

```
!unzip /content/Files.zip
```

```
Archive: /content/Files.zip
```

```
  inflating: RAG-AI-Tutor/RAG.ipynb
```

```
  inflating: RAG-AI-Tutor/requirements.txt
```

```
  inflating: RAG-AI-Tutor/utils.py
```

```
  inflating: RAG-AI-Tutor/GraphRAG/graphload.py
```

```
  inflating: RAG-AI-Tutor/GraphRAG/graphquery.py
```

```
  inflating: RAG-AI-Tutor/GraphRAG/graphutils.py
```

```
  inflating: RAG-AI-Tutor/GraphRAG/__pycache__/graphutils.cpython-312.pyc
```

```
  inflating: RAG-AI-Tutor/TradRAG/rag_load.py
```

```
  inflating: RAG-AI-Tutor/TradRAG/rag_gen.py
```

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  inflating: RAG-AI-Tutor/TradRAG/rag_utils.py
```

```
  inflating: RAG-AI-Tutor/TradRAG/__pycache__/rag_load.cpython-312.pyc
```

```
  inflating: RAG-AI-Tutor/TradRAG/__pycache__/rag_gen.cpython-312.pyc
```

```
  inflating: RAG-AI-Tutor/TradRAG/__pycache__/rag_utils.cpython-312.pyc
```

```
  inflating: RAG-AI-Tutor/Knowledge_source/transcript.txt
```

```
  inflating: RAG-AI-Tutor/Knowledge_source/wrennmartin.pdf
```

```
  inflating: RAG-AI-Tutor/__pycache__/utils.cpython-312.pyc
```

```
!pip install -r /content/RAGAITutor/requirements.txt
```

```
Requirement already satisfied: youtube-transcript-api in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 1)) (0.6.2)
```

```
Requirement already satisfied: pytube in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 2)) (15.0.0)
```

```
Requirement already satisfied: pypdf in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 3)) (4.3.1)
```

```
Requirement already satisfied: pandas in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 4)) (2.2.2)
```

```
Requirement already satisfied: langchain in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 5)) (0.3.4)
```

```
Requirement already satisfied: langchain-community in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 6)) (0.3.3)
```

```
Requirement already satisfied: langchain_core in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 7)) (0.3.12)
```

```
Requirement already satisfied: sentence-transformers in
```

```
  /usr/local/lib/python3.10/dist-packages (from -r
```

```
  /content/RAGAITutor/requirements.txt (line 8)) (3.2.0)
```

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Requirement already satisfied: chromadb in
/usr/local/lib/python3.10/dist-packages (from -r
/content/RAGAITutor/requirements.txt (line 9)) (0.5.15)
Requirement already satisfied: llama-index in
/usr/local/lib/python3.10/dist-packages (from -r
/content/RAGAITutor/requirements.txt (line 10)) (0.10.68)
Requirement already satisfied: llama-index-embeddings-huggingface
in /usr/local/lib/python3.10/dist-packages (from -r
/content/RAGAITutor/requirements.txt (line 11)) (0.2.3)
Requirement already satisfied: llama-index-extractors-relik in
/usr/local/lib/python3.10/dist-packages (from -r
/content/RAGAITutor/requirements.txt (line 12)) (0.1.1)
Requirement already satisfied: llama-index-graph-stores-neo4j in
/usr/local/lib/python3.10/dist-packages (from -r
/content/RAGAITutor/requirements.txt (line 13)) (0.2.14)
Collecting llama_index_llms_ollama (from -r
/content/RAGAITutor/requirements.txt (line 14))
  Downloading llama_index_llms_ollama-0.3.4-py3-none-any.whl.metadata
(3.8 kB)
Requirement already satisfied: requests in
/usr/local/lib/python3.10/dist-packages (from youtube-transcript-api-
>-r /content/RAGAITutor/requirements.txt (line 1)) (2.32.3)
Requirement already satisfied: typing_extensions>=4.0 in
/usr/local/lib/python3.10/dist-packages (from pypdf->-r
/content/RAGAITutor/requirements.txt (line 3)) (4.12.2)
Requirement already satisfied: numpy>=1.22.4 in
/usr/local/lib/python3.10/dist-packages (from pandas->-r
/content/RAGAITutor/requirements.txt (line 4)) (1.26.4)
Requirement already satisfied: python-dateutil>=2.8.2 in
/usr/local/lib/python3.10/dist-packages (from pandas->-r
/content/RAGAITutor/requirements.txt (line 4)) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in
/usr/local/lib/python3.10/dist-packages (from pandas->-r
/content/RAGAITutor/requirements.txt (line 4)) (2024.2)
Requirement already satisfied: tzdata>=2022.7 in
/usr/local/lib/python3.10/dist-packages (from pandas->-r
/content/RAGAITutor/requirements.txt (line 4)) (2024.2)
Requirement already satisfied: PyYAML>=5.3 in
/usr/local/lib/python3.10/dist-packages (from langchain->-r
/content/RAGAITutor/requirements.txt (line 5)) (6.0.2)
Requirement already satisfied: SQLAlchemy<3,>=1.4 in
/usr/local/lib/python3.10/dist-packages (from langchain->-r
/content/RAGAITutor/requirements.txt (line 5)) (2.0.36)
Requirement already satisfied: aiohttp<4.0.0,>=3.8.3 in
/usr/local/lib/python3.10/dist-packages (from langchain->-r
/content/RAGAITutor/requirements.txt (line 5)) (3.10.10)
Requirement already satisfied: async-timeout<5.0.0,>=4.0.0 in
/usr/local/lib/python3.10/dist-packages (from langchain->-r
/content/RAGAITutor/requirements.txt (line 5)) (4.0.3)
```

Requirement already satisfied: langchain-text-splitters<0.4.0,>=0.3.0 in /usr/local/lib/python3.10/dist-packages (from langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (0.3.0)

Requirement already satisfied: langsmith<0.2.0,>=0.1.17 in /usr/local/lib/python3.10/dist-packages (from langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (0.1.136)

Requirement already satisfied: pydantic<3.0.0,>=2.7.4 in /usr/local/lib/python3.10/dist-packages (from langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (2.9.2)

Requirement already satisfied: tenacity!=8.4.0,<10,>=8.1.0 in /usr/local/lib/python3.10/dist-packages (from langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (8.5.0)

Requirement already satisfied: dataclasses-json<0.7,>=0.5.7 in /usr/local/lib/python3.10/dist-packages (from langchain-community->-r /content/RAGAITutor/requirements.txt (line 6)) (0.6.7)

Requirement already satisfied: pydantic-settings<3.0.0,>=2.4.0 in /usr/local/lib/python3.10/dist-packages (from langchain-community->-r /content/RAGAITutor/requirements.txt (line 6)) (2.6.0)

Requirement already satisfied: jsonpatch<2.0,>=1.33 in /usr/local/lib/python3.10/dist-packages (from langchain\_core->-r /content/RAGAITutor/requirements.txt (line 7)) (1.33)

Requirement already satisfied: packaging<25,>=23.2 in /usr/local/lib/python3.10/dist-packages (from langchain\_core->-r /content/RAGAITutor/requirements.txt (line 7)) (24.1)

Requirement already satisfied: transformers<5.0.0,>=4.41.0 in /usr/local/lib/python3.10/dist-packages (from sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (4.41.2)

Requirement already satisfied: tqdm in /usr/local/lib/python3.10/dist-packages (from sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (4.66.5)

Requirement already satisfied: torch>=1.11.0 in /usr/local/lib/python3.10/dist-packages (from sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (2.3.1)

Requirement already satisfied: scikit-learn in /usr/local/lib/python3.10/dist-packages (from sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (1.5.2)

Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (from sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (1.13.1)

Requirement already satisfied: huggingface-hub>=0.20.0 in /usr/local/lib/python3.10/dist-packages (from sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (0.23.5)

Requirement already satisfied: Pillow in /usr/local/lib/python3.10/dist-packages (from sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (10.4.0)

Requirement already satisfied: build>=1.0.3 in /usr/local/lib/python3.10/dist-packages (from chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.2.2.post1)

