

Extractive Q&A

Performance Comparison between Learning Methods

Context ~~Learning and Fine-Tuning~~
and Transfer Learning

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Extractive Answering (The answer to a question given a piece of context is a direct substring of the context (fragmento do texto) - Analogy; A highlighter)

Sem considerar o retriever, que seria um "limitador" de performance

Escopo

Abstractive Answering-The answer to a question given a piece of context is a free-form phrase based on the context-Analogy - A pen

Não escopo

Descrição

Exemplo

[Inglês SQuAD 1.0](#)

[Português \(SQuAD v1_pt\)](#)

[Stanford Question Answering Dataset](#) (base de teste)

Dataset

A binary metric that gives $EM = 1$ if the characters in the predicted and ground truth answers match exactly, and $EM = 0$ otherwise. If no answer is expected, the model gets $EM = 0$ if it predicts any text at all.

Exact Match (EM)

Measures the harmonic mean of the precision and recall. (considerar palavras coincidentes e diferentes)

F1

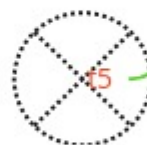
Definição

Métricas

Model (261 mb) is a fine-tune checkpoint of DistilBERT-base-cased, fine-tuned using (a second step of) knowledge distillation on SQuAD v1.1 (F1=87.1 on the dev set) (for comparison, BERT bert-base-cased reaches F1= 88.7).

distilbert-base-cased-distilled-squad

Inglês



Não encontrado em inglês; em português, desempenho inferior

Transfer Learning

Modelo Q&A (1.33 gb)
com refinamento no
squad_v1_pt. (F1:84.4 ;
EM=72.68)

[pierreguillou/bert-large-cased-squad-v1.1-portuguese](#)

Português (baseados no BERTimbau)

Modelo Q&A (433mb) com
refinamento no squad_v1_pt.
(F1:82. 82.5; EM=70.49)

~~[pierreguillou/bert-base-cased-squad-v1.1-portuguese](#)~~

desempenho inferior

[GPT-neo_1.3B](#)

[GPT-J_6B](#)

[GPT-NEOx-20b](#)

Um desses: <https://huggingface.co/EleutherAI>

Context Learning

Modelos

Resultados preliminares

Totais artigos:48 paragrafos:2067 perguntas:10570 respostas:34726
Erros perguntas: repetidas 0
Erro respostas fora do texto: 0 fora da posição 0

Inglês

Erros perguntas: repetidas 2505

português

Avaliação da qualidade dos datasets

[Datasets](#)

Dataset foi traduzido de forma automática e houve processo de revisão

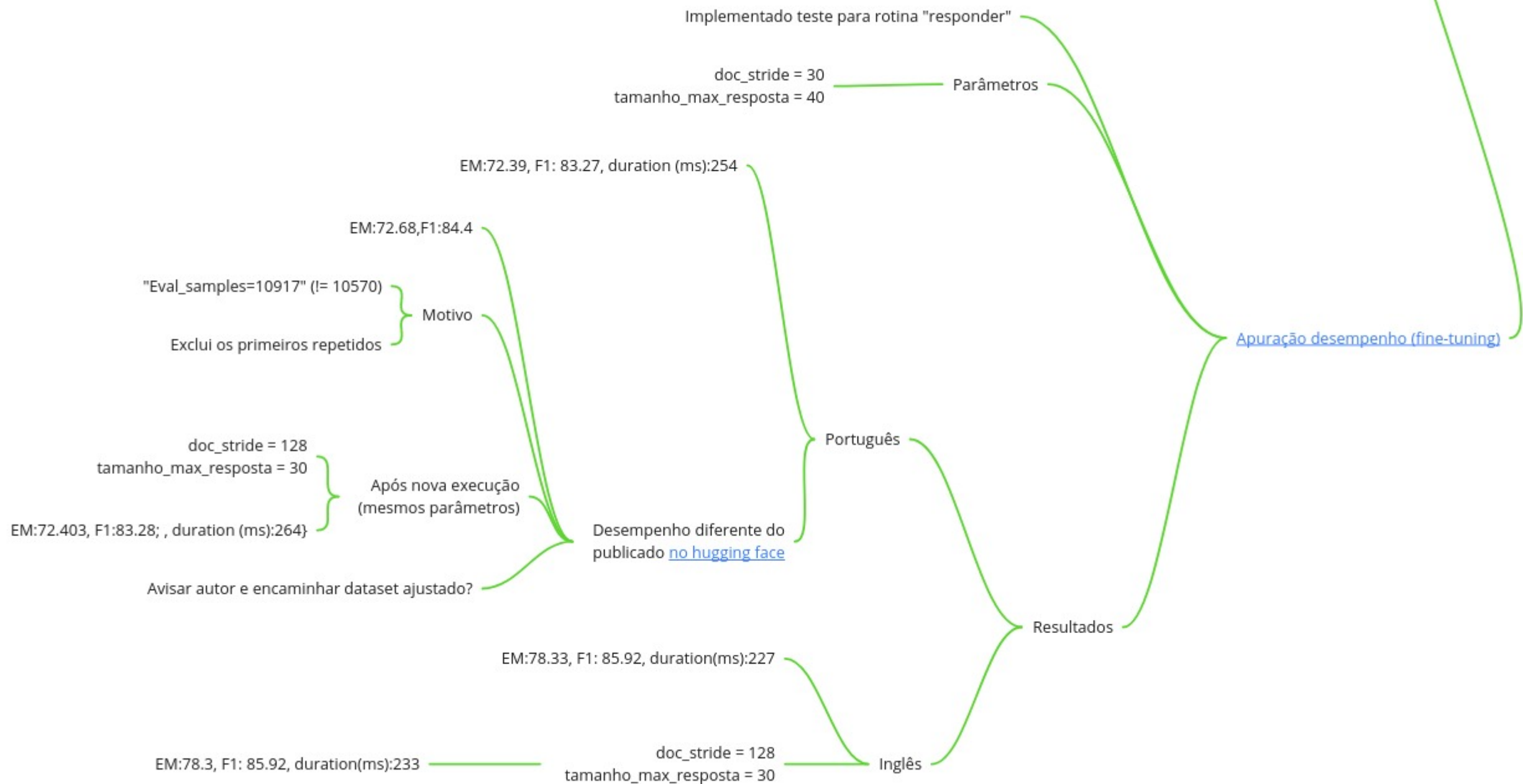
Totais artigos:48 paragrafos:5644 perguntas:13075 respostas:34726
Erros perguntas: repetidas 2505 excluídas 2505

