



Estácio

Missão Prática | Nível 4 | Mundo 5

Dando inteligência ao software.

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Curso EAD: Desenvolvimento Full Stack.

Campus Virtual EAD: Polo Prado – Belo Horizonte – MG.

Ano: 2024.

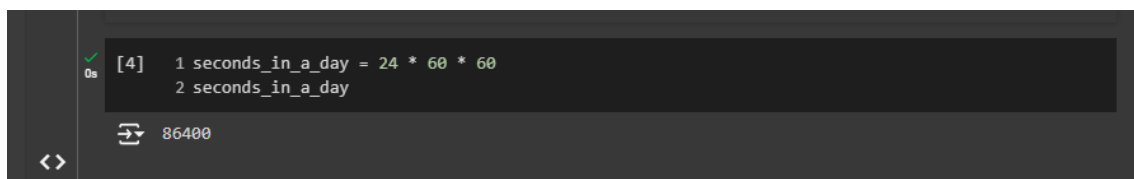
Microatividade 1

Configurar o ambiente Google Colab

- Procedimentos:

1. Acesse a página do Google Colab: <https://colab.google>
2. No menu superior direito, selecione a opção “Open Colab”;
3. Na nova aba aberta no navegador, faça login (botão no canto superior direito) com uma conta Google;
4. Após o login, feche a janela modal exibida, para visualizar o notebook previamente existente “Olá, este é o Colaboratory”;
5. Navegue pela página e repare que existem blocos de texto seguidos de blocos de código. Esses últimos são caracterizados por possuírem uma cor de fundo diferente, em cinza, e por terem uma setinha que pode ser clicada, o que fará com o código contido no bloco seja executado e seu resultado apresentado a seguir.

Veja o print abaixo (onde a setinha que permite a execução foi destacada com um quadrado vermelho):



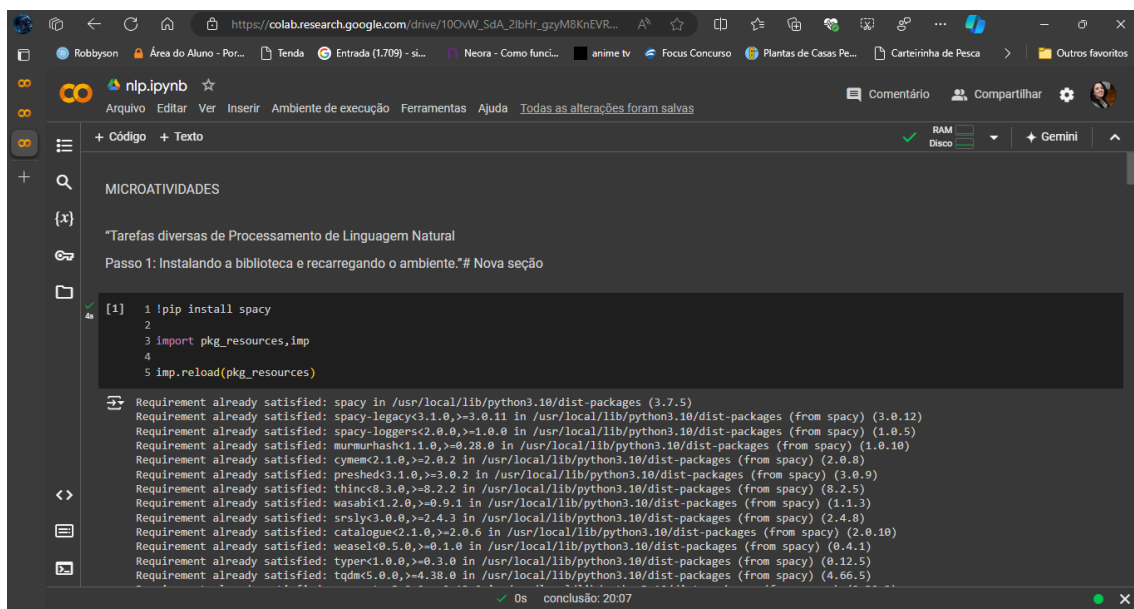
The screenshot shows a code cell in Google Colab. On the left, there is a green checkmark icon and a red square icon. The code cell contains the following text: `[4] 1 seconds_in_a_day = 24 * 60 * 60` and `2 seconds_in_a_day`. Below the code, the result `86400` is displayed. The code cell has a gray background.

Microatividade 2

Descrever tarefas diversas relacionadas ao Processamento de Linguagem Natural

- Procedimentos:

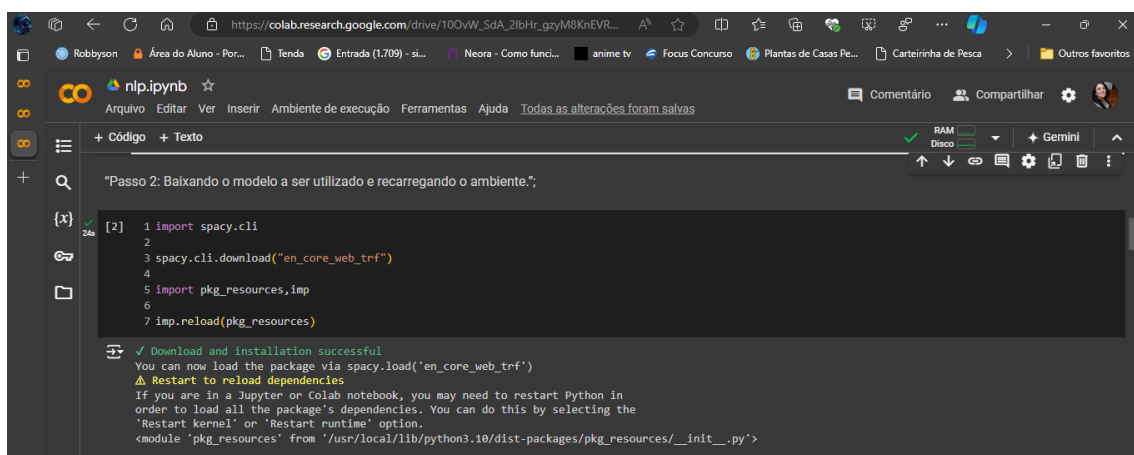
1. Estando logado no Google Colab, clique no menu “Arquivo” e selecione a opção “Novo notebook”;
2. Na nova aba aberta no navegador, dê um nome ao seu notebook, clicando e alterando o nome automaticamente gerado
– Untitled0.ipynb – para nlp.ipynb;
3. Na janela de código, clique na opção “+Texto” (destacada no print abaixo) para inserir um bloco de texto;



```
1 !pip install spacy
2
3 import pkg_resources, imp
4
5 imp.reload(pkg_resources)
```