Requirement already satisfied: chroma-hnswlib==0.7.6 in

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/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.7.6)
Requirement already satisfied: fastapi>=0.95.2 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.115.2)
Requirement already satisfied: uvicorn>=0.18.3 in
/usr/local/lib/python3.10/dist-packages (from
uvicorn[standard]>=0.18.3->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.32.0)
Requirement already satisfied: posthog>=2.4.0 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (3.7.0)
Requirement already satisfied: onnxruntime>=1.14.1 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (1.19.2)
Requirement already satisfied: opentelemetry-api>=1.2.0 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (1.27.0)
Requirement already satisfied: opentelemetry-exporter-otlp-proto-
grpc>=1.2.0 in /usr/local/lib/python3.10/dist-packages (from chromadb-
->-r /content/RAGAITutor/requirements.txt (line 9)) (1.27.0)
Requirement already satisfied: opentelemetry-instrumentation-
fastapi>=0.41b0 in /usr/local/lib/python3.10/dist-packages (from
chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (0.48b0)
Requirement already satisfied: opentelemetry-sdk>=1.2.0 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (1.27.0)
Requirement already satisfied: tokenizers>=0.13.2 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.19.1)
Requirement already satisfied: pypika>=0.48.9 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.48.9)
Requirement already satisfied: overrides>=7.3.1 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (7.7.0)
Requirement already satisfied: importlib-resources in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (6.4.5)
Requirement already satisfied: grpcio>=1.58.0 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (1.64.1)
Requirement already satisfied: bcrypt>=4.0.1 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (4.2.0)
Requirement already satisfied: typer>=0.9.0 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.12.5)
Requirement already satisfied: kubernetes>=28.1.0 in
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/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (31.0.0)
Requirement already satisfied: mmh3>=4.0.1 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (5.0.1)
Requirement already satisfied: orjson>=3.9.12 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (3.10.7)
Requirement already satisfied: httpx>=0.27.0 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.27.2)
Requirement already satisfied: rich>=10.11.0 in
/usr/local/lib/python3.10/dist-packages (from chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (13.9.2)
Requirement already satisfied: llama-index-agent-openai<0.3.0,>=0.1.4
in /usr/local/lib/python3.10/dist-packages (from llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.2.9)
Requirement already satisfied: llama-index-cli<0.2.0,>=0.1.2 in
/usr/local/lib/python3.10/dist-packages (from llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.1.13)
Requirement already satisfied: llama-index-core<0.11.0,>=0.10.68 in
/usr/local/lib/python3.10/dist-packages (from llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.10.68.post1)
Requirement already satisfied: llama-index-embeddings-
openai<0.2.0,>=0.1.5 in /usr/local/lib/python3.10/dist-packages (from
llama-index->-r /content/RAGAITutor/requirements.txt (line 10))
(0.1.11)
Requirement already satisfied: llama-index-indices-managed-llama-
cloud>=0.2.0 in /usr/local/lib/python3.10/dist-packages (from llama-
index->-r /content/RAGAITutor/requirements.txt (line 10)) (0.2.7)
Requirement already satisfied: llama-index-legacy<0.10.0,>=0.9.48
in /usr/local/lib/python3.10/dist-packages (from llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.9.48.post3)
Requirement already satisfied: llama-index-llms-openai<0.2.0,>=0.1.27
in /usr/local/lib/python3.10/dist-packages (from llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.1.31)
Requirement already satisfied: llama-index-multi-modal-llms-
openai<0.2.0,>=0.1.3 in /usr/local/lib/python3.10/dist-packages (from
llama-index->-r /content/RAGAITutor/requirements.txt (line 10))
(0.1.9)
Requirement already satisfied: llama-index-program-
openai<0.2.0,>=0.1.3 in /usr/local/lib/python3.10/dist-packages (from
llama-index->-r /content/RAGAITutor/requirements.txt (line 10))
(0.1.7)
Requirement already satisfied: llama-index-question-gen-
openai<0.2.0,>=0.1.2 in /usr/local/lib/python3.10/dist-packages (from
llama-index->-r /content/RAGAITutor/requirements.txt (line 10))
(0.1.3)
Requirement already satisfied: llama-index-readers-file<0.2.0,>=0.1.4
```

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in /usr/local/lib/python3.10/dist-packages (from llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.1.33)
Requirement already satisfied: llama-index-readers-llama-parse>=0.1.2
in /usr/local/lib/python3.10/dist-packages (from llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.1.6)
Requirement already satisfied: relik<2.0.0,>=1.0.3 in
/usr/local/lib/python3.10/dist-packages (from llama-index-extractors-
relik->-r /content/RAGAITutor/requirements.txt (line 12)) (1.0.7)
Requirement already satisfied: neo4j<6.0.0,>=5.16.0 in
/usr/local/lib/python3.10/dist-packages (from llama-index-graph-
stores-neo4j->-r /content/RAGAITutor/requirements.txt (line 13))
(5.25.0)
INFO: pip is looking at multiple versions of llama-index-llms-ollama
to determine which version is compatible with other requirements. This
could take a while.
  Downloading llama_index_llms_ollama-0.3.3-py3-none-any.whl.metadata
(668 bytes)
  Downloading llama_index_llms_ollama-0.3.2-py3-none-any.whl.metadata
(668 bytes)
  Downloading llama_index_llms_ollama-0.3.1-py3-none-any.whl.metadata
(668 bytes)
  Downloading llama_index_llms_ollama-0.3.0-py3-none-any.whl.metadata
(668 bytes)
  Downloading llama_index_llms_ollama-0.2.2-py3-none-any.whl.metadata
(668 bytes)
Collecting ollama>=0.3.0 (from llama_index-llms-ollama->-r
/content/RAGAITutor/requirements.txt (line 14))
  Downloading ollama-0.3.3-py3-none-any.whl.metadata (3.8 kB)
Requirement already satisfied: aiohappyeyeballs>=2.3.0 in
/usr/local/lib/python3.10/dist-packages (from aiohttp<4.0.0,>=3.8.3-
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (2.4.3)
Requirement already satisfied: aiosignal>=1.1.2 in
/usr/local/lib/python3.10/dist-packages (from aiohttp<4.0.0,>=3.8.3-
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (1.3.1)
Requirement already satisfied: attrs>=17.3.0 in
/usr/local/lib/python3.10/dist-packages (from aiohttp<4.0.0,>=3.8.3-
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (24.2.0)
Requirement already satisfied: frozenlist>=1.1.1 in
/usr/local/lib/python3.10/dist-packages (from aiohttp<4.0.0,>=3.8.3-
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (1.4.1)
Requirement already satisfied: multidict<7.0,>=4.5 in
/usr/local/lib/python3.10/dist-packages (from aiohttp<4.0.0,>=3.8.3-
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (6.1.0)
Requirement already satisfied: yarl<2.0,>=1.12.0 in
/usr/local/lib/python3.10/dist-packages (from aiohttp<4.0.0,>=3.8.3-
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (1.15.2)
Requirement already satisfied: pyproject_hooks in
/usr/local/lib/python3.10/dist-packages (from build>=1.0.3->chromadb-
->-r /content/RAGAITutor/requirements.txt (line 9)) (1.2.0)

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Requirement already satisfied: tomli>=1.1.0 in  
/usr/local/lib/python3.10/dist-packages (from build>=1.0.3->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (2.0.2)

Requirement already satisfied: marshmallow<4.0.0,>=3.18.0 in  
/usr/local/lib/python3.10/dist-packages (from dataclasses->-r /content/RAGAITutor/requirements.txt (line 6)) (3.23.0)

Requirement already satisfied: typing-inspect<1,>=0.4.0 in  
/usr/local/lib/python3.10/dist-packages (from dataclasses->-r /content/RAGAITutor/requirements.txt (line 6)) (0.9.0)

Requirement already satisfied: starlette<0.41.0,>=0.37.2 in  
/usr/local/lib/python3.10/dist-packages (from fastapi>=0.95.2->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (0.40.0)

Requirement already satisfied: anyio in  
/usr/local/lib/python3.10/dist-packages (from httpx>=0.27.0->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (3.7.1)

Requirement already satisfied: certifi in  
/usr/local/lib/python3.10/dist-packages (from httpx>=0.27.0->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (2024.8.30)

Requirement already satisfied: httpcore==1.\* in  
/usr/local/lib/python3.10/dist-packages (from httpx>=0.27.0->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.0.6)

Requirement already satisfied: idna in /usr/local/lib/python3.10/dist-packages (from httpx>=0.27.0->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (3.10)

Requirement already satisfied: sniffio in  
/usr/local/lib/python3.10/dist-packages (from httpx>=0.27.0->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.3.1)

Requirement already satisfied: h11<0.15,>=0.13 in  
/usr/local/lib/python3.10/dist-packages (from httpcore==1.\*->httpx>=0.27.0->chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (0.14.0)

Requirement already satisfied: filelock in  
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.20.0->sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (3.16.1)

Requirement already satisfied: fsspec>=2023.5.0 in  
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.20.0->sentence-transformers->-r /content/RAGAITutor/requirements.txt (line 8)) (2023.10.0)

Requirement already satisfied: minijinja>=1.0 in  
/usr/local/lib/python3.10/dist-packages (from huggingface-hub[inference]>=0.19.0->llama-index-embeddings-huggingface->-r /content/RAGAITutor/requirements.txt (line 11)) (2.2.0)

Requirement already satisfied: jsonpointer>=1.9 in  
/usr/local/lib/python3.10/dist-packages (from jsonpatch<2.0,>=1.33->langchain\_core->-r /content/RAGAITutor/requirements.txt (line 7)) (3.0.0)

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Requirement already satisfied: six>=1.9.0 in
/usr/local/lib/python3.10/dist-packages (from kubernetes>=28.1.0-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.16.0)
Requirement already satisfied: google-auth>=1.0.1 in
/usr/local/lib/python3.10/dist-packages (from kubernetes>=28.1.0-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (2.27.0)
Requirement already satisfied: websocket-client!=0.40.0,!
=0.42.*,>=0.32.0 in /usr/local/lib/python3.10/dist-packages (from
kubernetes>=28.1.0->chromadb->-r /content/RAGAITutor/requirements.txt
(line 9)) (1.8.0)
Requirement already satisfied: requests-oauthlib in
/usr/local/lib/python3.10/dist-packages (from kubernetes>=28.1.0-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.3.1)
Requirement already satisfied: oauthlib>=3.2.2 in
/usr/local/lib/python3.10/dist-packages (from kubernetes>=28.1.0-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (3.2.2)
Requirement already satisfied: urllib3>=1.24.2 in
/usr/local/lib/python3.10/dist-packages (from kubernetes>=28.1.0-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (2.2.3)
Requirement already satisfied: durationpy>=0.7 in
/usr/local/lib/python3.10/dist-packages (from kubernetes>=28.1.0-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (0.9)
Requirement already satisfied: requests-toolbelt<2.0.0,>=1.0.0 in
/usr/local/lib/python3.10/dist-packages (from
langsmith<0.2.0,>=0.1.17->langchain->-r
/content/RAGAITutor/requirements.txt (line 5)) (1.0.0)
Requirement already satisfied: openai>=1.14.0 in
/usr/local/lib/python3.10/dist-packages (from llama-index-agent-
openai<0.3.0,>=0.1.4->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (1.52.0)
Requirement already satisfied: deprecated>=1.2.9.3 in
/usr/local/lib/python3.10/dist-packages (from llama-index-
core<0.11.0,>=0.10.68->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (1.2.14)
Requirement already satisfied: dirtyjson<2.0.0,>=1.0.8 in
/usr/local/lib/python3.10/dist-packages (from llama-index-
core<0.11.0,>=0.10.68->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (1.0.8)
Requirement already satisfied: nest-asyncio<2.0.0,>=1.5.8 in
/usr/local/lib/python3.10/dist-packages (from llama-index-
core<0.11.0,>=0.10.68->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (1.6.0)
Requirement already satisfied: networkx>=3.0 in
/usr/local/lib/python3.10/dist-packages (from llama-index-
core<0.11.0,>=0.10.68->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (3.4.1)
Requirement already satisfied: nltk!=3.9,>=3.8.1 in
/usr/local/lib/python3.10/dist-packages (from llama-index-
core<0.11.0,>=0.10.68->llama-index->-r
```



```
/content/RAGAITutor/requirements.txt (line 10)) (3.8.1)
Requirement already satisfied: tiktoken>=0.3.3 in
/usr/local/lib/python3.10/dist-packages (from llama-index-
core<0.11.0,>=0.10.68->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.8.0)
Requirement already satisfied: wrapt in
/usr/local/lib/python3.10/dist-packages (from llama-index-
core<0.11.0,>=0.10.68->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (1.16.0)
Requirement already satisfied: llama-cloud>=0.0.11 in
/usr/local/lib/python3.10/dist-packages (from llama-index-indices-
managed-llama-cloud>=0.2.0->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.1.4)
Requirement already satisfied: beautifulsoup4<5.0.0,>=4.12.3 in
/usr/local/lib/python3.10/dist-packages (from llama-index-readers-
file<0.2.0,>=0.1.4->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (4.12.3)
Requirement already satisfied: striprt<0.0.27,>=0.0.26 in
/usr/local/lib/python3.10/dist-packages (from llama-index-readers-
file<0.2.0,>=0.1.4->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.0.26)
Requirement already satisfied: llama-parse>=0.4.0 in
/usr/local/lib/python3.10/dist-packages (from llama-index-readers-
llama-parse>=0.1.2->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.4.9)
Requirement already satisfied: coloredlogs in
/usr/local/lib/python3.10/dist-packages (from onnxruntime>=1.14.1-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (15.0.1)
Requirement already satisfied: flatbuffers in
/usr/local/lib/python3.10/dist-packages (from onnxruntime>=1.14.1-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (24.3.25)
Requirement already satisfied: protobuf in
/usr/local/lib/python3.10/dist-packages (from onnxruntime>=1.14.1-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (3.20.3)
Requirement already satisfied: sympy in
/usr/local/lib/python3.10/dist-packages (from onnxruntime>=1.14.1-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.13.3)
Requirement already satisfied: importlib-metadata<=8.4.0,>=6.0 in
/usr/local/lib/python3.10/dist-packages (from opentelemetry-
api>=1.2.0->chromadb->-r /content/RAGAITutor/requirements.txt (line
9)) (8.4.0)
Requirement already satisfied: googleapis-common-protos~=1.52 in
/usr/local/lib/python3.10/dist-packages (from opentelemetry-exporter-
otlp-proto-grpc>=1.2.0->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (1.65.0)
Requirement already satisfied: opentelemetry-exporter-otlp-proto-
common==1.27.0 in /usr/local/lib/python3.10/dist-packages (from
opentelemetry-exporter-otlp-proto-grpc>=1.2.0->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (1.27.0)
```