Exclusão de perguntas repetidas dataset português

Resultados

[Métricas implementadas:](#) F1 e EM

Resultados preliminares



Exemplo de repetições na versão traduzida do Squad 1.1 em português

Contexto: Fontes de oxigênio altamente concentradas promovem combustão rápida. Riscos de incêndio e explosão existem quando oxidantes e combustíveis concentrados são trazidos para perto; um evento de ignição, como calor ou faísca, é necessário para acionar a combustão. O oxigênio é o oxidante, não o combustível, mas, no entanto, a fonte da maior parte da energia química liberada na combustão. Os riscos de combustão também se aplicam a compostos de oxigênio com alto potencial oxidativo, como peróxidos, cloratos, nitratos, percloratos e dicromatos, porque eles podem doar oxigênio ao fogo.

1a ocorrência: {'answers': [{'answer_start': 10, 'text': 'oxigênio', 'answer_start_original': 31, 'text_original': 'oxygen'}, {'answer_start': 177, 'text': 'um evento de ignição', 'answer_start_original': 168, 'text_original': 'an ignition event'}, {'answer_start': 177, 'text': 'um evento de ignição, como calor ou faísca', 'answer_start_original': 168, 'text_original': 'an ignition event, such as heat or a spark'}, {'answer_start': 177, 'text': 'um evento de ignição', 'answer_start_original': 168, 'text_original': 'an ignition event'}], 'question': 'O que é necessário para fazer a combustão acontecer?', 'id': '**571a50df4faf5e1900b8a960**', 'question_original': 'What is needed to make combustion happen?'}

2a ocorrência: {'answers': [{'answer_start': 204, 'text': 'calor ou uma faísca', 'text_original': 'heat or a spark'}], 'id': '**571a50df4faf5e1900b8a960**', 'question': 'O que é necessário para fazer a combustão acontecer?', 'question_original': 'What is needed to make combustion happen?'}

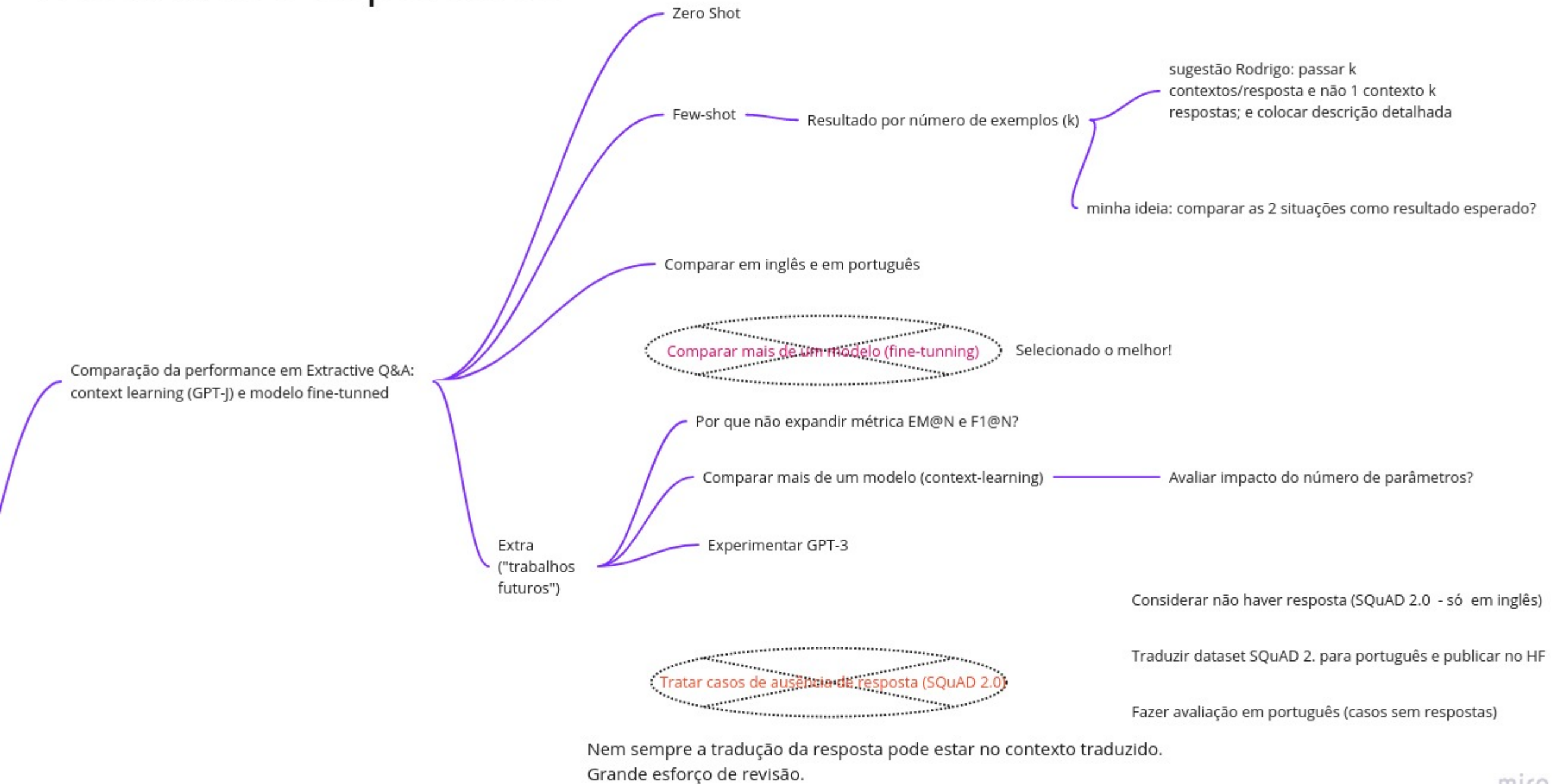
Respostas em inglês:

{'answers': [{'answer_start': 195, 'text': 'heat or a spark'}, {'answer_start': 31, 'text': 'oxygen'}, {'answer_start': 168, 'text': 'an ignition event'}, {'answer_start': 168, 'text': 'an ignition event, such as heat or a spark'}, {'answer_start': 168, 'text': 'an ignition event'}], 'question': 'What is needed to make combustion happen?', 'id': '571a50df4faf5e1900b8a960'}

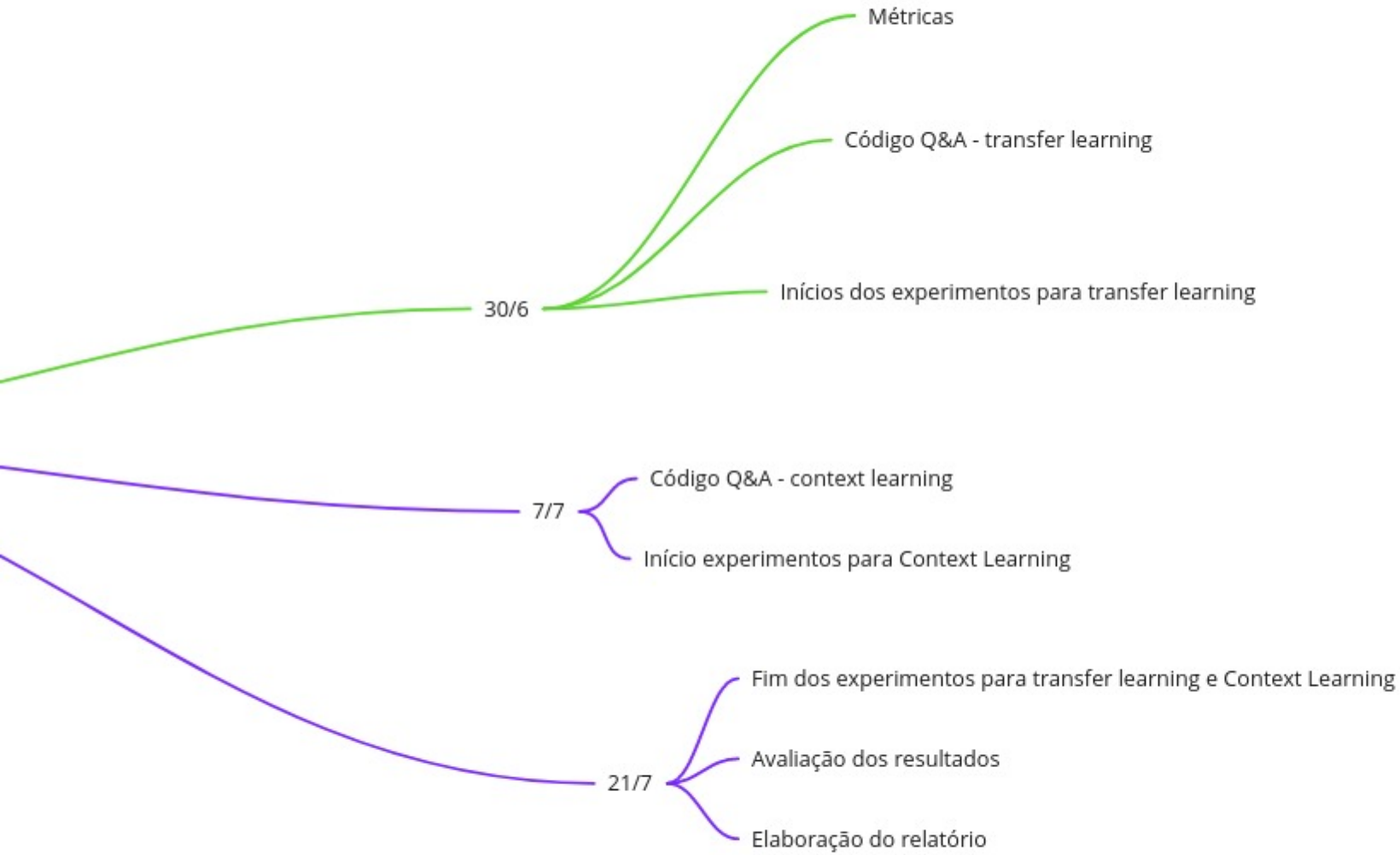
1a ocorrência: mais completa (3 repostas x 1 resposta)