Requirement already satisfied: spacy in /usr/local/lib/python3.10/dist-packages (3.7.5)
Requirement already satisfied: spacy-legacy<3.1.0,>=3.0.11 in /usr/local/lib/python3.10/dist-packages (from spacy) (3.0.12)
Requirement already satisfied: spacy-loggers<2.0.0,>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from spacy) (1.0.5)
Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in /usr/local/lib/python3.10/dist-packages (from spacy) (1.0.10)
Requirement already satisfied: cytoolz<2.1.0,>=2.0.2 in /usr/local/lib/python3.10/dist-packages (from spacy) (2.0.8)
Requirement already satisfied: preshed<3.1.0,>=3.0.2 in /usr/local/lib/python3.10/dist-packages (from spacy) (3.0.9)
Requirement already satisfied: thinc<8.3.0,>=8.2.2 in /usr/local/lib/python3.10/dist-packages (from spacy) (8.2.5)
Requirement already satisfied: wasabi<1.2.0,>=0.9.1 in /usr/local/lib/python3.10/dist-packages (from spacy) (1.1.3)
Requirement already satisfied: srsly<3.0.0,>=2.4.3 in /usr/local/lib/python3.10/dist-packages (from spacy) (2.4.8)
Requirement already satisfied: catalogue<2.1.0,>=2.0.6 in /usr/local/lib/python3.10/dist-packages (from spacy) (2.0.10)
Requirement already satisfied: weasel<0.5.0,>=0.1.0 in /usr/local/lib/python3.10/dist-packages (from spacy) (0.4.1)
Requirement already satisfied: typer<1.0.0,>=0.3.0 in /usr/local/lib/python3.10/dist-packages (from spacy) (0.12.5)
Requirement already satisfied: tqdm<5.0.0,>=4.38.0 in /usr/local/lib/python3.10/dist-packages (from spacy) (4.66.5)

0s conclusão: 20:07



```
1 import spacy.cli
2
3 spacy.cli.download("en_core_web_trf")
4
5 import pkg_resources, imp
6
7 imp.reload(pkg_resources)
```

Download and installation successful
You can now load the package via spacy.load('en_core_web_trf')
⚠ Restart to reload dependencies
If you are in a Jupyter or Colab notebook, you may need to restart Python in order to load all the package's dependencies. You can do this by selecting the "Restart kernel" or "Restart runtime" option.
<module 'pkg_resources' from '/usr/local/lib/python3.10/dist-packages/pkg_resources/__init__.py'>

Colab notebook interface showing the execution of Python code for NLP tasks. The code imports the spaCy library and loads the 'en_core_web_sm' model. The output shows the text being processed for NLP tasks.

```
1 import spacy
2 nlp = spacy.load("en_core_web_sm")
3
```

Passo 3: Importando a biblioteca e definindo o modelo a ser utilizado;

```
[10] 1 text = ""National Park Week starts on
      2 Saturday, and it also starts off with a
      3 bang-for-your-buck.
      4
      5 That's because every US National Park
      6 Service site will have free entry on
      7 Saturday, NPS manages almost 430 sites,
      8 and the majority of them already offer
      9 free entry every day.
      10
      11 But this is your chance to get into the
      12 coveted, big-name national parks and
      13 other sites without paying a fee.
      14
      15 That includes legendary parks such as
      16 Yosemite, which normally has an entry
      17 fee of $35 per person, or $35 per adult."
```

conclusão: 20:07

Colab notebook interface showing the execution of Python code for NLP tasks. The code iterates over the tokens in the document and prints each token. The output shows the tokens being processed.

```
1 for token in doc:
2
3     print(token)
4
5
```

Passo 5: Realizando a tokenização do texto;

```
your
chance
to
get
into
the

coveted
,
big
-
name
national
parks
and

other
```

