

```
#Install necessary libraries
```

```
!pip -q install langchain openai==0.27.0 tiktoken
```

```
!pip install cohere
```

```
!pip install llmx
```



Downloading cohere-4.37-py3-none-any.whl (48 kB)

48.9/48.9 kB 1.3 MB/s eta 0:00:00

Requirement already satisfied: aiohttp<4.0,>=3.0 in /usr/local/lib/python3.10/dist-packages (from cohere) (3.8.6)

Collecting backoff<3.0,>=2.0 (from cohere)

Downloading backoff-2.2.1-py3-none-any.whl (15 kB)

Collecting fastavro<2.0,>=1.8 (from cohere)

Downloading fastavro-1.9.0-cp310-cp310-manylinux\_2\_17\_x86\_64.manylinux2014\_x86\_64.whl (3.1 MB)

3.1/3.1 MB 44.6 MB/s eta 0:00:00

Requirement already satisfied: importlib\_metadata<7.0,>=6.0 in /usr/local/lib/python3.10/dist-packages (from cohere) (6.8.0)

Requirement already satisfied: requests<3.0.0,>=2.25.0 in /usr/local/lib/python3.10/dist-packages (from cohere) (2.31.0)

Requirement already satisfied: urllib3<3,>=1.26 in /usr/local/lib/python3.10/dist-packages (from cohere) (2.0.7)

Requirement already satisfied: attrs>=17.3.0 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere) (23.1.0)

Requirement already satisfied: charset-normalizer<4.0,>=2.0 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere) (3.3.0)

Requirement already satisfied: multidict<7.0,>=4.5 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere) (6.0.4)

Requirement already satisfied: async-timeout<5.0,>=4.0.0a3 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere) (4.0.3)

Requirement already satisfied: yarl<2.0,>=1.0 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere) (1.9.2)

Requirement already satisfied: frozenlist>=1.1.1 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere) (1.4.0)

Requirement already satisfied: aiosignal>=1.1.2 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere) (1.3.1)

Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.10/dist-packages (from importlib\_metadata<7.0,>=6.0->cohere) (3.17.0)

Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.25.0->cohere) (3.4)

Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.25.0->cohere) (2024.2.2)

Installing collected packages: fastavro, backoff, cohere

Successfully installed backoff-2.2.1 cohere-4.37 fastavro-1.9.0

Requirement already satisfied: llmx in /usr/local/lib/python3.10/dist-packages (0.0.15a0)

Requirement already satisfied: pydantic in /usr/local/lib/python3.10/dist-packages (from llmx) (1.10.13)

Requirement already satisfied: openai in /usr/local/lib/python3.10/dist-packages (from llmx) (0.27.0)

Requirement already satisfied: tiktoken in /usr/local/lib/python3.10/dist-packages (from llmx) (0.5.1)

Requirement already satisfied: diskcache in /usr/local/lib/python3.10/dist-packages (from llmx) (5.6.3)

Requirement already satisfied: cohere in /usr/local/lib/python3.10/dist-packages (from llmx) (4.37)

Requirement already satisfied: google.auth in /usr/local/lib/python3.10/dist-packages (from llmx) (2.17.3)

Requirement already satisfied: typer in /usr/local/lib/python3.10/dist-packages (from llmx) (0.9.0)

Requirement already satisfied: pyyaml in /usr/local/lib/python3.10/dist-packages (from llmx) (6.0.1)

Requirement already satisfied: aiohttp<4.0,>=3.0 in /usr/local/lib/python3.10/dist-packages (from cohere->llmx) (3.8.6)

Requirement already satisfied: backoff<3.0,>=2.0 in /usr/local/lib/python3.10/dist-packages (from cohere->llmx) (2.2.1)

Requirement already satisfied: fastavro<2.0,>=1.8 in /usr/local/lib/python3.10/dist-packages (from cohere->llmx) (1.9.0)

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Requirement already satisfied: urllib3<3,>=1.26 in /usr/local/lib/python3.10/dist-packages (from cohere->llmx) (2.0.7)

Requirement already satisfied: cachetools<6.0,>=2.0.0 in /usr/local/lib/python3.10/dist-packages (from google.auth->llmx) (5.3.2)

Requirement already satisfied: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.10/dist-packages (from google.auth->llmx) (0.3.0)

Requirement already satisfied: six>=1.9.0 in /usr/local/lib/python3.10/dist-packages (from google.auth->llmx) (1.16.0)

Requirement already satisfied: rsa<5,>=3.1.4 in /usr/local/lib/python3.10/dist-packages (from google.auth->llmx) (4.9)

Requirement already satisfied: tqdm in /usr/local/lib/python3.10/dist-packages (from openai->llmx) (4.66.1)

Requirement already satisfied: typing-extensions>=4.2.0 in /usr/local/lib/python3.10/dist-packages (from pydantic->llmx) (4.5.0)