melhor correspondência com a versão em inglês

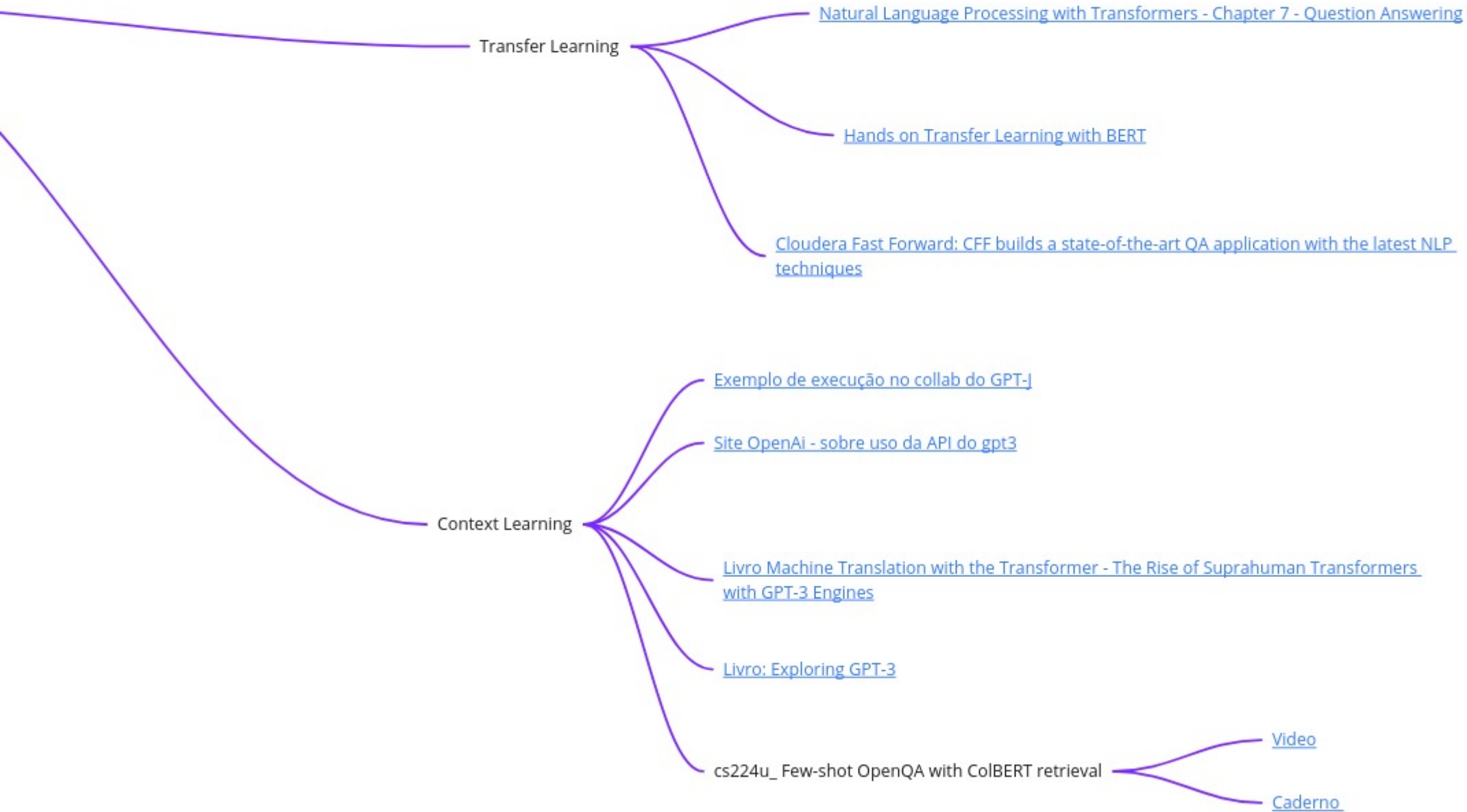
Resultados esperados



Cronograma



Referências



FIM

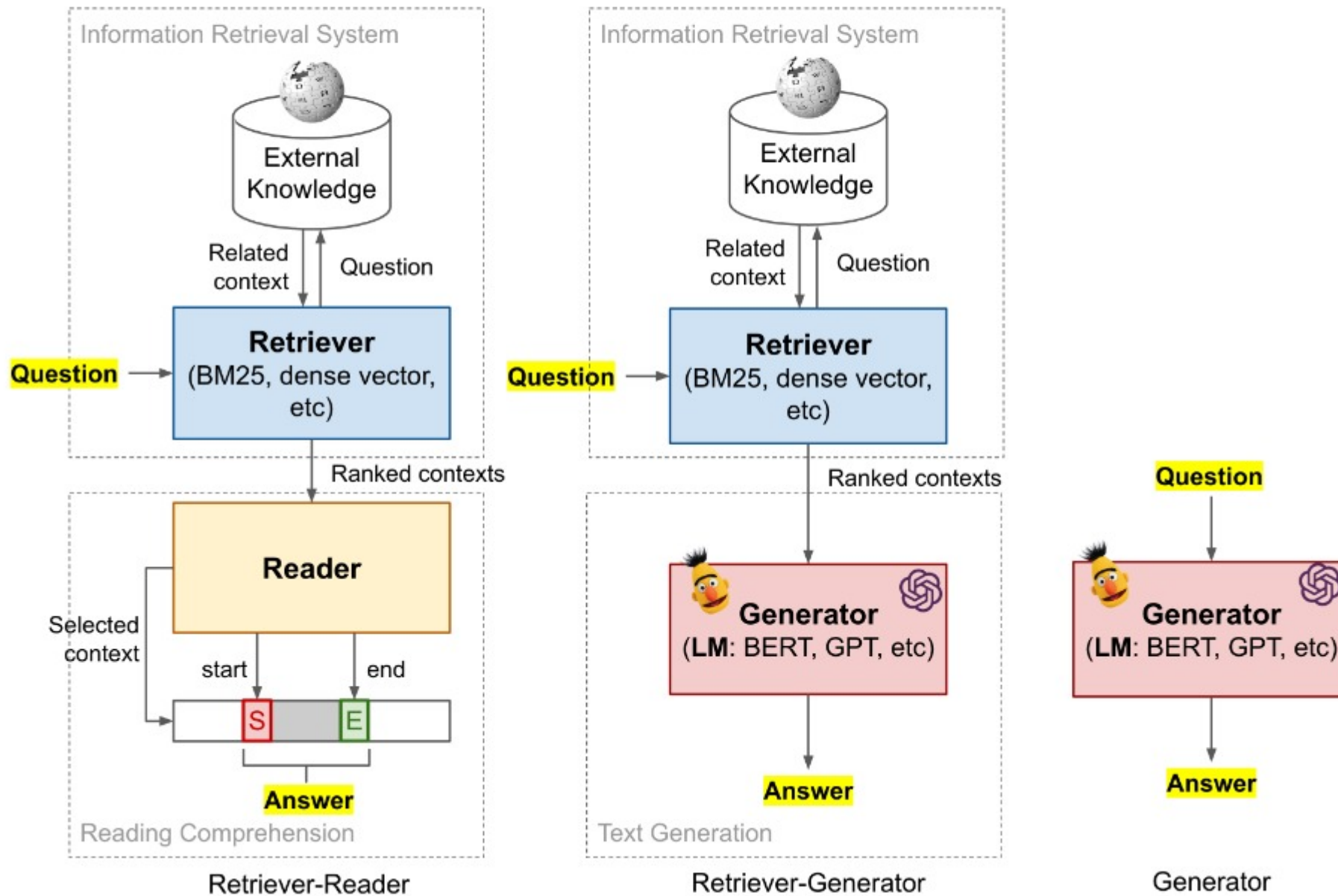
Github do Projeto

The screenshot shows the GitHub repository page for `marcusboela/exqa-complearning`. The repository is public and has 12 commits. The file list includes:

File	Description	Time
<code>borela com classe dataset; exclusao duplicata ok</code>		23 minutes ago
<code>data/dataset/squad</code>	mod ingles; dataset pt; ajustes...	2 days ago
<code>docs</code>	com classe dataset; exclusao duplicata ok	23 minutes ago
<code>models/fine_tuning/distilbert-base-c...</code>	mod ingles; dataset pt; ajustes...	2 days ago