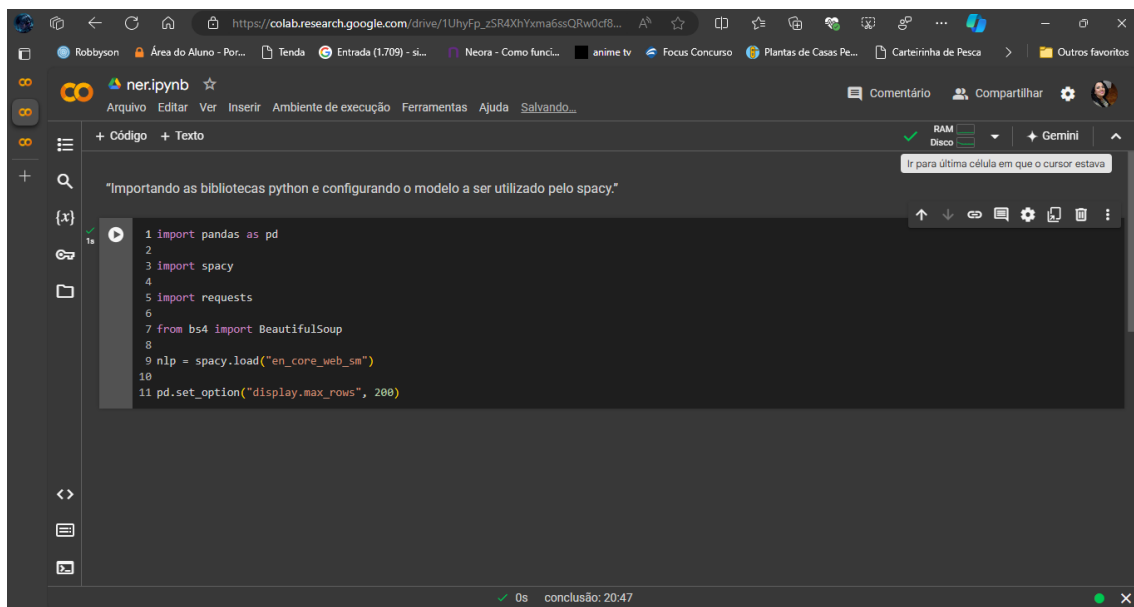
conclusão: 20:07

Microatividade 3

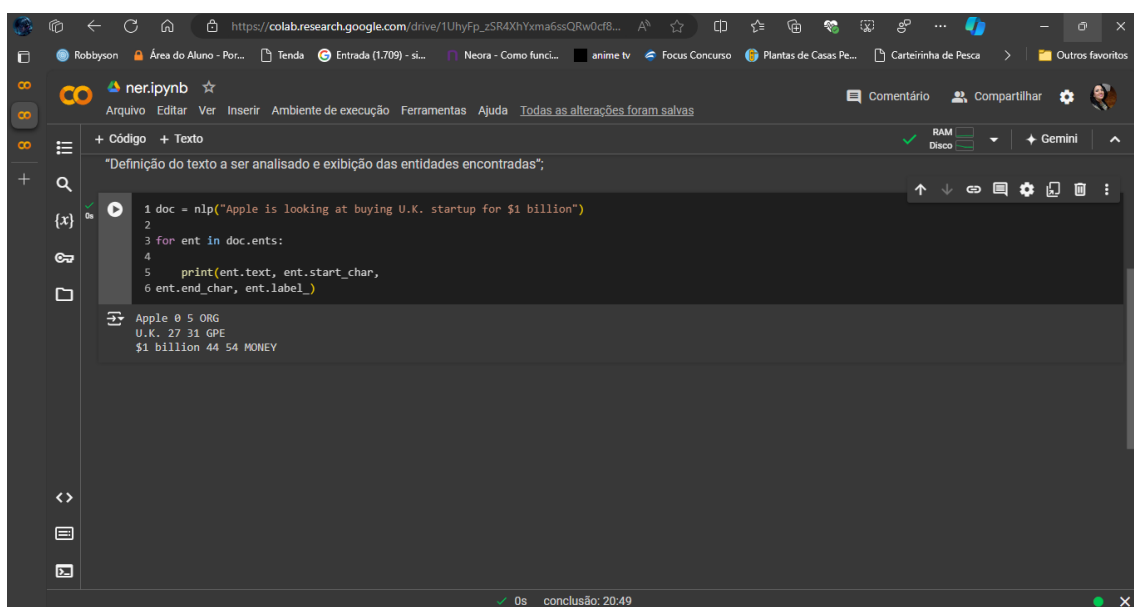
Descrever o processo de identificação de entidades a partir de textos.

- Procedimentos:

1. Estando logado no Google Colab, clique no menu “Arquivo” e selecione a opção “Novo notebook”;
2. Na nova aba aberta no navegador, dê um nome ao seu notebook, clicando e alterando o nome automaticamente gerado – Untitled0.ipynb – para ner.ipynb;
3. Na janela de código, clique na opção “+Texto” (destacada no print abaixo) para inserir um bloco de texto;