Requirement already satisfied: opentelemetry-proto==1.27.0 in  
/usr/local/lib/python3.10/dist-packages (from opentelemetry-exporter-  
otlp-proto-grpc>=1.2.0->chromadb->-r  
/content/RAGAITutor/requirements.txt (line 9)) (1.27.0)

Requirement already satisfied: opentelemetry-instrumentation-  
asgi==0.48b0 in /usr/local/lib/python3.10/dist-packages (from  
opentelemetry-instrumentation-fastapi>=0.41b0->chromadb->-r  
/content/RAGAITutor/requirements.txt (line 9)) (0.48b0)

Requirement already satisfied: opentelemetry-instrumentation==0.48b0  
in /usr/local/lib/python3.10/dist-packages (from opentelemetry-  
instrumentation-fastapi>=0.41b0->chromadb->-r  
/content/RAGAITutor/requirements.txt (line 9)) (0.48b0)

Requirement already satisfied: opentelemetry-semantic-  
conventions==0.48b0 in /usr/local/lib/python3.10/dist-packages (from  
opentelemetry-instrumentation-fastapi>=0.41b0->chromadb->-r  
/content/RAGAITutor/requirements.txt (line 9)) (0.48b0)

Requirement already satisfied: opentelemetry-util-http==0.48b0 in  
/usr/local/lib/python3.10/dist-packages (from opentelemetry-  
instrumentation-fastapi>=0.41b0->chromadb->-r  
/content/RAGAITutor/requirements.txt (line 9)) (0.48b0)

Requirement already satisfied: setuptools>=16.0 in  
/usr/local/lib/python3.10/dist-packages (from opentelemetry-  
instrumentation==0.48b0->opentelemetry-instrumentation-  
fastapi>=0.41b0->chromadb->-r /content/RAGAITutor/requirements.txt  
(line 9)) (75.1.0)

Requirement already satisfied: asgiref~3.0 in  
/usr/local/lib/python3.10/dist-packages (from opentelemetry-  
instrumentation-asgi==0.48b0->opentelemetry-instrumentation-  
fastapi>=0.41b0->chromadb->-r /content/RAGAITutor/requirements.txt  
(line 9)) (3.8.1)

Requirement already satisfied: monotonic>=1.5 in  
/usr/local/lib/python3.10/dist-packages (from posthog>=2.4.0-  
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.6)

Requirement already satisfied: backoff>=1.10.0 in  
/usr/local/lib/python3.10/dist-packages (from posthog>=2.4.0-  
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (2.2.1)

Requirement already satisfied: annotated-types>=0.6.0 in  
/usr/local/lib/python3.10/dist-packages (from pydantic<3.0.0,>=2.7.4-  
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (0.7.0)

Requirement already satisfied: pydantic-core==2.23.4 in  
/usr/local/lib/python3.10/dist-packages (from pydantic<3.0.0,>=2.7.4-  
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (2.23.4)

Requirement already satisfied: python-dotenv>=0.21.0 in  
/usr/local/lib/python3.10/dist-packages (from pydantic-  
settings<3.0.0,>=2.4.0->langchain-community->-r  
/content/RAGAITutor/requirements.txt (line 6)) (1.0.1)