Requirement already satisfied: regex>=2022.1.18 in /usr/local/lib/python3.10/dist-packages (from tiktoken->llmx) (2023.6.3)

Requirement already satisfied: click<9.0.0,>=7.1.1 in /usr/local/lib/python3.10/dist-packages (from typer->llmx) (8.1.7)

Requirement already satisfied: attrs>=17.3.0 in /usr/local/lib/python3.10/dist-packages (from aiohttp<4.0,>=3.0->cohere->llmx) (23.1.0)

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Requirement already satisfied: pyasn1<0.6.0,>=0.4.6 in /usr/local/lib/python3.10/dist-packages (from pyasn1-modules>=0.2.1->google.auth->llmx) (0.5.1)

Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests<3.0.0,>=2.25.0->cohere->llmx) (3.4)

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```
#Get API Key
```

```
import os
```

```
os.environ["OPENAI_API_KEY"] = "sk-SGeRAaz1NsI2qbt21ZILT3B1bkFJ63zHdESRG0RmMT65TOx4"
```

```
!pip show langchain
```

Name: langchain

Version: 0.0.343

Summary: Building applications with LLMs through composability

Home-page: <https://github.com/langchain-ai/langchain>

Author:

Author-email:

License: MIT

Location: /usr/local/lib/python3.10/dist-packages

Requires: aiohttp, anyio, async-timeout, dataclasses-json, jsonpatch, langchain-core, langsmith, numpy, pydantic, PyYAML, requests, SQLAlchemy

Required-by:

```

#Setting up Summarization Chain
from langchain import OpenAI, PromptTemplate, LLMChain
from langchain.text_splitter import CharacterTextSplitter
from langchain.chains.mapreduce import MapReduceChain
from langchain.prompts import PromptTemplate

llm = OpenAI(temperature=0)

#Load the Text splitter
text_splitter = CharacterTextSplitter()

#Load the doc
with open('/content/paris.txt') as f:
    paris = f.read()
texts = text_splitter.split_text(paris)

#Length of texts
len(texts)

1

#Converting our text file to Docs
from langchain.docstore.document import Document

docs = [Document(page_content=t) for t in texts[:1]]

#Printing docs
docs

[Document(page_content='\uffeffPARIS\n\n\nParis, often referred to as the "City of Light" or "La Ville Lumière" in French, is a captivating metropolis that stands as an enduring symbol of art, culture, and romance. Nestled in the heart of France, along the banks of the Seine River, Paris is renowned for its timeless elegance, iconic landmarks, and rich history.\n\n\nThe city\'s history dates back to ancient times, but it rose to prominence in the medieval period. Paris became the capital of the Kingdom of France in the 12th century, and its significance continued to grow over the centuries. Today, it is a global hub for art, fashion, gastronomy, and intellectual pursuits.\n\n\nOne of the most iconic structures in Paris is the Eiffel Tower, a wrought-iron marvel that graces the city\'s skyline. Built for the 1889 Exposition Universelle (World\'s Fair), it initially faced criticism but has since become synonymous with Parisian grandeur. The panoramic views from the tower\'s observation decks offer breathtaking glimpses of the city\'s architectural splendor.\n\n\nParis is a treasure trove of world-class museums and art galleries. The Louvre, the world\'s largest art museum, is a cultural pilgrimage site housing an extensive collection that spans from ancient civilizations to the 19th century. The museum\'s most famous resident, Leonardo da Vinci\'s "Mona Lisa," attracts millions of visitors each year.\n\n\nBeyond the Louvre, the Musée d\'Orsay is celebrated for its collection of Impressionist and Post-Impressionist masterpieces, while the Centre Pompidou showcases contemporary and modern art. Artistic expression is not confined to museums; the streets of Paris serve as an open-air gallery with vibrant street art and the timeless architecture that adorns every corner.\n\n\nParisian cuisine is an integral part of the city\'s identity. From quaint bistros to Michelin-starred restaurants, the culinary scene caters to all tastes. French baguettes, croissants, escargot, and coq au vin are just a few delights that tantalize the taste buds. The sidewalk cafés, a quintessential feature of Parisian life, offer an intimate setting to savor espresso while watching the world go by.\n\n\nThe Seine River gracefully meanders through the city, providing a romantic backdrop to some of Paris\'s most cherished landmarks. The Île de la Cité, a small island in the heart of the Seine, houses the historic Notre-Dame Cathedral, a masterpiece of French Gothic architecture.\n\n\nParis is a city that embraces diversity and innovation. Neighborhoods like Montmartre, known for its bohemian atmosphere and the Sacré-Cœur Basilica, showcase the city\'s artistic and rebellious spirit. The Marais, with its narrow medieval streets, is a hub of LGBTQ+ culture and home to trendy boutiques and galleries.\n\n\nThroughout the year, Paris hosts an array of events and festivals, including Fashion Week, the French Open tennis tournament, and the Tour de France. The city\'s palpable energy and joie de vivre make it a perennial favorite among travelers seeking a blend of history, culture, and contemporary allure.\n\n\nIn conclusion, Paris, with its timeless beauty, cultural richness, and romantic ambiance, stands as a testament to the enduring legacy of human creativity. It is a city where every cobblestone and every archway whispers tales of the past while embracing the vibrant pulse of the present.'])]