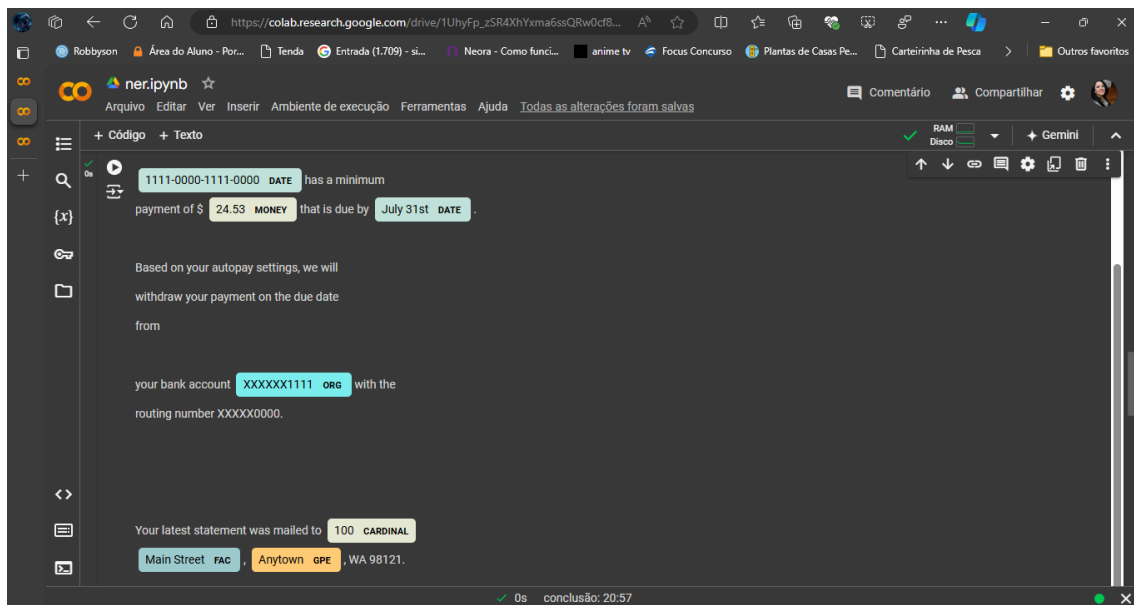
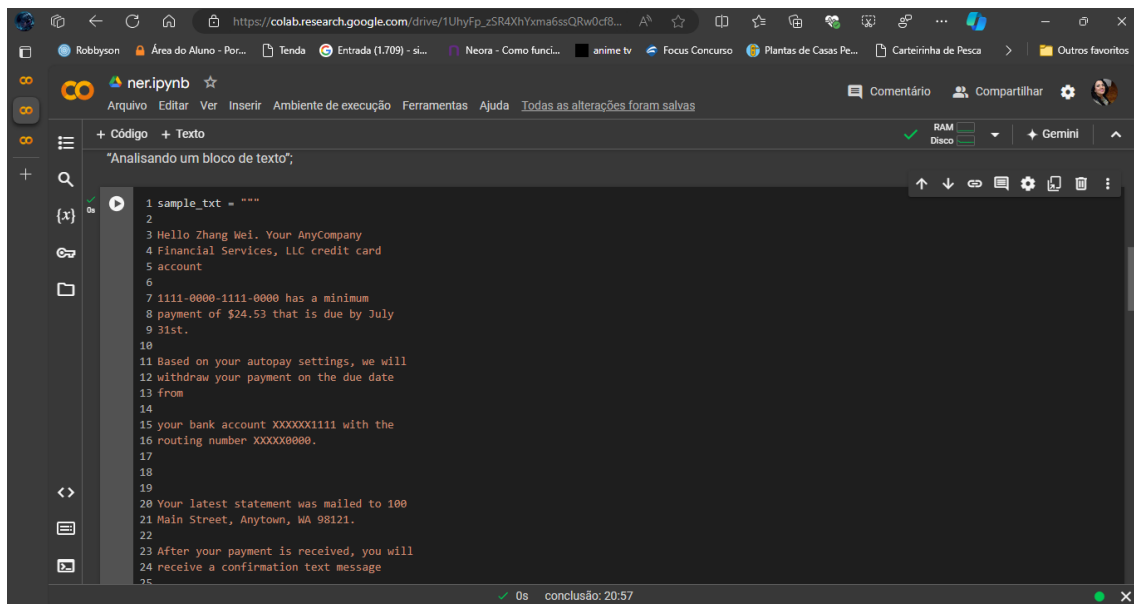
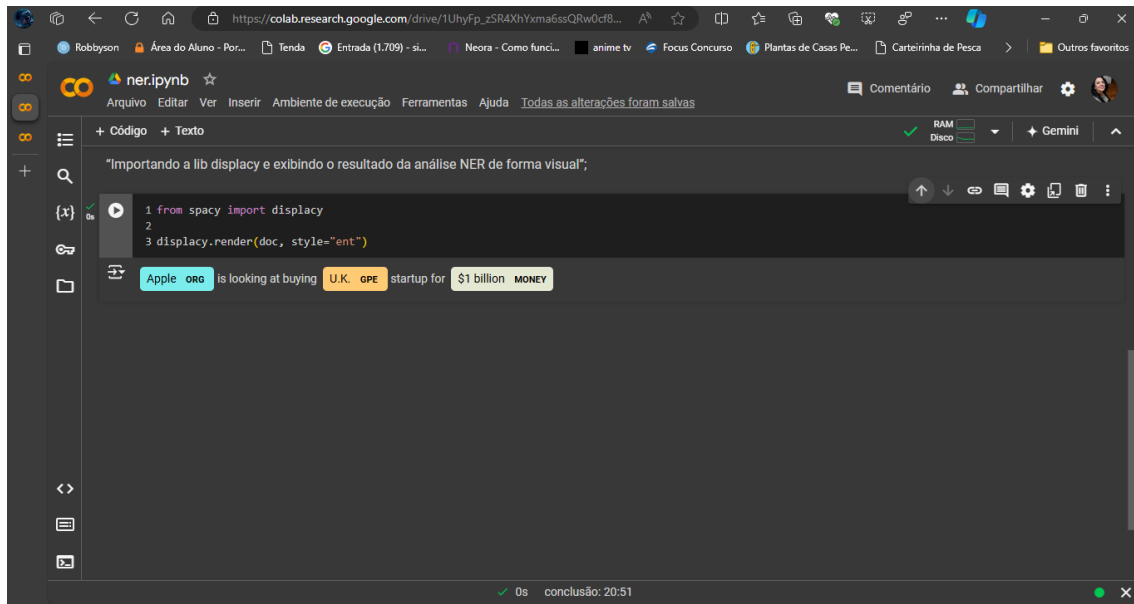


```
1 import pandas as pd
2
3 import spacy
4
5 import requests
6
7 from bs4 import BeautifulSoup
8
9 nlp = spacy.load("en_core_web_sm")
10
11 pd.set_option("display.max_rows", 200)
```



```
1 doc = nlp("Apple is looking at buying U.K. startup for $1 billion")
2
3 for ent in doc.ents:
4
5     print(ent.text, ent.start_char,
6           ent.end_char, ent.label_)
```

Apple 0 5 ORG
U.K. 27 31 GPE
\$1 billion 44 54 MONEY



Colab interface showing a notebook titled "ner.ipynb". The code cell contains a snippet for visualizing the result of a tabular analysis:

```
[10] 1 entities = [(ent.text, ent.label,
2 ent.lemma_) for ent in newdoc.ents]
3
4 df = pd.DataFrame(entities,
5 columns=['text', 'type', 'lemma'])
6
7 df.head()
```

The output displays a table with 5 rows and 3 columns: text, type, and lemma.

	text	type	lemma
0	Zhang Wei	PERSON	Zhang Wei
1	Financial Services	ORG	Financial Services
2	LLC	ORG	LLC
3	1111-0000-1111-0000	DATE	1111-0000-1111-0000
4	24.53	MONEY	24.53

Proximas etapas: [Gerar código com df](#) [Ver gráficos recomendados](#) [New interactive sheet](#)

0s conclusão: 20:57

Colab interface showing a notebook titled "ner.ipynb". The code cell contains a snippet for downloading and installing the pt-core-news-sm==3.7.0 dataset:

```
1 !python -m spacy download pt
2
3 import pkg_resources,imp
4
5 imp.reload(pkg_resources)
```

The output displays the installation progress and requirements for the pt-core-news-sm==3.7.0 dataset. A warning message indicates that shortcuts like 'pt' are deprecated and should be replaced with the full pipeline package name 'pt_core_news_sm'.