<code>source</code>	com classe dataset; exclusao duplicata ok	23 minutes ago
<code>.gitignore</code>	mod ingles; dataset pt; ajustes...	2 days ago
<code>README.md</code>	First presentation and paste structure	5 days ago
<code>estudo.py</code>	mod ingles; dataset pt; ajustes...	2 days ago
<code>requirements.txt</code>	calculating fine-tuning; start code organization	9 hours ago

The repository description is: **exqa-complearning**
Extractive Q&A - Performance Comparison between Learning Methods: Context Learning and Fine-Tuning

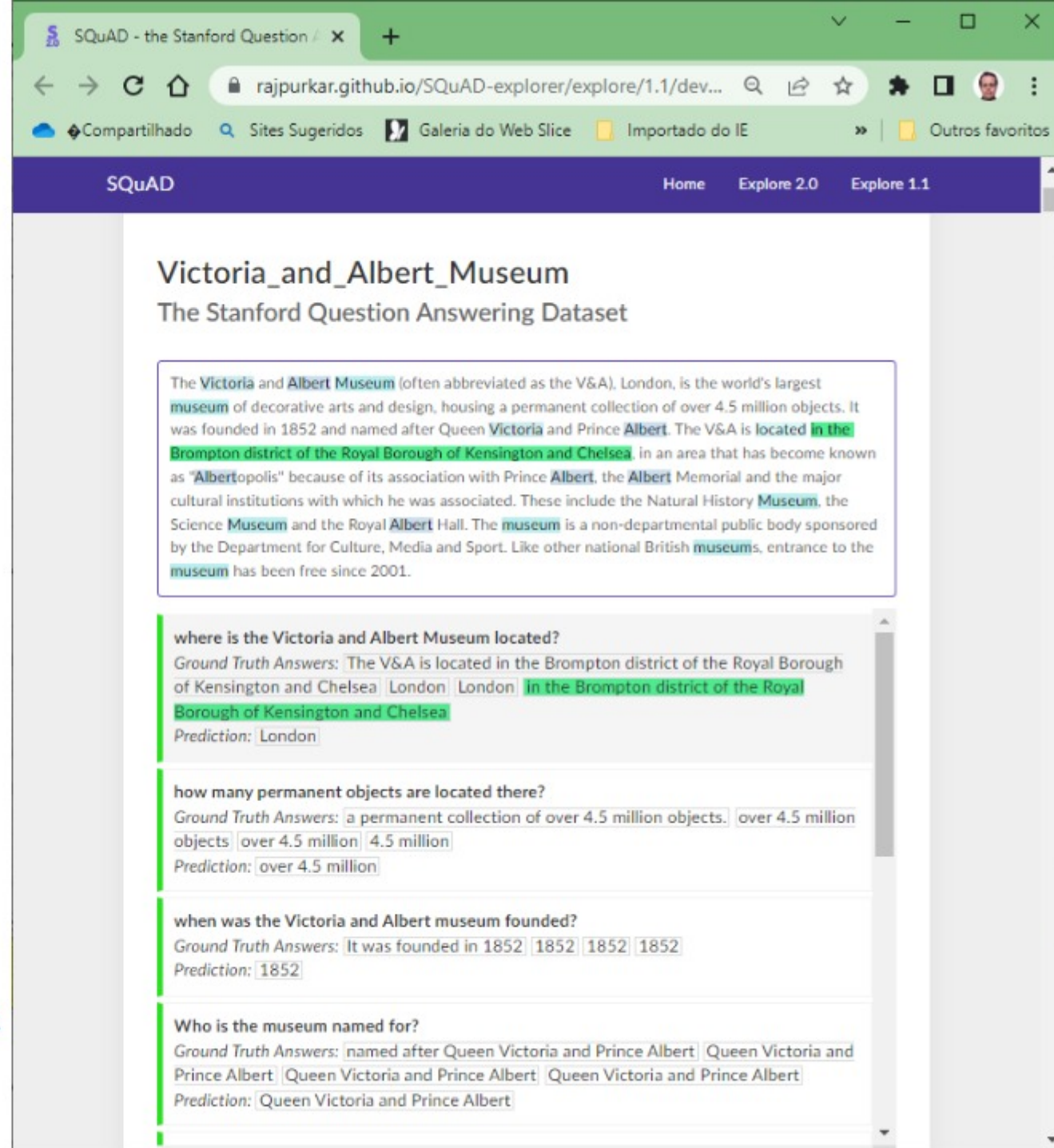
Não é contexto: abstractive Q&A





Descrição

O que é Extractive Q&A?



