/lib/python3.10/dist-packages (from rich>=10.11.0-
Requirement already satisfied: wrapt in /usr/local/lib/python3.10/dist-packages (from smart-open<8.0.0,>=5.2.1->weasel
Requirement already satisfied: mdurl~=0.1 in /usr/local/lib/python3.10/dist-packages (from markdown-it-py>=2.2.0->rich
Downloading spacytextblob-5.0.0-py3-none-any.whl (4.2 kB)
Downloading textblob-0.18.0.post0-py3-none-any.whl (626 kB)
                                  ━━━━━━━━━━━━━━━━━━━━━ 626.3/626.3 kB 18.4 MB/s eta 0:00:00
WARNING: Ignoring invalid distribution -umpy (/usr/local/lib/python3.10/dist-packages)
Installing collected packages: textblob, spacytextblob
  Attempting uninstall: textblob
    Found existing installation: textblob 0.17.1
    Uninstalling textblob-0.17.1:
      Successfully uninstalled textblob-0.17.1
WARNING: Ignoring invalid distribution -umpy (/usr/local/lib/python3.10/dist-packages)
Successfully installed spacytextblob-5.0.0 textblob-0.18.0.post0
<module 'pkg_resources' from '/usr/local/lib/python3.10/dist-packages/pkg_resources/__init__.py'>
```

Passo 2: Importando as bibliotecas para análise de sentimento

```
import spacy

from spacytextblob.spacytextblob import SpacyTextBlob
```

Passo 3: Definindo o modelo e a pipeline a serem utilizadas na análise

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

nlp.add_pipe('spacytextblob')
```

```
<spacytextblob.spacytextblob.SpacyTextBlob at 0x7d4a434d5db0>
```

Passo 4: Definindo o texto inicial a ser analisado para verificação/validação da biblioteca

```
user_input = 'This is a wonderful campsite. I loved the serenity and the birds chirping in the morning.'

doc = nlp(user_input)
```

Passo 5: Exibindo o resultado da primeira análise um range entre -1 [avaliação negativa] e 1 [avaliação positiva]

```
input_polarity = doc._.blob.polarity

sentiment = {

    'score': input_polarity

}

print(sentiment)
```

```
{'score': -0.030555555555555575}
```

Passo 6: Definindo a lista de tweets a serem analisadas

```
tweets=["Bayer Leverkusen goalkeeper Bernd Leno will not be going to Napoli. His agent Uli Ferber to Bild: I can confirm tha

"Gary Speed v Blackburn at St James in 2001/02 anyone? #NUFC #BEL #JAP#WorldCup",

"@ChelseaFC Don't make him regret it and start him over Hoofiz",

"@LiverpoolFF @AnfieldEdition He's a liar, made up. I've unfollowed him as loads of others have. Pure blagger. #LFC",

"@theesk @Everton Didn't realise Kenwright is due to leave at the end of the month. In all seriousness could you see him bei

"@hasanshahbaz19 @LFC My knowledge has decreased somewhat in the past few seasons",

"Report: Linked with #Everton and #Wolves, Italians set to sign £4.5m-rated winger",

"Am seeing tweets that there's been a fall out @Everton between the money men... I'm presuming it's just a quiet news day or

"@LFC @officialAL20 @IntChampionsCup @ManUtd Expect loads of excuses after tonight's game",

"@MartinDiamond17 @azryahmad @Baren_D @Mathewlewis1997 @iamheinthu @DiMarzio @Alissonbecker @LFC @SkySportsNews @SkySport @C

"What a weekend of football results! @ManUtd @Glentoran @RangersFC & Hearts ????",

"@ChelseaFC For the first time in a long while, my heart was relaxed while watching Chelsea. Really enjoyed it today. Come c

"@ChelseaFC @CesarAzpi What a fantastic signing worth every single penny ??",

"Pogba scores, Pogba assists. But tomorrow papers won't be telling you this, instead they will tell you how he'll end up at

"@WestHamUtd we need to keep @CH14_ and get @HirvingLozano70 to compliment",

"@kevdev9 @Everton Shouldn't be happening! Needs to stay away with his venomous attitude until he is sold!",

"@brfootball @aguerosergiokun @ManCity What a genius. Pep taking winning mentality with him, conquering league after league.

"@HMZ0709  Can we get a RT for our #lfc Mo Salah Liverpool Enamel Pin Badge"]
```

Passo 7: Analisando os tweets

```
for item in tweets:

  doc = nlp(item)

  input_polarity = doc._.blob.polarity
```

```python
    sentiment = {

        'tweet': item,

        'score': input_polarity

    }

    print(sentiment)
```

{'tweet': 'Bayer Leverkusen goalkeeper Bernd Leno will not be going to Napoli. His agent Uli Ferber to Bild: I can confi
{'tweet': 'Gary Speed v Blackburn at St James in 2001/02 anyone? #NUFC #BEL #JAP#WorldCup', 'score': 0.0}
{'tweet': "@ChelseaFC Don't make him regret it and start him over Hoofiz", 'score': 0.0}
{'tweet': "@LiverpoolFF @AnfieldEdition He's a liar, made up. I've unfollowed him as loads of others have. Pure blagger.
{'tweet': "@theesk @Everton Didn't realise Kenwright is due to leave at the end of the month. In all seriousness could y
{'tweet': '@hasanshahbaz19 @LFC My knowledge has decreased somewhat in the past few seasons', 'score': -0.28333333333333
{'tweet': 'Report: Linked with #Everton and #Wolves, Italians set to sign £4.5m-rated winger', 'score': 0.0}
{'tweet': 'Am seeing tweets that there's been a fall out @Everton between the money men... I'm presuming it's just a qui
{'tweet': '@LFC @officialAL20 @IntChampionsCup @ManUtd Expect loads of excuses after tonight's game', 'score': -0.4}
{'tweet': '@MartinDiamond17 @azryahmad @Baren_D @Mathewlewis1997 @iamheinthu @DiMarzio @Alissonbecker @LFC @SkySportsNew
{'tweet': 'What a weekend of football results! @ManUtd @Glentoran @RangersFC & Hearts ????', 'score': 0.0}
{'tweet': '@ChelseaFC For the first time in a long while, my heart was relaxed while watching Chelsea. Really enjoyed it
{'tweet': '@ChelseaFC @CesarAzpi What a fantastic signing worth every single penny ??', 'score': 0.20952380952380953}
{'tweet': "Pogba scores, Pogba assists. But tomorrow papers won't be telling you this, instead they will tell you how he
{'tweet': '@WestHamUtd we need to keep @CH14_ and get @HirvingLozano70 to compliment', 'score': 0.0}
{'tweet': '@kevdev9 @Everton Shouldn't be happening! Needs to stay away with his venomous attitude until he is sold!', '
{'tweet': '@brfootball @aguerosergiokun @ManCity What a genius. Pep taking winning mentality with him, conquering league
{'tweet': '@HMZ0709 Can we get a RT for our #lfc Mo Salah Liverpool Enamel Pin Badge', 'score': 0.0}

Código completo no repositorio:

https://github.com/jeffersonkako/N4M5

Ferramentas:
VSCODE
Google Colab