As of spaCy v3.0, shortcuts like 'pt' are deprecated. Please use the full pipeline package name 'pt_core_news_sm' instead.

Collecting pt-core-news-sm==3.7.0
Downloading https://github.com/explosion/spacy-models/releases/download/pt_core_news_sm-3.7.0/pt_core_news_sm-3.7.0-py3-none-any.whl (13.0 MB)
13.0/13.0 MB 51.8 MB/s eta 0:00:00

Requirement already satisfied: spacy<3.8.0,>=3.7.0 in /usr/local/lib/python3.10/dist-packages (from pt-core-news-sm==3.7.0) (3.7.5)
Requirement already satisfied: spacy-legacy<3.1.0,>=3.0.11 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (3.0.11)
Requirement already satisfied: spacy-loggers<2.0.0,>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (1.0.0)
Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (1.0.10)
Requirement already satisfied: cytoolz<2.1.0,>=2.0.2 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (2.0.8)
Requirement already satisfied: preshed<3.1.0,>=3.0.2 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (3.0.9)
Requirement already satisfied: thinc<8.3.0,>=8.2.2 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (8.2.5)
Requirement already satisfied: wasabi<1.2.0,>=0.9.1 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (1.1.3)
Requirement already satisfied: srsly<3.0.0,>=2.4.3 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (2.4.8)
Requirement already satisfied: catalogue<2.1.0,>=2.0.6 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (2.0.10)
Requirement already satisfied: weasel<0.5.0,>=0.1.0 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (0.4.1)
Requirement already satisfied: typer<1.0.0,>=0.3.0 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (0.12.5)
Requirement already satisfied: tqdm<6.0.0,>=4.38.0 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (4.66.5)
Requirement already satisfied: requests<3.0.0,>=2.13.0 in /usr/local/lib/python3.10/dist-packages (from spacy<3.8.0,>=3.7.0->pt-core-news-sm==3.7.0) (2.32.0)
Requirement already satisfied: idna<4.0,>=3.0 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.13.0->requests==2.32.0) (3.10.1)
Requirement already satisfied: certifi<2024.0.0,>=2023.7.26 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.13.0->requests==2.32.0) (2024.6.20)
Requirement already satisfied: charset-normalizer<3.4.0,>=3.2.0 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.13.0->requests==2.32.0) (3.3.2)

12s conclusão: 21:01

https://colab.research.google.com/drive/1UhyFp_zSR4XhYxma6ssQRw0cf8...

Robbysen Área do Aluno - Por... Tenda Entrada (1.709) - si... Neora - Como funci... anime tv Focus Concurso Plantas de Casas Pe... Carteirinha de Pesca > Outros favoritos

ner.ipynb

Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda Todas as alterações foram salvas

+ Código + Texto

Adicione um novo bloco de código com as seguintes linhas:

```
1 import spacy
2
3 import requests
4
5 from bs4 import BeautifulSoup
6
7 from spacy import displacy
8
9
10
11 nlp = spacy.load("en_core_web_sm")
12
13
14
15 txt_br=""
16
17 ONU aprova missão internacional para
18 restabelecer segurança no Haiti
19
20 O Conselho de Segurança das Nações
21 Unidas (ONU) aprovou na noite de
22 segunda-feira (2) a criação e o envio de
23 uma força internacional para a
24 manutenção de paz no Haiti, devido aos
25 conflitos entre as gangues que dominam
```

1s conclusão: 21:03

https://colab.research.google.com/drive/1UhyFp_zSR4XhYxma6ssQRw0cf8...

Robbysen Área do Aluno - Por... Tenda Entrada (1.709) - si... Neora - Como funci... anime tv Focus Concurso Plantas de Casas Pe... Carteirinha de Pesca > Outros favoritos

ner.ipynb

Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda Todas as alterações foram salvas

+ Código + Texto

ONU aprova missão internacional para
restabelecer segurança no Haiti

O Conselho de Segurança PERSON das Nações
Unidas (ONU) aprovou na PERSON noite de
segunda-feira (2 CARDINAL) a criação e o envio de
uma força internacional para a
manutenção de paz no Haiti GPE , devido aos
conflitos entre as gangues que dominam
o país.

O Haiti GPE é o país mais pobre do hemisfério
ocidental. A história GPE do país é marcada
por golpes, deposições e massacres que
geraram grande instabilidade política,

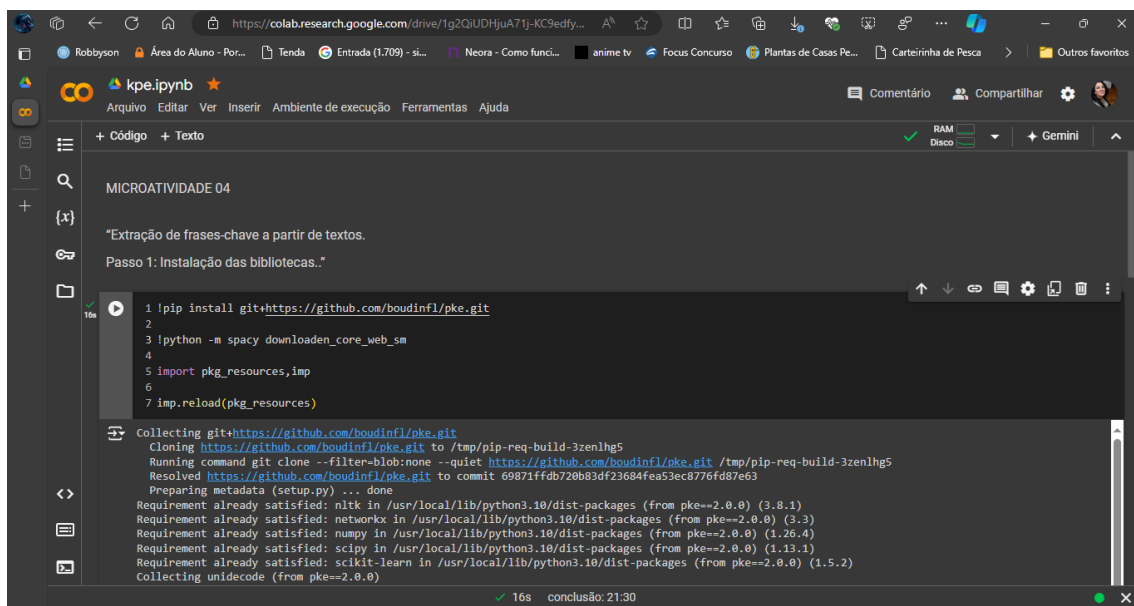
1s conclusão: 21:03

Microatividade 4

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

- Procedimentos:

1. Estando logado no Google Colab, clique no menu “Arquivo” e selecione a opção “Novo notebook”;
2. Na nova aba aberta no navegador, dê um nome ao seu notebook, clicando e alterando o nome automaticamente gerado
– Untitled0.ipynb – para kpe.ipynb;
3. Na janela de código, clique na opção “+Texto” (destacada no print abaixo) para inserir um bloco de texto;



```
1 | pip install git+https://github.com/boudinfl/pke.git
2
3 | python -m spacy downloaden_core_web_sm
4
5 import pkg_resources, imp
6
7 imp.reload(pkg_resources)
```

Collecting git+https://github.com/boudinfl/pke.git
Cloning https://github.com/boudinfl/pke.git to /tmp/pip-req-build-3zenlhg5
Running command git clone --filter=blob:none --quiet https://github.com/boudinfl/pke.git /tmp/pip-req-build-3zenlhg5
Resolved https://github.com/boudinfl/pke.git to commit 69871ffdb720b83df23684fea53ec8776fd87e63
Preparing metadata (setup.py) ... done
Requirement already satisfied: nltk in /usr/local/lib/python3.10/dist-packages (from pke==2.0.0) (3.8.1)
Requirement already satisfied: networkx in /usr/local/lib/python3.10/dist-packages (from pke==2.0.0) (3.3)
Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (from pke==2.0.0) (1.26.4)
Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (from pke==2.0.0) (1.13.1)
Requirement already satisfied: scikit-learn in /usr/local/lib/python3.10/dist-packages (from pke==2.0.0) (1.5.2)
Collecting unidecode (from pke==2.0.0)

https://colab.research.google.com/drive/1g2QIUdHjuA71j-KC9edfy...

Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda

Comentário Compartilhar

+ Código + Texto

"Passo 2: Importando a lib pke e inicializando o modelo de extração";

```
1 import pke
2
3 # initialize a TopicRank keyphrase extraction model
4
5 extractor = pke.unsupervised.TopicRank()
```

0s conclusão: 21:32

https://colab.research.google.com/drive/1g2QIUdHjuA71j-KC9edfy...

Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda Todas as alterações foram salvas

Comentário Compartilhar

+ Código + Texto

"Passo 3: Definindo e carregando o texto a ser analisado."

```
1 sample = """Tesla has been ordered to
2 recall nearly 4,000 of its Cybertrucks due
3 to an accelerator pedal that
4
5 can stick in place when pressed down.
6
7 The cause, according to the regulator:
8 soap.
9
10 "An unapproved change introduced
11 lubricant (soap) to aid in the component
12 assembly of the pad onto the accelerator
13 pedal.
14
15 Residual lubricant reduced the retention
16 of the pad to the pedal," the NHTSA
17 wrote in the recall document.
18
19 Tesla has yet to detail how many of the
20 futuristic looking Cybertrucks it has
21 produced. But it has said that it would
22
23 be slow ramping up production of the
24 vehicle, which had its first deliveries in
```

0s conclusão: 21:35

https://colab.research.google.com/drive/1g2QIUdHjuA71j-KC9edfy...

Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda Todas as alterações foram salvas

Comentário Compartilhar

+ Código + Texto

"Passo 4: Imprimindo as informações das sentenças";

```
1 for i, sentence in enumerate(extractor.sentences):
2
3
4
5     # print out the sentence id, its tokens, its stems and the corresponding Part-of-Speech tags
6
7     print("sentence {}: ".format(i))
8
9     print(" - words: {} ...".format(' '.join(sentence.words[:5])))
10
11     print(" - stems: {} ...".format(' '.join(sentence.stems[:5])))
12
13     print(" - PoS: {} ...".format(' '.join(sentence.pos[:5])))
```

sentence 0:
- words: Teslahasbeenorderedto ...
- stems: teslahasbeenorderto ...
- PoS: PROPNAUXALDXVERBPART ...
sentence 1:
- words: Thecause,according ...
- stems: thecaus,accord ...
- PoS: SPACEDETMOUINPUNCTVERB ...
sentence 2:
- words: "Anunapprovedchange ...
- stems: "anunannprovrchange