Requirement already satisfied: art==6.2 in  
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-  
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt

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(line 12)) (6.2)
Requirement already satisfied: pprintpp==0.4.0 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (0.4.0)
Requirement already satisfied: colorama==0.4.6 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (0.4.6)
Requirement already satisfied: termcolor==2.4.0 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (2.4.0)
Requirement already satisfied: spacy<3.8,>=3.7 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (3.7.5)
Requirement already satisfied: lightning<2.4,>=2.3 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (2.3.3)
Requirement already satisfied: datasets<2.15,>=2.13 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (2.14.7)
Requirement already satisfied: hydra-core<1.4,>=1.3 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (1.3.2)
Requirement already satisfied: hydra-colorlog in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (1.2.0)
Requirement already satisfied: wandb<0.18,>=0.15 in
/usr/local/lib/python3.10/dist-packages (from relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (0.17.9)
Requirement already satisfied: jinja2 in
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-
transformers->-r /content/RAGAITutor/requirements.txt (line 8))
(3.1.4)
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.1.105 in
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-
transformers->-r /content/RAGAITutor/requirements.txt (line 8))
(12.1.105)
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.1.105
in /usr/local/lib/python3.10/dist-packages (from torch>=1.11.0-
>sentence-transformers->-r /content/RAGAITutor/requirements.txt (line
8)) (12.1.105)
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.1.105 in
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/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(12.1.105)  
Requirement already satisfied: nvidia-cudnn-cu12==8.9.2.26 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(8.9.2.26)  
Requirement already satisfied: nvidia-cublas-cu12==12.1.3.1 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(12.1.3.1)  
Requirement already satisfied: nvidia-cufft-cu12==11.0.2.54 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(11.0.2.54)  
Requirement already satisfied: nvidia-curand-cu12==10.3.2.106 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(10.3.2.106)  
Requirement already satisfied: nvidia-cusolver-cu12==11.4.5.107 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(11.4.5.107)  
Requirement already satisfied: nvidia-cuspars-cu12==12.1.0.106 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(12.1.0.106)  
Requirement already satisfied: nvidia-nccl-cu12==2.20.5 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(2.20.5)  
Requirement already satisfied: nvidia-nvtx-cu12==12.1.105 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(12.1.105)  
Requirement already satisfied: triton==2.3.1 in  
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence-  
transformers->-r /content/RAGAITutor/requirements.txt (line 8))  
(2.3.1)  
Requirement already satisfied: nvidia-nvjitlink-cu12 in  
/usr/local/lib/python3.10/dist-packages (from nvidia-cusolver-  
cu12==11.4.5.107->torch>=1.11.0->sentence-transformers->-r  
/content/RAGAITutor/requirements.txt (line 8)) (12.6.77)  
Requirement already satisfied: charset-normalizer<4,>=2 in  
/usr/local/lib/python3.10/dist-packages (from requests->youtube-  
transcript-api->-r /content/RAGAITutor/requirements.txt (line 1))  
(3.4.0)  
Requirement already satisfied: markdown-it-py>=2.2.0 in  
/usr/local/lib/python3.10/dist-packages (from rich>=10.11.0->chromadb-
```

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>-r /content/RAGAITutor/requirements.txt (line 9)) (3.0.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in
/usr/local/lib/python3.10/dist-packages (from rich>=10.11.0->chromadb-
>-r /content/RAGAITutor/requirements.txt (line 9)) (2.18.0)
Requirement already satisfied: joblib>=1.2.0 in
/usr/local/lib/python3.10/dist-packages (from scikit-learn->sentence-
transformers->-r /content/RAGAITutor/requirements.txt (line 8))
(1.4.2)
Requirement already satisfied: threadpoolctl>=3.1.0 in
/usr/local/lib/python3.10/dist-packages (from scikit-learn->sentence-
transformers->-r /content/RAGAITutor/requirements.txt (line 8))
(3.5.0)
Requirement already satisfied: greenlet!=0.4.17 in
/usr/local/lib/python3.10/dist-packages (from SQLAlchemy<3,>=1.4-
>langchain->-r /content/RAGAITutor/requirements.txt (line 5)) (3.1.1)
Requirement already satisfied: regex!=2019.12.17 in
/usr/local/lib/python3.10/dist-packages (from
transformers<5.0.0,>=4.41.0->sentence-transformers->-r
/content/RAGAITutor/requirements.txt (line 8)) (2024.9.11)
Requirement already satisfied: safetensors>=0.4.1 in
/usr/local/lib/python3.10/dist-packages (from
transformers<5.0.0,>=4.41.0->sentence-transformers->-r
/content/RAGAITutor/requirements.txt (line 8)) (0.4.5)
Requirement already satisfied: click>=8.0.0 in
/usr/local/lib/python3.10/dist-packages (from typer>=0.9.0->chromadb-
>-r /content/RAGAITutor/requirements.txt (line 9)) (8.1.7)
Requirement already satisfied: shellingham>=1.3.0 in
/usr/local/lib/python3.10/dist-packages (from typer>=0.9.0->chromadb-
>-r /content/RAGAITutor/requirements.txt (line 9)) (1.5.4)
Requirement already satisfied: httpxtools>=0.5.0 in
/usr/local/lib/python3.10/dist-packages (from
uvicorn[standard]>=0.18.3->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.6.4)
Requirement already satisfied: uvloop!=0.15.0,!0.15.1,>=0.14.0 in
/usr/local/lib/python3.10/dist-packages (from
uvicorn[standard]>=0.18.3->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.21.0)
Requirement already satisfied: watchfiles>=0.13 in
/usr/local/lib/python3.10/dist-packages (from
uvicorn[standard]>=0.18.3->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.24.0)
Requirement already satisfied: websockets>=10.4 in
/usr/local/lib/python3.10/dist-packages (from
uvicorn[standard]>=0.18.3->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (13.1)
Requirement already satisfied: soupsieve>1.2 in
/usr/local/lib/python3.10/dist-packages (from
beautifulsoup4<5.0.0,>=4.12.3->llama-index-readers-file<0.2.0,>=0.1.4-
>llama-index->-r /content/RAGAITutor/requirements.txt (line 10)) (2.6)

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Requirement already satisfied: pyarrow>=8.0.0 in  
/usr/local/lib/python3.10/dist-packages (from datasets<2.15,>=2.13-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (16.1.0)

Requirement already satisfied: pyarrow-hotfix in  
/usr/local/lib/python3.10/dist-packages (from datasets<2.15,>=2.13-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (0.6)

Requirement already satisfied: dill<0.3.8,>=0.3.0 in  
/usr/local/lib/python3.10/dist-packages (from datasets<2.15,>=2.13-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (0.3.7)

Requirement already satisfied: xxhash in  
/usr/local/lib/python3.10/dist-packages (from datasets<2.15,>=2.13-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (3.5.0)

Requirement already satisfied: multiprocessing in  
/usr/local/lib/python3.10/dist-packages (from datasets<2.15,>=2.13-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (0.70.15)

Requirement already satisfied: cachetools<6.0,>=2.0.0 in  
/usr/local/lib/python3.10/dist-packages (from google-auth>=1.0.1-  
>kubernetes>=28.1.0->chromadb->-r /content/RAGAITutor/requirements.txt  
(line 9)) (5.5.0)

Requirement already satisfied: pyasn1-modules>=0.2.1 in  
/usr/local/lib/python3.10/dist-packages (from google-auth>=1.0.1-  
>kubernetes>=28.1.0->chromadb->-r /content/RAGAITutor/requirements.txt  
(line 9)) (0.4.1)

Requirement already satisfied: rsa<5,>=3.1.4 in  
/usr/local/lib/python3.10/dist-packages (from google-auth>=1.0.1-  
>kubernetes>=28.1.0->chromadb->-r /content/RAGAITutor/requirements.txt  
(line 9)) (4.9)