#Summarize with Map Reduce
from langchain.chains.summarize import load_summarize_chain
#To wrap the summary text
import textwrap

chain = load_summarize_chain(llm,chain_type="map_reduce")
output_summary = chain.run(docs)
wrapped_text = textwrap.fill(output_summary, width=100)
print(wrapped_text)

Paris, known as the "City of Light", is a captivating metropolis renowned for its timeless elegance, iconic landmarks, and rich history. It is a global hub for art, fashion, gastronomy, and intellectual pursuits, and is home to iconic structures such as the Eiffel Tower and the Louvre museum. The Seine River meanders through the city, providing a romantic backdrop to some of Paris's most cherished landmarks. Paris is a city that embraces diversity and innovation, and hosts an array of events and festivals throughout the year.

```

```
#For summarizing each part
chain.llm_chain.prompt.template

'Write a concise summary of the following:\n\n\n{text}" \n\n\nCONCISE SUMMARY: '

#For combining the parts
chain.combine_document_chain.llm_chain.prompt.template

'Write a concise summary of the following:\n\n\n{text}" \n\n\nCONCISE SUMMARY: '

#Executing Chains
chain = load_summarize_chain(llm,
                             chain_type="map_reduce",
                             verbose=True
                             )

output_summary = chain.run(docs)
wrapped_text = textwrap.fill(output_summary,
                              width=100,
                              break_long_words=False,
                              replace_whitespace=False)

print(wrapped_text)
```

> Entering new MapReduceDocumentsChain chain...

> Entering new LLMChain chain...

Prompt after formatting:

*Write a concise summary of the following:*

*"PARIS*

*Paris, often referred to as the "City of Light" or "La Ville Lumière" in French, is a captivating metropolis that stands as an enduring*

*The city's history dates back to ancient times, but it rose to prominence in the medieval period. Paris became the capital of the King*

*One of the most iconic structures in Paris is the Eiffel Tower, a wrought-iron marvel that graces the city's skyline. Built for the 18*

*Paris is a treasure trove of world-class museums and art galleries. The Louvre, the world's largest art museum, is a cultural pilgrime*

*Beyond the Louvre, the Musée d'Orsay is celebrated for its collection of Impressionist and Post-Impressionist masterpieces, while the*

*Parisian cuisine is an integral part of the city's identity. From quaint bistros to Michelin-starred restaurants, the culinary scene c*

*The Seine River gracefully meanders through the city, providing a romantic backdrop to some of Paris's most cherished landmarks. The i*

*Paris is a city that embraces diversity and innovation. Neighborhoods like Montmartre, known for its bohemian atmosphere and the Sacre*

*Throughout the year, Paris hosts an array of events and festivals, including Fashion Week, the French Open tennis tournament, and the*

*In conclusion, Paris, with its timeless beauty, cultural richness, and romantic ambiance, stands as a testament to the enduring legacy*

*CONCISE SUMMARY:*

> Finished chain.

> Entering new LLMChain chain...

Prompt after formatting:

*Write a concise summary of the following:*

*"*

*Paris, known as the "City of Light" or "La Ville Lumière" in French, is a captivating metropolis renowned for its timeless elegance, i*

```
#Summarize with Stuffing
chain = load_summarize_chain(llm, chain_type="stuff")

#Creating our custom Prompt Template
prompt_template = """Write a concise bullet point summary of the following:

{text}

CONCISE SUMMARY IN BULLET POINTS:"""

BULLET_POINT_PROMPT = PromptTemplate(template=prompt_template,
                                      input_variables=["text"])

#Executing chains
chain = load_summarize_chain(llm,
                             chain_type="stuff",
                             prompt=BULLET_POINT_PROMPT)

output_summary = chain.run(docs)

wrapped_text = textwrap.fill(output_summary,
                              width=100,
                              break_long_words=False,
                              replace_whitespace=False)

print(wrapped_text)

• Paris is a captivating metropolis renowned for its timeless elegance, iconic landmarks, and rich history.
• Home to the iconic Eiffel Tower, built for the 1889 Exposition Universelle (World's Fair).
• World-class museums and art galleries, including the Louvre, Musée d'Orsay, and Centre Pompidou.
• Parisian cuisine offers a variety of delights, from French baguettes to Michelin-starred restaurants.
• Notre-Dame Cathedral, a masterpiece of French Gothic architecture, is located on the Île de la Cité.
• Montmartre and the Marais are hubs of art, culture, and LGBTQ+ life.
• Paris hosts an array of events and festivals throughout the year.
• A city where every cobblestone and every archway whispers tales of the past while embracing the vibrant pulse of the present.
```