The screenshot shows the SQuAD (Stanford Question Answering Dataset) web interface. The browser address bar shows the URL: rajpurkar.github.io/SQuAD-explorer/explore/1.1/dev.... The page title is "SQuAD" and the navigation bar includes "Home", "Explore 2.0", and "Explore 1.1".

The main content area displays a passage about the Victoria and Albert Museum:

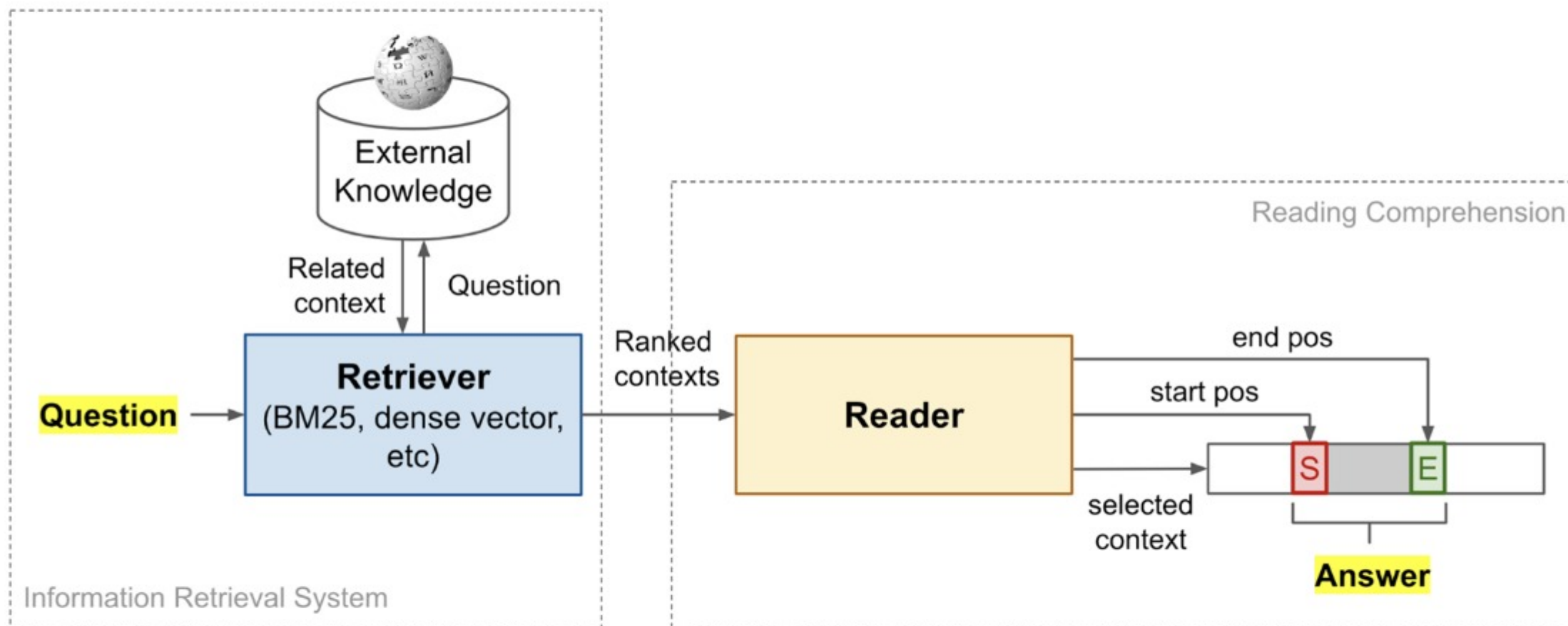
The **Victoria and Albert Museum** (often abbreviated as the V&A), London, is the world's largest **museum** of decorative arts and design, housing a permanent collection of over 4.5 million objects. It was founded in 1852 and named after Queen **Victoria** and Prince **Albert**. The V&A is **located in the Brompton district of the Royal Borough of Kensington and Chelsea**, in an area that has become known as "**Albertopolis**" because of its association with Prince **Albert**, the **Albert** Memorial and the major cultural institutions with which he was associated. These include the Natural History **Museum**, the Science **Museum** and the Royal **Albert** Hall. The **museum** is a non-departmental public body sponsored by the Department for Culture, Media and Sport. Like other national British **museums**, entrance to the **museum** has been free since 2001.

Below the passage, there are four questions with their corresponding ground truth and predicted answers:

- where is the Victoria and Albert Museum located?**
Ground Truth Answers: **The V&A is located in the Brompton district of the Royal Borough of Kensington and Chelsea** **London** **London** **in the Brompton district of the Royal Borough of Kensington and Chelsea**
Prediction: **London**
- how many permanent objects are located there?**
Ground Truth Answers: **a permanent collection of over 4.5 million objects.** **over 4.5 million objects** **over 4.5 million** **4.5 million**
Prediction: **over 4.5 million**
- when was the Victoria and Albert museum founded?**
Ground Truth Answers: **It was founded in 1852** **1852** **1852** **1852**
Prediction: **1852**
- Who is the museum named for?**
Ground Truth Answers: **named after Queen Victoria and Prince Albert** **Queen Victoria and Prince Albert** **Queen Victoria and Prince Albert** **Queen Victoria and Prince Albert**
Prediction: **Queen Victoria and Prince Albert**