Requirement already satisfied: omegaconf<2.4,>=2.2 in  
/usr/local/lib/python3.10/dist-packages (from hydra-core<1.4,>=1.3-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (2.3.0)

Requirement already satisfied: antlr4-python3-runtime==4.9.\* in  
/usr/local/lib/python3.10/dist-packages (from hydra-core<1.4,>=1.3-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (4.9.3)

Requirement already satisfied: zipp>=0.5 in  
/usr/local/lib/python3.10/dist-packages (from importlib-  
metadata<=8.4.0,>=6.0->opentelemetry-api>=1.2.0->chromadb->-r  
/content/RAGAITutor/requirements.txt (line 9)) (3.20.2)

Requirement already satisfied: lightning-utilities<2.0,>=0.10.0 in  
/usr/local/lib/python3.10/dist-packages (from lightning<2.4,>=2.3-  
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r  
/content/RAGAITutor/requirements.txt (line 12)) (0.11.8)

Requirement already satisfied: torchmetrics<3.0,>=0.7.0 in

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/usr/local/lib/python3.10/dist-packages (from lightning<2.4,>=2.3-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (1.5.0)
Requirement already satisfied: pytorch-lightning in
/usr/local/lib/python3.10/dist-packages (from lightning<2.4,>=2.3-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (2.4.0)
Requirement already satisfied: mdurl~=0.1 in
/usr/local/lib/python3.10/dist-packages (from markdown-it-py>=2.2.0-
>rich>=10.11.0->chromadb->-r /content/RAGAITutor/requirements.txt
(line 9)) (0.1.2)
Requirement already satisfied: distro<2,>=1.7.0 in
/usr/lib/python3/dist-packages (from openai>=1.14.0->llama-index-
agent-openai<0.3.0,>=0.1.4->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (1.7.0)
Requirement already satisfied: jiter<1,>=0.4.0 in
/usr/local/lib/python3.10/dist-packages (from openai>=1.14.0->llama-
index-agent-openai<0.3.0,>=0.1.4->llama-index->-r
/content/RAGAITutor/requirements.txt (line 10)) (0.6.1)
Requirement already satisfied: exceptiongroup in
/usr/local/lib/python3.10/dist-packages (from anyio->httpx>=0.27.0-
>chromadb->-r /content/RAGAITutor/requirements.txt (line 9)) (1.2.2)
Requirement already satisfied: spacy-legacy<3.1.0,>=3.0.11 in
/usr/local/lib/python3.10/dist-packages (from spacy<3.8,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (3.0.12)
Requirement already satisfied: spacy-loggers<2.0.0,>=1.0.0 in
/usr/local/lib/python3.10/dist-packages (from spacy<3.8,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (1.0.5)
Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in
/usr/local/lib/python3.10/dist-packages (from spacy<3.8,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (1.0.10)
Requirement already satisfied: cymem<2.1.0,>=2.0.2 in
/usr/local/lib/python3.10/dist-packages (from spacy<3.8,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (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,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (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,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (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,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
```

```
/content/RAGAITutor/requirements.txt (line 12)) (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,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (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,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (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,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (0.4.1)
Requirement already satisfied: langcodes<4.0.0,>=3.2.0 in
/usr/local/lib/python3.10/dist-packages (from spacy<3.8,>=3.7-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (3.4.1)
Requirement already satisfied: sentencepiece!=0.1.92,>=0.1.91 in
/usr/local/lib/python3.10/dist-packages (from
transformers[sentencepiece]<4.42,>=4.41->relik<2.0.0,>=1.0.3->llama-
index-extractors-relik->-r /content/RAGAITutor/requirements.txt (line
12)) (0.2.0)
Requirement already satisfied: mypy-extensions>=0.3.0 in
/usr/local/lib/python3.10/dist-packages (from typing-
inspect<1,>=0.4.0->dataclasses-json<0.7,>=0.5.7->langchain-community-
>-r /content/RAGAITutor/requirements.txt (line 6)) (1.0.0)
Requirement already satisfied: docker-pycreds>=0.4.0 in
/usr/local/lib/python3.10/dist-packages (from wandb<0.18,>=0.15-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (0.4.0)
Requirement already satisfied: gitpython!=3.1.29,>=1.0.0 in
/usr/local/lib/python3.10/dist-packages (from wandb<0.18,>=0.15-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (3.1.43)
Requirement already satisfied: platformdirs in
/usr/local/lib/python3.10/dist-packages (from wandb<0.18,>=0.15-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (4.3.6)
Requirement already satisfied: psutil>=5.0.0 in
/usr/local/lib/python3.10/dist-packages (from wandb<0.18,>=0.15-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (5.9.5)
Requirement already satisfied: sentry-sdk>=1.0.0 in
/usr/local/lib/python3.10/dist-packages (from wandb<0.18,>=0.15-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (2.16.0)
Requirement already satisfied: setproctitle in
/usr/local/lib/python3.10/dist-packages (from wandb<0.18,>=0.15-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
```



```

/content/RAGAITutor/requirements.txt (line 12)) (1.3.3)
Requirement already satisfied: propcache>=0.2.0 in
/usr/local/lib/python3.10/dist-packages (from yarll<2.0,>=1.12.0-
>aiohttp<4.0.0,>=3.8.3->langchain->-r
/content/RAGAITutor/requirements.txt (line 5)) (0.2.0)
Requirement already satisfied: humanfriendly>=9.1 in
/usr/local/lib/python3.10/dist-packages (from coloredlogs-
>onnxruntime>=1.14.1->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (10.0)
Requirement already satisfied: colorlog in
/usr/local/lib/python3.10/dist-packages (from hydra-colorlog-
>relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-r
/content/RAGAITutor/requirements.txt (line 12)) (6.8.2)
Requirement already satisfied: MarkupSafe>=2.0 in
/usr/local/lib/python3.10/dist-packages (from jinja2->torch>=1.11.0-
>sentence-transformers->-r /content/RAGAITutor/requirements.txt (line
8)) (3.0.1)
Requirement already satisfied: mpmath<1.4,>=1.1.0 in
/usr/local/lib/python3.10/dist-packages (from sympy-
>onnxruntime>=1.14.1->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (1.3.0)
Requirement already satisfied: gitdb<5,>=4.0.1 in
/usr/local/lib/python3.10/dist-packages (from gitpython!
=3.1.29,>=1.0.0->wandb<0.18,>=0.15->relik<2.0.0,>=1.0.3->llama-index-
extractors-relik->-r /content/RAGAITutor/requirements.txt (line 12))
(4.0.11)
Requirement already satisfied: language-data>=1.2 in
/usr/local/lib/python3.10/dist-packages (from langcodes<4.0.0,>=3.2.0-
>spacy<3.8,>=3.7->relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-
r /content/RAGAITutor/requirements.txt (line 12)) (1.2.0)
Requirement already satisfied: pyasn1<0.7.0,>=0.4.6 in
/usr/local/lib/python3.10/dist-packages (from pyasn1-modules>=0.2.1-
>google-auth>=1.0.1->kubernetes>=28.1.0->chromadb->-r
/content/RAGAITutor/requirements.txt (line 9)) (0.6.1)
Requirement already satisfied: blis<0.8.0,>=0.7.8 in
/usr/local/lib/python3.10/dist-packages (from thinc<8.3.0,>=8.2.2-
>spacy<3.8,>=3.7->relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-
r /content/RAGAITutor/requirements.txt (line 12)) (0.7.11)
Requirement already satisfied: confection<1.0.0,>=0.0.1 in
/usr/local/lib/python3.10/dist-packages (from thinc<8.3.0,>=8.2.2-
>spacy<3.8,>=3.7->relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-
r /content/RAGAITutor/requirements.txt (line 12)) (0.1.5)
Requirement already satisfied: cloudpathlib<1.0.0,>=0.7.0 in
/usr/local/lib/python3.10/dist-packages (from weasel<0.5.0,>=0.1.0-
>spacy<3.8,>=3.7->relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-
r /content/RAGAITutor/requirements.txt (line 12)) (0.19.0)
Requirement already satisfied: smart-open<8.0.0,>=5.2.1 in
/usr/local/lib/python3.10/dist-packages (from weasel<0.5.0,>=0.1.0-
>spacy<3.8,>=3.7->relik<2.0.0,>=1.0.3->llama-index-extractors-relik->-

