

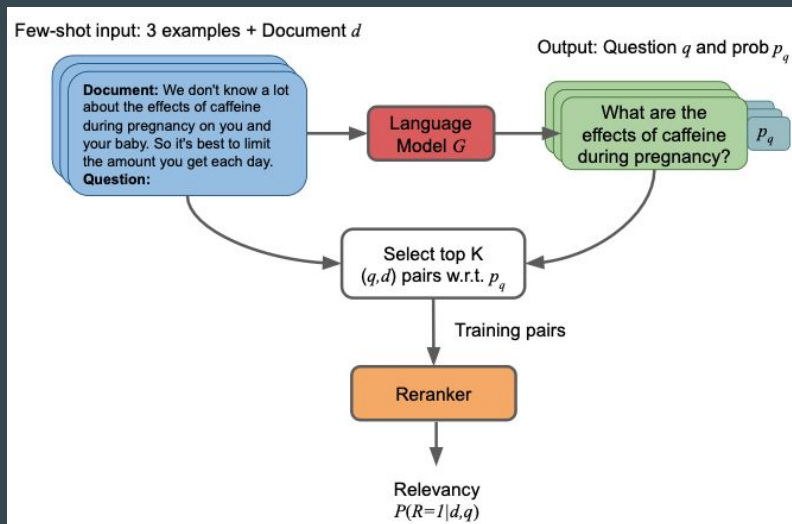
# Solução do Exercício 8

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04 de maio de 2023

# Conceitos Importantes

- Geração de dados sintéticos
  - Utilização de LLMs para gerar queries relevantes a partir de passagens.



# Geração dos dados sintéticos

- Utilização do langchain e o modelo gpt-3.5-turbo

```
class GPTCall:
    def __init__(self, model_name="gpt-3.5-turbo"):
        self.__model_name = model_name
        self.__template = """{instruction}

        Give me a good and exclusive question for the document above
        """

        self.__prompt = PromptTemplate(template=self.__template, input_variables=["instruction"])
        self.__llm = ChatOpenAI(model_name=self.__model_name)
        self.__llm_chain = LLMChain(prompt=self.__prompt, llm=self.__llm)

    def get_answer(self, instruction):
        return self.__llm_chain.run(instruction).rstrip()
```

# Geração dos dados sintéticos

- Exemplo de query gerada

```
{
  "positive_doc_id": "mx3yc003",
  "query": "What evidence supports the physiological concept of closed-loop effort-adapted assisted modes of mechanical ventilation, and what larger randomized controlled trials are needed to further understand their potential advantages?",
  "negative_doc_ids": [
    "zqer9w9t",
    "xv99lyjz",
    "1hv4frdf",
    "h0m4a22q",
    "eqt5j19k"
  ]
}
```

# Resultados

- BM25
  - $nDCG@10 = 0.5963$
- Reranking com MiniLM-L12-H384-uncased
  - $nDCG@10 = 0.5669$
- Reranking cross-encoder/ms-marco-MiniLM-L-6-v2
  - $nDCG@10 = 0.6426$
- Reranking cross-encoder/ms-marco-MiniLM-L-6-v2 (balanceado)
  - $nDCG@10 = 0.6622$

# Obrigado

Manoel Veríssimo

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