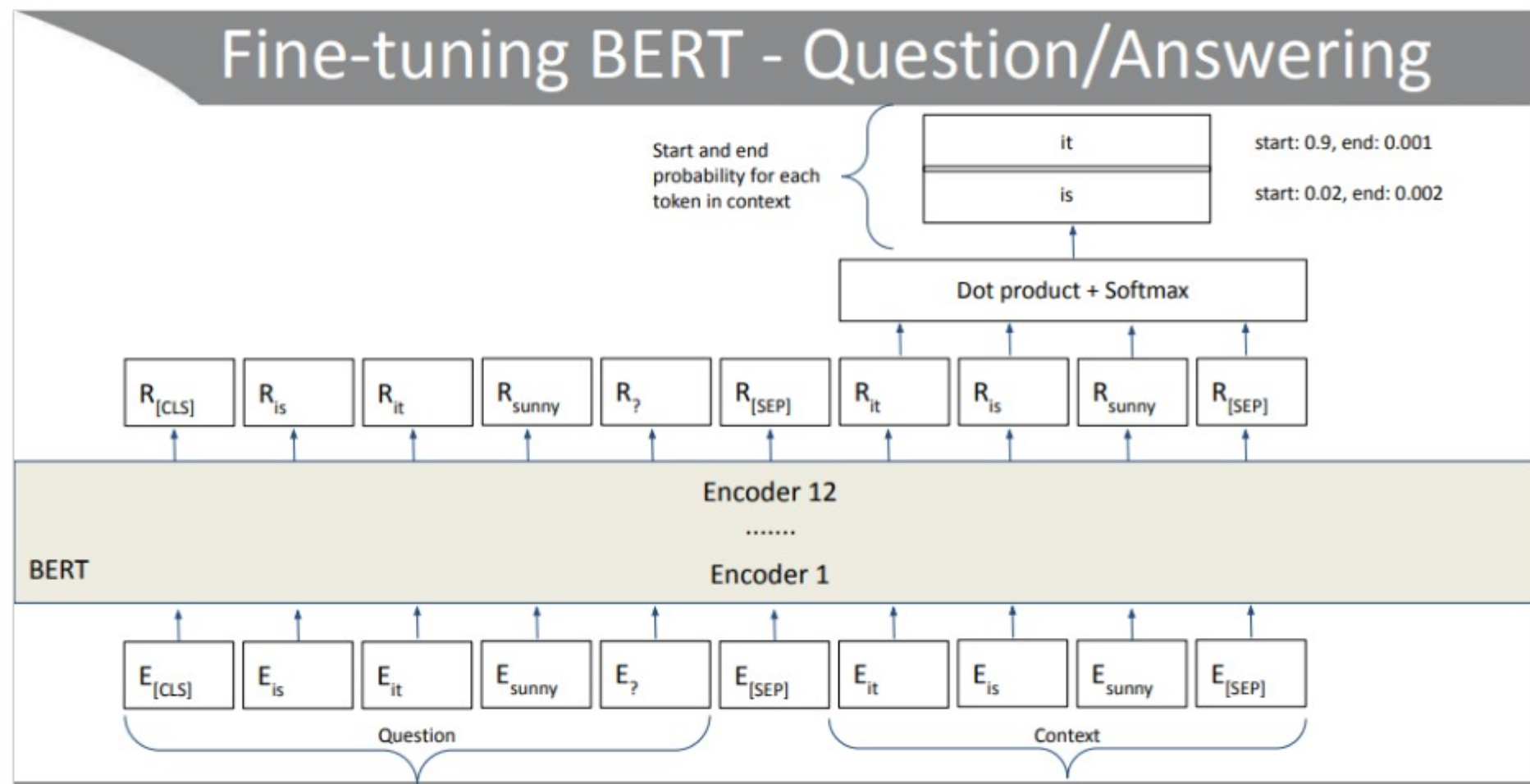
Exemplo: [Stanford Question Answering Dataset SQuAD](http://rajpurkar.github.io/SQuAD-explorer/explore/1.1/dev...)

IR Extractive Q&A (over Information Retrieval)



Fonte: [How to Build an Open-Domain Question Answering System?](#)