0s conclusão: 21:40

```
https://colab.research.google.com/drive/1g2QiUDHjuA71j-KC9edfy...
Robbyson Área do Aluno - Por... Tenda Entrada (1.709) - si... Neora - Como funci... anime tv Focus Concurso Plantas de Casas Pe... Carteirinha de Pesca > Outros favoritos

kpe.ipynb
Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda Salvando...

+ Código + Texto
"Passo 5: Identificando as frases-chave candidatas";

1 extractor.candidate_selection()
2
3 for i, candidate in enumerate(extractor.candidates):
4
5
6
7 # print out the candidate id, its stemmed form
8
9 print("candidate {}: {} (stemmed form)".format(i, candidate))
10
11
12 # print out the surface forms of the candidate
13
14 print(" - surface forms:", [ " ".join(u) for u in
15 extractor.candidates[candidate].surface_forms])
16
17
18 # print out the corresponding offsets
19
20 print(" - offsets:", extractor.candidates[candidate].offsets)
21
22
23
24
0s conclusão: 21:42
```

```
https://colab.research.google.com/drive/1g2QiUDHjuA71j-KC9edfy...
Robbyson Área do Aluno - Por... Tenda Entrada (1.709) - si... Neora - Como funci... anime tv Focus Concurso Plantas de Casas Pe... Carteirinha de Pesca > Outros favoritos

kpe.ipynb
Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda Todas as alterações foram salvas

+ Código + Texto
candidate 0: tesla (stemmed form)
- surface forms: ['Tesla', 'Tesla']
- offsets: [0, 84]
- sentence_ids: [0, 4]
- pos_patterns: [['PROPN'], ['PROPN']]
candidate 1: cybertruck (stemmed form)
- surface forms: ['Cybertrucks', 'Cybertrucks']
- offsets: [10, 95]
- sentence_ids: [0, 4]
- pos_patterns: [['PROPN'], ['NOUN']]
candidate 2: accelerator pedal (stemmed form)
- surface forms: ['accelerator pedal', 'accelerator pedal']
- offsets: [14, 58]
- sentence_ids: [0, 2]
- pos_patterns: [['NOUN', 'NOUN'], ['NOUN', 'NOUN']]
candidate 3: place (stemmed form)
- surface forms: ['place']
- offsets: [21]
- sentence_ids: [0]
- pos_patterns: [['NOUN']]
candidate 4: caus (stemmed form)
- surface forms: ['cause']
- offsets: [28]
- sentence_ids: [1]
- pos_patterns: [['NOUN']]
candidate 5: regul (stemmed form)
- surface forms: ['regulator']
- offsets: [33]
- sentence_ids: [1]
- pos_patterns: [['NOUN']]
0s conclusão: 21:42
```

```
https://colab.research.google.com/drive/1g2QiUDHjuA71j-KC9edfy...
Robbyson Área do Aluno - Por... Tenda Entrada (1.709) - si... Neora - Como funci... anime tv Focus Concurso Plantas de Casas Pe... Carteirinha de Pesca > Outros favoritos

kpe.ipynb
Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda

+ Código + Texto
"Passo 6: Ranqueando as palavras-chave candidatas";

1 extractor.candidate_weighting()
2
3 for i, topic in enumerate(extractor.topics):
4
5
6
7 # print out the topic id and the candidates it groups together
8
9 print("topic {}: {}".format(i, ';'.join(topic)))

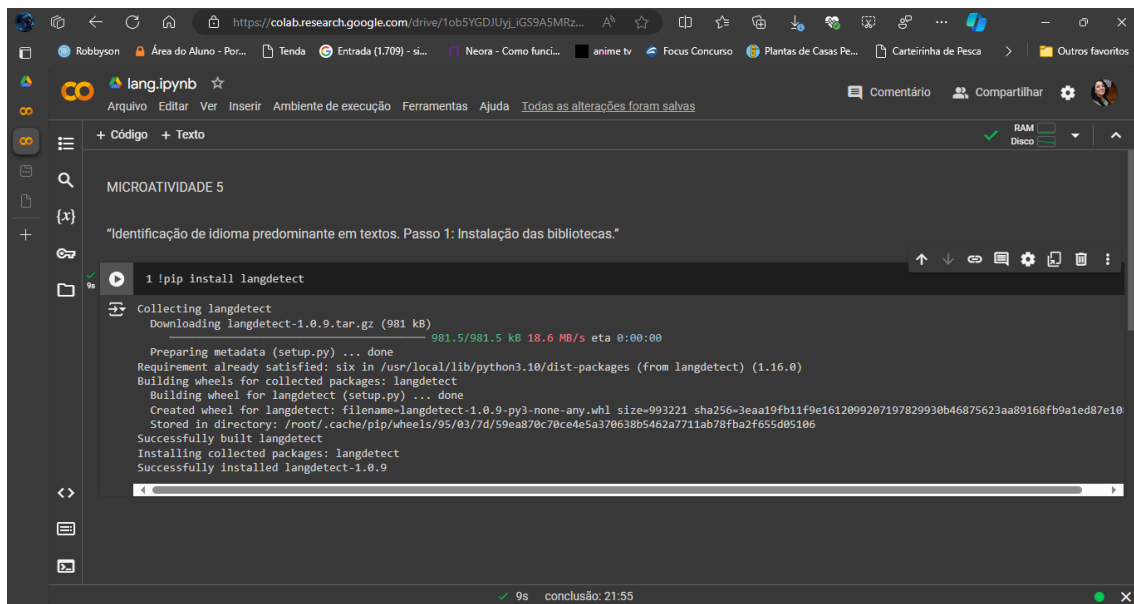
topic 0: cybertruck;cybertruck vehicl
topic 1: vehicl
topic 2: lubric;residu lubric
topic 3: recal;recal document
topic 4: accelr pedal;pedal
topic 5: late noveab;novemb
topic 6: april
topic 7: caus
topic 8: compon assembl
topic 9: futurist
topic 10: model year
topic 11: nhtsa
topic 12: pad
topic 13: place
topic 14: product
topic 15: regul
0s conclusão: 21:46
```