```

```

r /content/RAGAITutor/requirements.txt (line 12)) (7.0.5)
Requirement already satisfied: smmap<6,>=3.0.1 in
/usr/local/lib/python3.10/dist-packages (from gitdb<5,>=4.0.1-
>gitpython!=3.1.29,>=1.0.0->wandb<0.18,>=0.15->relik<2.0.0,>=1.0.3-
>llama-index-extractors-relik->-r /content/RAGAITutor/requirements.txt
(line 12)) (5.0.1)
Requirement already satisfied: marisa-trie>=0.7.7 in
/usr/local/lib/python3.10/dist-packages (from language-data>=1.2-
>langcodes<4.0.0,>=3.2.0->spacy<3.8,>=3.7->relik<2.0.0,>=1.0.3->llama-
index-extractors-relik->-r /content/RAGAITutor/requirements.txt (line
12)) (1.2.1)
Downloading llama_index_llms_ollama-0.2.2-py3-none-any.whl (4.4 kB)
Downloading ollama-0.3.3-py3-none-any.whl (10 kB)
Installing collected packages: ollama, llama_index-llms-ollama
Successfully installed llama_index-llms-ollama-0.2.2 ollama-0.3.3

```

```

from RAGAITutor import utils

```

```

from utils import *

```

```

playlist_url = 'https://www.youtube.com/watch?
v=8IogxPUrW7k&list=PL2IkMHFWdEo-t2mIKmk_HwrJY0TwlT0i'
output_file =
'/Users/rahul/Desktop/RAG-AI-Tutor/Knowledge_source/transcript.txt'

```

```

playlist_transcript(playlist_url, output_file)

```

```

-----
-----
FileNotFoundError                                Traceback (most recent call
last)

```

```

<ipython-input-4-ca750c5f8b40> in <cell line: 6>()
      4 output_file =
      5 '/Users/rahul/Desktop/RAG-AI-Tutor/Knowledge_source/transcript.txt'
----> 6 playlist_transcript(playlist_url, output_file)

```

```

/content/utils.py in playlist_transcript(url, output)
      9     playlist = Playlist(url)
     10
----> 11     with open(output, 'w') as f:
     12         for video in playlist.video_urls:
     13             video_id = video.split('watch?v=')[1]

```

```

FileNotFoundError: [Errno 2] No such file or directory:
'/Users/rahul/Desktop/RAG-AI-Tutor/Knowledge_source/transcript.txt'

```

```

pdf_text =
utils.read_pdf("/content/RAGAITutor/Knowledge_source/wrennmartin.pdf")

```

```

cleaned_pdf = utils.clean_pdf(pdf_text)

with open('/content/RAGAITutor/Knowledge_source/transcript.txt') as f:
    playlist_txt = f.read()

combined_text = playlist_txt + cleaned_pdf

import importlib
import RAGAITutor.TradRAG.rag_utils
from RAGAITutor.TradRAG.rag_utils import process_data, token_splitter

proccesed = process_data(combined_text)

Total_chunk :1441

token_split_texts = token_splitter(proccesed)

/usr/local/lib/python3.10/dist-packages/sentence_transformers/
cross_encoder/CrossEncoder.py:13: TqdmExperimentalWarning: Using
` tqdm.autonotebook.tqdm ` in notebook mode. Use ` tqdm.tqdm ` instead to
force console mode (e.g. in jupyter console)
    from tqdm.autonotebook import tqdm, trange

{"model_id": "f33537487d914d0687b1e6e3802f027d", "version_major": 2, "vers
ion_minor": 0}

{"model_id": "979c8e62873346159e11c34e2a6ce3d4", "version_major": 2, "vers
ion_minor": 0}

{"model_id": "8b4181507984494990830df7ea5a1a9b", "version_major": 2, "vers
ion_minor": 0}

{"model_id": "74a4e5ff3e27495898ed3923a585b70a", "version_major": 2, "vers
ion_minor": 0}

/usr/local/lib/python3.10/dist-packages/huggingface_hub/
file_download.py:1132: FutureWarning: `resume_download` is deprecated
and will be removed in version 1.0.0. Downloads always resume when
possible. If you want to force a new download, use
`force_download=True`.
    warnings.warn(

{"model_id": "04ddfbb12a2b47f5808e1e1f031d734b", "version_major": 2, "vers
ion_minor": 0}

{"model_id": "3cfe804ef5744aefa8643dd4b16702e4", "version_major": 2, "vers
ion_minor": 0}

{"model_id": "f9663cc6ab3c4be088dacabb0d45976b", "version_major": 2, "vers
ion_minor": 0}

```

```
{"model_id": "21225f2ac8984b158f62f0095bb1d0ce", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "06331dc5e8444d5d947639946558b94b", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "d8e1221e847e4273b15b43ddea0a98ca", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "7c8ba410f8da4dd190f3b044492bd7b2", "version_major": 2, "version_minor": 0}
```

Total\_chunk :3517

```
import importlib
import RAGAITutor.TradRAG.rag_load
from RAGAITutor.TradRAG.rag_load import initiate_chormadb,
create_add_embeddings
```

```
client, collection = initiate_chormadb('ai-tutor')
```

```
{"model_id": "2c52ac777a084215acdd3540c183da05", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "b1fdbfab9470467aa55611f3d04dad41", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "402ed7eebbae4d8684162ab27dfef3a4", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "68774763f38845afb1087a70284582bd", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "d35b91ff66ac489e9430301b2effe3d7", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "d4e39f572f3543a083d831fe5b57b453", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "d2cb50f126ff4d8eb144b00f331d22b0", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "bd9310daf780451fa517b9fe07d128ac", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "5f00de82bfbe4929be7a8dabb29cb431", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "54f07d068feb4301bde70d407a9765d4", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "fb6cbc1dda6a4664bcc77b5d436c3f03", "version_major": 2, "version_minor": 0}
```

```

create_add_embeddings(collection, token_split_texts)
3517
import importlib
import RAGAITutor.TradRAG.rag_gen
importlib.reload(RAGAITutor.TradRAG.rag_gen)
from RAGAITutor.TradRAG.rag_gen import query, retriever

!pip install colab-xterm
%reload_ext colabxterm

Requirement already satisfied: colab-xterm in
/usr/local/lib/python3.10/dist-packages (0.2.0)
Requirement already satisfied: ptyprocess~=0.7.0 in
/usr/local/lib/python3.10/dist-packages (from colab-xterm) (0.7.0)
Requirement already satisfied: tornado>5.1 in
/usr/local/lib/python3.10/dist-packages (from colab-xterm) (6.3.3)

%xterm

Launching Xterm...

<IPython.core.display.Javascript object>

doc = retriever('nouns', collection)
context_1 = query('llama3.1', 'nouns', doc)

print(context_1)

What an exciting topic! Let's dive into the world of nouns!

**What are Nouns?**

In English, nouns are one of the basic elements of a sentence. They
refer to people, places, things, and ideas. Without nouns, our
sentences would be empty shells!

There are different types of nouns, and today we'll explore two main
categories: Countable Nouns and Uncountable Nouns.

Countable Nouns

These are the most common type of noun. You can count them! For
example:

* "dog" - one dog, two dogs, three dogs...
* "man" - a man, two men, three men...
* "computer" - one computer, two computers, three computers...

Notice how we use articles like "a," "an," and "the" to refer to
singular countable nouns?

```

## **\*\*Uncountable Nouns\*\***

These are the names of things that cannot be counted. We can't say "two waters" or "three milks." Uncountable nouns mainly denote substances and abstract things.

Examples:

- \* "water"
- \* "milk"
- \* "oil"
- \* "honesty"

Now, let's talk about **\*\*Compound Nouns\*\***!

A compound noun is a type of noun that combines two or more words to create a new word. These are very common in English!

Examples:

- \* "bookshelf"
- \* "toothbrush"
- \* "birthday"

## **\*\*Exercise Time!\*\***

Point out the nouns in the following sentences and say whether they are **\*\*common\*\***, **\*\*proper\*\***, **\*\*collective\*\***, or **\*\*abstract\*\***.

1. The crowd was very big.
  - \* Noun: crowd
  - \* Type: \_\_\_\_\_ (common, proper, collective, abstract)
2. The Eiffel Tower is a famous landmark.
  - \* Nouns: Eiffel Tower, landmark
  - \* Types: \_\_\_\_\_ (common, proper, collective, abstract)

## **\*\*More Examples!\*\***

Let's analyze the following sentences:

1. I would like to eat some cake.
  - \* Noun: cake
  - \* Type: \_\_\_\_\_ (countable or uncountable)
2. The company is looking for a new employee.
  - \* Nouns: company, employee
  - \* Types: \_\_\_\_\_ (common, proper, collective, abstract)

## **\*\*Conclusion\*\***

That's it for today's lesson on nouns! Remember:

- \* Countable nouns can be counted, and you can use articles like "a," "an," and "the" to refer to singular countable nouns.
- \* Uncountable nouns cannot be counted, and they mainly denote substances and abstract things.
- \* Compound nouns combine two or more words to create a new word.

Practice makes perfect! Try pointing out the nouns in the sentences provided and identifying their types.