Extractive Q&A in Fine Tuning



Q&A in Context Learning

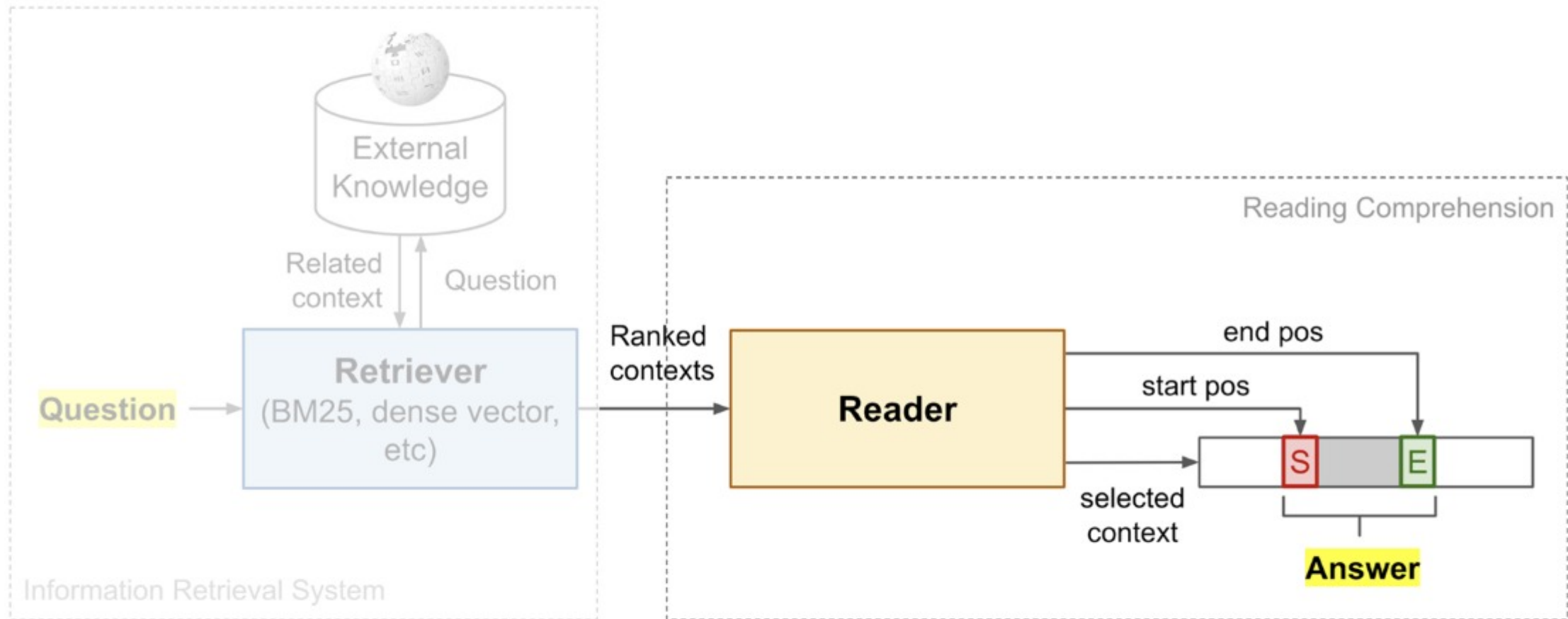
Contexto

Few Shot
 $k=3$

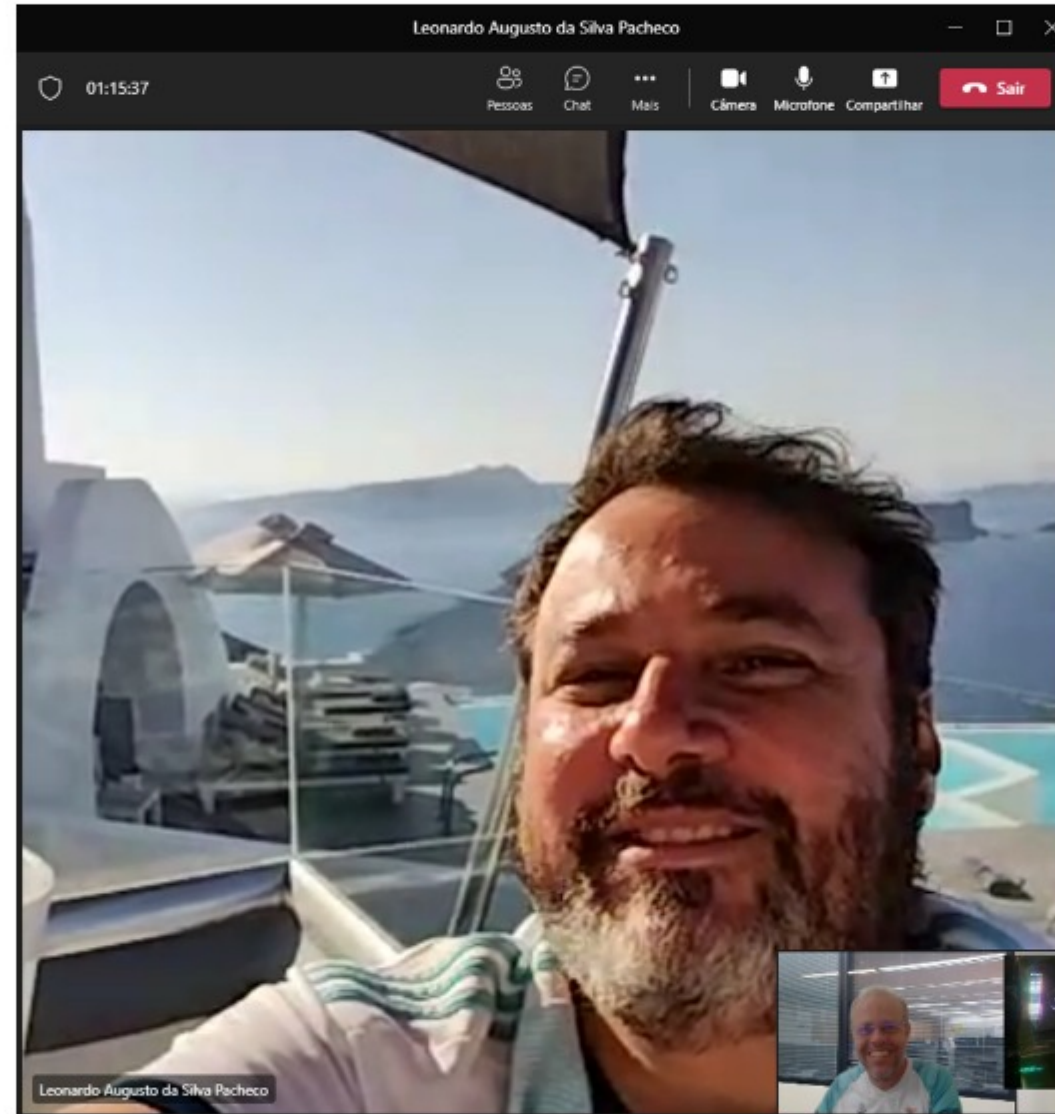
Exemplo: [GPT-3](#) x SQuAD

The screenshot shows the OpenAI Playground interface. The browser tab is "Playground - OpenAI API" and the URL is "beta.openai.com/playground/p/default-qa?mode=e...". The page has a navigation bar with "Overview", "Documentation", "Examples", and "Playground". The "Playground" section is active, showing a "Q&A" mode. The "Input" section contains a context paragraph about the Victoria and Albert Museum, followed by three question-answer pairs (Q: How many permanent objects are located there? A: over 4.5 million; Q: When was the Victoria and Albert museum founded? A: 1852; Q: Which party did he belong to? A: He belonged to the Republican Party; Q: where is the Victoria and Albert Museum located? A:). The "Instructions" section contains the text "Answer the question using context fragment". The "Submit" button is visible. On the right, the "Mode" section shows "text-davinci-edit-001" as the model, with "Temperature" set to 0 and "Top P" set to 1. A notification at the bottom right states "Editing is free while in beta. We'd love your feedback."

Igualdade de condições: sem retrieval (sem limitador de performance)



Leonardo&Guaíra: 2.0



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