Microatividade 5

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

- Procedimentos

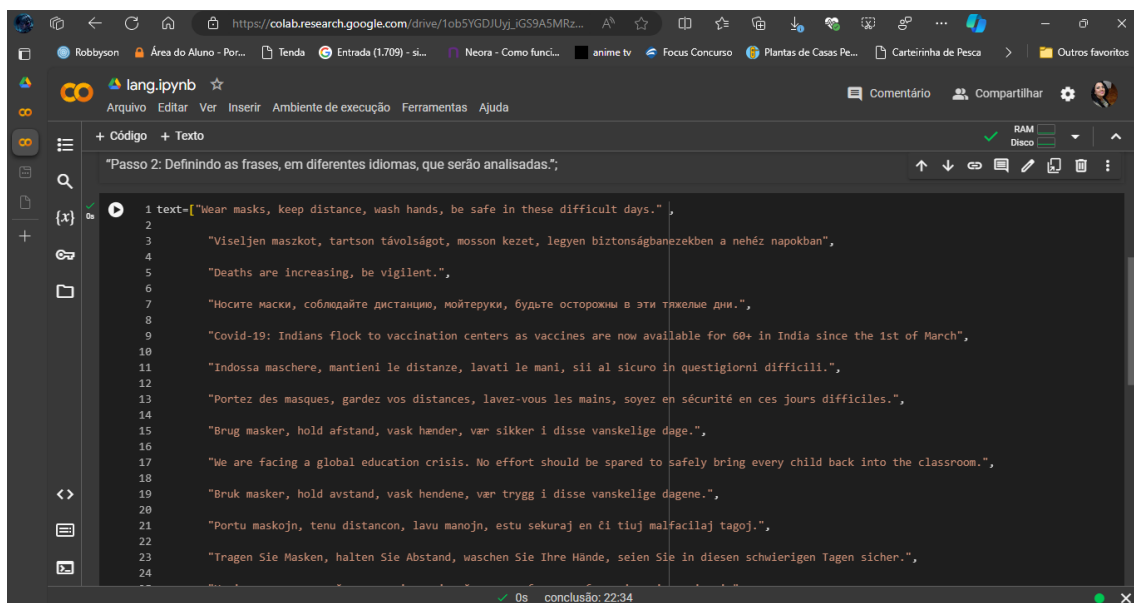
1. Estando logado no Google Colab, clique no menu “Arquivo” e selecione a opção “Novo notebook”;
2. Na nova aba aberta no navegador, dê um nome ao seu notebook, clicando e alterando o nome automaticamente gerado – Untitled0.ipynb – para lang.ipynb;
3. Na janela de código, clique na opção “+Texto” (destacada no print abaixo) para inserir um bloco de texto;



The screenshot shows the Google Colab interface with a notebook named "lang.ipynb". The code cell contains the command `!pip install langdetect`. The output shows the successful installation of langdetect-1.0.9. The status bar at the bottom indicates a successful execution with a conclusion time of 21:55.

```
!pip install langdetect
```

```
Collecting langdetect
  Downloading langdetect-1.0.9.tar.gz (981 kB)
    981.5/981.5 kB 18.6 MB/s eta 0:00:00
  Preparing metadata (setup.py) ... done
Requirement already satisfied: six in /usr/local/lib/python3.10/dist-packages (from langdetect) (1.16.0)
Building wheels for collected packages: langdetect
  Building wheel for langdetect (setup.py) ... done
  Created wheel for langdetect: filename=langdetect-1.0.9-py3-none-any.whl size=993221 sha256=3eaa19fb11f9e1612899287197829930b46875623aa89168fb9a1ed87e10
  Stored in directory: /root/.cache/pip/wheels/95/03/7d/59ea870c78ce4e5a370e38b5462a7711ab78fba2f655d05106
Successfully built langdetect
Installing collected packages: langdetect
Successfully installed langdetect-1.0.9
```



The screenshot shows the Google Colab interface with a notebook named "lang.ipynb". The code cell contains a text block with multilingual sentences. The status bar at the bottom indicates a successful execution with a conclusion time of 22:34.

```
1 text=["Wear masks, keep distance, wash hands, be safe in these difficult days.",
2
3 "Viseljén maszkot, tartson távolságot, mosson kezet, legyen biztonságbanekben a nehéz napokban",
4
5 "Deaths are increasing, be vigilant.",
6
7 "Носите маски, соблюдайте дистанцию, мойте руки, будьте осторожны в эти тяжелые дни.",
8
9 "Covid-19: Indians flock to vaccination centers as vaccines are now available for 60+ in India since the 1st of March",
10
11 "Indossa maschere, mantieni le distanze, lavati le mani, sii al sicuro in questi giorni difficili.",
12
13 "Portez des masques, gardez vos distances, lavez-vous les mains, soyez en sécurité en ces jours difficiles.",
14
15 "Brug masker, hold afstand, vask hænder, vær sikker i disse vanskelige dage.",
16
17 "We are facing a global education crisis. No effort should be spared to safely bring every child back into the classroom.",
18
19 "Bruk masker, hold avstand, vask hendene, vær trygg i disse vanskelige dagene.",
20
21 "Portu maskojn, tenu distancon, lavu manojn, estu sekuraj en ĉi tiuj malfacilaj tagoj.",
22
23 "Tragen Sie Masken, halten Sie Abstand, waschen Sie Ihre Hände, seien Sie in diesen schwierigen Tagen sicher.",
24
```

This screenshot shows a Google Colab notebook interface. The browser address bar displays the URL: `https://colab.research.google.com/drive/1ob5YGDJlUyJjGS9A5MRz...`. The notebook is titled "lang.ipynb" and has a menu bar with options: Arquivo, Editar, Ver, Inserir, Ambiente de execução, Ferramentas, Ajuda, and a link "Todas as alterações foram salvas". The left sidebar contains icons for file management and execution. The main code cell is titled "Passo 3: Recarregando o ambiente python após a instalação da lib." and contains the following Python code:

```
[5] 1 import pkg_resources, imp
    2
    3 imp.reload(pkg_resources)
```

Below the code, the output shows the module path for `pkg_resources`:

```
<module 'pkg_resources' from '/usr/local/lib/python3.10/dist-packages/pkg_resources/__init__.py'>
```

The status bar at the bottom indicates "0s" and "conclusão: 22:34".

This screenshot shows the same Google Colab notebook at a later stage. The code cell is titled "Passo 4: Detectando a linguagem predominante na lista de frases;" and contains the following Python code:

```
1 from langdetect import detect
2
3 for x in text:
4
5     print ('Frase: ', x)
6
7     print ('Idioma: ', detect(x), '\n\n')
```

The output of the code is displayed below, showing the detected language for each phrase in the `text` list:

```
Frase: Wear masks, keep distance, wash hands, be safe in these difficult days.
Idioma: en

Frase: Viseljen maszkot, tartson távolságot, mosson kezét, legyen biztonságban ezekben a nehéz napokban
Idioma: hu

Frase: Deaths are increasing, be vigilant.
Idioma: en

Frase: Носите маски, соблюдайте дистанцию, мойте руки, будьте осторожны в эти тяжелые дни.
Idioma: ru

Frase: Covid-19: Indians flock to vaccination centers as vaccines are now available for 60+ in India since the 1st of March
Idioma: en
```

The status bar at the bottom indicates "0s" and "conclusão: 22:37".