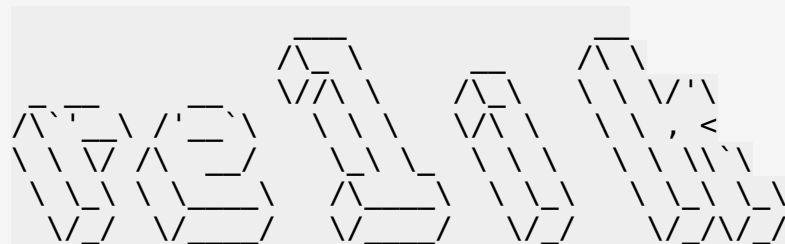
```
import importlib
import RAGAITutor.GraphRAG.graphutils
importlib.reload(RAGAITutor.GraphRAG.graphutils)
from RAGAITutor.GraphRAG.graphutils import dir_reader,
initialize_neo4j, initialize_relik, initialize_embed

reader = dir_reader('/content/RAGAITutor/Knowledge_source')
documents = reader.load_data()

user = "neo4j"
password = "0f49yinDchUEtfYdbi-eeu_tMlOXd9ro0jcWLLnKPUY"
url = "neo4j+s://85f827ab.databases.neo4j.io"

graph_store = initialize_neo4j(user, password, url)

from llama_index.extractors.relik.base import RelikPathExtractor
relik = RelikPathExtractor(model="relik-ie/relik-relation-extraction-
small")
```



```
embed = initialize_embed("BAAI/bge-small-en-v1.5")

{"model_id":"c73e0a98f6694f6d86a3db83fc0c024d","version_major":2,"version_minor":0}

{"model_id":"d75429a8fc45e09ce23b61c26511d2","version_major":2,"version_minor":0}

{"model_id":"226e8a19b0e34546bb0072788e0633bf","version_major":2,"version_minor":0}
```

```
{"model_id":"368180ca39fd40b098efc39353fad12e","version_major":2,"version_minor":0}
```

```
{"model_id":"207090ba2fbd47a8a84b34c416cf164e","version_major":2,"version_minor":0}
```

```
{"model_id":"dacf258acf6f41409a81ccdc146bb820","version_major":2,"version_minor":0}
```

```
{"model_id":"a37e913faa334260abf13c00e2553a49","version_major":2,"version_minor":0}
```

```
import importlib
import RAGAITutor.GraphRAG.graphload
importlib.reload(RAGAITutor.GraphRAG.graphload)
from RAGAITutor.GraphRAG.graphload import load_graph
from llama_index.llms.ollama import Ollama
from llama_index.core import Settings
```

```
llm = Ollama(base_url="http://localhost:11434", model="llama3.1")
Settings.llm = llm
```

```
response = llm.complete("Hi!")
print(response)
```

It's nice to meet you. Is there something I can help you with, or would you like to chat?

```
!pip install nest_asyncio
import nest_asyncio
```

```
nest_asyncio.apply()
```

```
Requirement already satisfied: nest_asyncio in
/usr/local/lib/python3.10/dist-packages (1.6.0)
```

```
small = documents[:10]
len(small)
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10
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import importlib
import RAGAITutor.GraphRAG.graphquery
importlib.reload(RAGAITutor.GraphRAG.graphquery)
from RAGAITutor.GraphRAG.graphquery import query

template = """You are an expert English Teacher with 10 years of
experience. You specialize in teaching kids from class 5-10.
    You have done a lot of research on how to teach kids effectively.

```

```

You have a lot of experience in teaching both kids and adults
    who want to learn English later in life.
    Topic: ""
topic = 'nouns'
question = template + topic
context_2 = query(index, question)

{"model_id":"fce45d7f147a43dc98b1b35e25aeaba9","version_major":2,"version_minor":0}

c_2 = context_2.response
c_2

{"type":"string"}

Hybrid_prompt = ""Given two context find out what each of them are
missing. Then combine the contexts and their missing parts and provide
a good lesson
                on the topic they are taking about""
context_1 = "Context 1 :" + context_1
c_2 = "Context 2 :" + c_2
prompt = Hybrid_prompt + context_1 + c_2

response = llm.complete(prompt)
print(response)

```

#### **\*\*Combining Contexts and Identifying Missing Parts\*\***

After reviewing both contexts, I've identified what each of them is missing:

Context 1 is missing:

- \* A clear introduction to the topic of nouns and their importance in English language.
- \* More examples of compound nouns and how they are used in sentences.
- \* A section on collective nouns and abstract nouns, which are only briefly mentioned.

Context 2 is missing:

- \* A more detailed explanation of countable and uncountable nouns, including examples.
- \* A clear definition of common, proper, collective, and abstract nouns, along with examples for each type.
- \* A section on how to identify nouns in sentences, including exercises or quizzes to practice this skill.

#### **\*\*Combined Contexts\*\***

Here's a revised version that combines the best parts of both

contexts:

**\*\*Welcome to the World of Nouns!\*\***

In English, nouns are one of the fundamental elements of language. They help us describe people, places, things, and ideas. Without nouns, our sentences would be empty shells!

Let's start with some examples. What do you think these words are? 'Book', 'Pencil', 'City', 'Teacher'. Can anyone tell me why they think these words are nouns?

That's right! Each of these words represents a person, place, or thing that we can talk about or point to.

**\*\*Types of Nouns\*\***

We have several types of nouns:

- \* **\*\*Common Nouns\*\***: These are the most common type of noun. You can count them! Examples: 'dog', 'tree'.

- \* **\*\*Proper Nouns\*\***: These are unique names for people and places. Examples: 'John', 'Paris'.

- \* **\*\*Collective Nouns\*\***: These group together multiple individuals or things. Examples: 'family', 'team'.

- \* **\*\*Abstract Nouns\*\***: These represent feelings or ideas that we can't see or touch. Examples: 'happiness', 'freedom'.

**\*\*Countable and Uncountable Nouns\*\***

Let's talk about countable nouns, which can be counted, and uncountable nouns, which cannot.

Examples of countable nouns:

- \* "dog" - one dog, two dogs, three dogs...

- \* "book" - one book, two books, three books...

Examples of uncountable nouns:

- \* "water"

- \* "milk"

**\*\*Compound Nouns\*\***

A compound noun is a type of noun that combines two or more words to create a new word. Examples: 'bookshelf', 'toothbrush'.

**\*\*Exercise Time!\*\***

Point out the nouns in the following sentences and say whether they

are **common**, **proper**, **collective**, or **abstract**.

1. The crowd was very big.
  - \* Noun: crowd
  - \* Type: \_\_\_\_\_ (common, proper, collective, abstract)
2. The Eiffel Tower is a famous landmark.
  - \* Nouns: Eiffel Tower, landmark
  - \* Types: \_\_\_\_\_ (common, proper, collective, abstract)

**More Examples!**

Let's analyze the following sentences:

1. I would like to eat some cake.
  - \* Noun: cake
  - \* Type: \_\_\_\_\_ (countable or uncountable)
2. The company is looking for a new employee.
  - \* Nouns: company, employee
  - \* Types: \_\_\_\_\_ (common, proper, collective, abstract)

**Conclusion**

That's it for today's lesson on nouns! Remember:

- \* Countable nouns can be counted, and you can use articles like "a," "an," and "the" to refer to singular countable nouns.
- \* Uncountable nouns cannot be counted, and they mainly denote substances and abstract things.
- \* Compound nouns combine two or more words to create a new word.

Practice makes perfect! Try pointing out the nouns in the sentences provided and identifying their types.

```
input_dir = "/content/eval"

from llama_index.core import SimpleDirectoryReader

reader_eval = SimpleDirectoryReader(
    input_dir,
    recursive=True,
)

doc_eval = reader_eval.load_data()

from llama_index.core.node_parser import SentenceSplitter

splitter = SentenceSplitter(
    chunk_size=300,
```



```

        chunk_overlap=20,
    )

from llama_index.core import Document
nodes = splitter.get_nodes_from_documents(doc_eval)
documents = [Document(text=node.text, metadata=node.metadata) for node
in nodes]

QA_generation_prompt = """
Your task is to write a factoid question and an answer given a
context.
Your factoid question should be answerable with a specific, concise
piece of factual information from the context.
Your factoid question should be formulated in the same style as
questions users could ask in a search engine.
This means that your factoid question MUST NOT mention something like
"according to the passage" or "context".

Provide your answer as follows:

Output:::
Factoid question: (your factoid question)
Answer: (your answer to the factoid question)

Now here is the context.

Context: {context}\n
Output:::"""

question_groundness_critique_prompt = """
You will be given a context and a question.
Your task is to provide a 'total rating' scoring how well one can
answer the given question unambiguously with the given context.
Give your answer on a scale of 1 to 5, where 1 means that the question
is not answerable at all given the context, and 5 means that the
question is clearly and unambiguously answerable with the context.

Provide your answer as follows:

Answer:::
Evaluation: (your rationale for the rating, as a text)
Total rating: (your rating, as a number between 1 and 5)

You MUST provide values for 'Evaluation:' and 'Total rating:' in your
answer.

Now here are the question and context.

Question: {question}\n
Context: {context}\n

```

Answer::: ""

```
question_relevance_critique_prompt = ""
```

You will be given a question.

Your task is to provide a 'total rating' representing how useful this question can be to machine learning developers building NLP applications with the Hugging Face ecosystem.

Give your answer on a scale of 1 to 5, where 1 means that the question is not useful at all, and 5 means that the question is extremely useful.

Provide your answer as follows:

Answer:::

Evaluation: (your rationale for the rating, as a text)

Total rating: (your rating, as a number between 1 and 5)

You MUST provide values for 'Evaluation:' and 'Total rating:' in your answer.

Now here is the question.

Question: {question}\n

Answer::: ""

```
question_standalone_critique_prompt = ""
```

You will be given a question.

Your task is to provide a 'total rating' representing how context-independent this question is.

Give your answer on a scale of 1 to 5, where 1 means that the question depends on additional information to be understood, and 5 means that the question makes sense by itself.

For instance, if the question refers to a particular setting, like 'in the context' or 'in the document', the rating must be 1.

The questions can contain obscure technical nouns or acronyms like Gradio, Hub, Hugging Face or Space and still be a 5: it must simply be clear to an operator with access to documentation what the question is about.

For instance, "What is the name of the checkpoint from which the ViT model is imported?" should receive a 1, since there is an implicit mention of a context, thus the question is not independent from the context.

Provide your answer as follows:

Answer:::

Evaluation: (your rationale for the rating, as a text)

Total rating: (your rating, as a number between 1 and 5)

You MUST provide values for 'Evaluation:' and 'Total rating:' in your answer.

Now here is the question.

Question: {question}\n

Answer::: ""

```
import pandas as pd
import random
from tqdm.auto import tqdm
import requests
```

```
def get_response(
    prompt: str, url: str = "http://localhost:11434/api/generate",
    model: str = "llama3"
):
    """
    Sends a prompt ollama API and retrieves the generated response.

    Args:
        prompt: The text input that the model will use to generate a
        response.
        url: The API endpoint for the model (default:
        "http://localhost:11434/api/generate").
        model: The model to be used for generation (default:
        "llama3").

    Returns:
        The generated response from the language model as a string.
    """

    payload = {"model": model, "prompt": prompt, "stream": False}
    response = requests.post(url, json=payload)
    resp = response.json()
    return resp["response"]
```

```
def qa_generator(
    documents: object,
    N_GENERATIONS: int,
):
    """
    Generates a specified number of question-answer pairs from the
    provided documents.

    Args:
        documents: A collection of document objects to generate QA
        pairs from.
```

*N\_GENERATIONS: The number of question-answer pairs to generate (default: 20).*

*Returns:*

*A list of dictionaries, each containing the generated context, question, answer, and source document metadata.*

```
"""
print(f"Generating {N_GENERATIONS} QA couples...")

outputs = []
for sampled_context in tqdm(random.sample(documents,
N_GENERATIONS)):
    # Generate QA couple
    output_QA_couple = get_response(
        QA_generation_prompt.format(context=sampled_context.text)
    )
    try:
        question = output_QA_couple.split("Factoid question: ")[-
1].split(
            "Answer: "
        )[0]
        answer = output_QA_couple.split("Answer: ")[-1]
        assert len(answer) < 300, "Answer is too long"
        outputs.append(
            {
                "context": sampled_context.text,
                "question": question,
                "answer": answer,
                "source_doc": sampled_context.metadata,
            }
        )
    except:
        continue
df = pd.DataFrame(outputs)
df.to_csv("QA.csv")
return outputs
```

```
def critique_qa(
    outputs: list,
):
    """
```

*Critiques the generated question-answer pairs based on groundedness, relevance, and standalone quality.*

*Args:*

*outputs: A list of dictionaries containing generated QA pairs to be critiqued.*

*Returns:*

*The critiqued QA pairs with additional fields for groundedness, relevance, and standalone quality scores and evaluations.*

```
"""
print("Generating critique for each QA couple...")
for output in tqdm(outputs):
    evaluations = {
        "groundedness": get_response(
            question_groundness_critique_prompt.format(
                context=output["context"],
question=output["question"]
            ),
        ),
        "relevance": get_response(
question_relevance_critique_prompt.format(question=output["question"])
        ,
        ),
        "standalone": get_response(
question_standalone_critique_prompt.format(question=output["question"]
        ),
        ),
    }
    try:
        for criterion, evaluation in evaluations.items():
            score, eval = (
                int(evaluation.split("Total rating: ")[-
1].strip()),
                evaluation.split("Total rating: ")[-
2].split("Evaluation: ")[1],
            )
            output.update(
                {
                    f"{criterion}_score": score,
                    f"{criterion}_eval": eval,
                }
            )
    except Exception as e:
        continue
generated_questions = pd.DataFrame.from_dict(outputs)
generated_questions = generated_questions.loc[
    (generated_questions["groundness_score"] >= 4)
    & (generated_questions["relevance_score"] >= 4)
    & (generated_questions["standalone_score"] >= 4)
]
generated_questions.to_csv("generated_questions.csv")
return outputs
```

```

N_GENERATIONS = 2

# Generate the QA pairs
qa_pairs = qa_generator(documents, N_GENERATIONS)

Generating 2 QA couples...

{"model_id": "6b305ce5aa3e4f2ea02b15dec5c0ea4d", "version_major": 2, "version_minor": 0}

critiqued_qa_pairs = critique_qa(qa_pairs)

Generating critique for each QA couple...

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critiqued_qa_pairs

[{'context': '**Combining Contexts and Identifying Missing Parts**\n\nAfter reviewing both contexts, I've identified what each of them is missing:\n\nContext 1 is missing:\n\n* A clear introduction to the topic of nouns and their importance in English language.\n* More examples of compound nouns and how they are used in sentences.\n* A section on collective nouns and abstract nouns, which are only briefly mentioned.\n\nContext 2 is missing:\n\n* A more detailed explanation of countable and uncountable nouns, including examples.\n* A clear definition of common, proper, collective, and abstract nouns, along with examples for each type.\n* A section on how to identify nouns in sentences, including exercises or quizzes to practice this skill.\n\n**Combined Contexts**\n\nHere's a revised version that combines the best parts of both contexts:\n\n**Welcome to the World of Nouns!**\n\nIn English, nouns are one of the fundamental elements of language. They help us describe people, places, things, and ideas. Without nouns, our sentences would be empty shells!\n\nLet's start with some examples. What do you think these words are? 'Book', 'Pencil', 'City', 'Teacher'. Can anyone tell me why they think these words are nouns?\n\nThat's right! Each of these words represents a person, place, or thing that we can talk about or point to.",
  'question': 'What do the words "Book", "Pencil", "City", and "Teacher" represent in English language?\n',
  'answer': 'They represent people, places, or things that we can talk about or point to.',
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  'groundedness_eval': 'The context provides an introduction to the

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topic of nouns and their importance in English language. Additionally, it mentions specific examples of words like "Book", "Pencil", "City", and "Teacher" and explains why they represent people, places, or things. This information is sufficient to answer the question about what these words represent in the English language.\n\n',

'relevance\_score': 2,

'relevance\_eval': "This question seems to be a basic query about semantic representations of certain nouns in the English language. While it's not specific to the Hugging Face ecosystem or NLP applications, understanding the meanings of these words is crucial for building effective natural language processing models.\n\n",

'standalone\_score': 5,

'standalone\_eval': "This question is self-contained and doesn't rely on any specific context or prior knowledge. The words listed are common nouns that can be understood without additional information, making it a 5 out of 5 for independence from context.\n\n"},

{'context': '\*\*Types of Nouns\*\*\n\nWe have several types of nouns:\n\n\* \*\*Common Nouns\*\*: These are the most common type of noun. You can count them! Examples: \'dog\', \'tree\'.\n\n\* \*\*Proper Nouns\*\*: These are unique names for people and places. Examples: \'John\', \'Paris\'.\n\n\* \*\*Collective Nouns\*\*: These group together multiple individuals or things. Examples: \'family\', \'team\'.\n\n\* \*\*Abstract Nouns\*\*: These represent feelings or ideas that we can\'t see or touch. Examples: \'happiness\', \'freedom\'.\n\n\* \*\*Countable and Uncountable Nouns\*\*\n\nLet\'s talk about countable nouns, which can be counted, and uncountable nouns, which cannot.\n\nExamples of countable nouns:\n\n\* "dog" - one dog, two dogs, three dogs...\n\n\* "book" - one book, two books, three books...\n\nExamples of uncountable nouns:\n\n\* "water"\n\n\* "milk"\n\n\* \*\*Compound Nouns\*\*\n\nA compound noun is a type of noun that combines two or more words to create a new word. Examples: \'bookshelf\', \'toothbrush\'.\n\n\* \*\*Exercise Time!\*\*\n\nPoint out the nouns in the following sentences and say whether they are \*\*common\*\*, \*\*proper\*\*, \*\*collective\*\*, or \*\*abstract\*\*.\n\n1. The crowd was very big.',

'question': 'What type of noun is "crowd"?',

'answer': 'Collective',

'source\_doc': {'file\_path': '/content/eval/download.txt',

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