

Requirement	already	satisfied:	google-auth>=1.0.1 in /usr/local/lib/python3.12/dist-packages (from kubernet<28.1.0->chromad
Requirement	already	satisfied:	websocket-client!=0.40.0,!=0.41.*,!=0.42.*,>=0.32.0 in /usr/local/lib/python3.12/dist-packages
Requirement	already	satisfied:	requests-optional in /usr/local/lib/python3.12/dist-packages (from kubernet<28.1.0->chromadb
Requirement	already	satisfied:	urllib3<2.4.0,>=1.24.2 in /usr/local/lib/python3.12/dist-packages (from kubernet<28.1.0->chr
Requirement	already	satisfied:	durationpy>=0.7 in /usr/local/lib/python3.12/dist-packages (from kubernet<28.1.0->chromadb)
Requirement	already	satisfied:	langchain-text-splitters<2.0.0,>=1.1.0 in /usr/local/lib/python3.12/dist-packages (from langcha
Requirement	already	satisfied:	jsonpatch<2.0.0,>=1.33.0 in /usr/local/lib/python3.12/dist-packages (from langchain-core<2.0.0,
Requirement	already	satisfied:	uuid-utils<1.0,>=0.12.0 in /usr/local/lib/python3.12/dist-packages (from langchain-core<2.0.0,>
Requirement	already	satisfied:	langgraph-checkpoint<4.0.0,>=2.1.0 in /usr/local/lib/python3.12/dist-packages (from langgraph<1
Requirement	already	satisfied:	langgraph-prebuilt<1.1.0,>=1.0.2 in /usr/local/lib/python3.12/dist-packages (from langgraph<1.1
Requirement	already	satisfied:	langgraph-sdk<0.4.0,>=0.3.0 in /usr/local/lib/python3.12/dist-packages (from langgraph<1.1.0,>=
Requirement	already	satisfied:	xhash>=3.5.0 in /usr/local/lib/python3.12/dist-packages (from langgraph<1.1.0,>=1.0.2->langcha
Requirement	already	satisfied:	requests-toolbelt>=1.0.0 in /usr/local/lib/python3.12/dist-packages (from langsmith<1.0.0,>=0.1
Requirement	already	satisfied:	zstandard>=0.23.0 in /usr/local/lib/python3.12/dist-packages (from langsmith<1.0.0,>=0.1.125->l
Requirement	already	satisfied:	coloredlogs in /usr/local/lib/python3.12/dist-packages (from onnxruntime>=1.14.1->chromadb) (15
Requirement	already	satisfied:	flatbuffers in /usr/local/lib/python3.12/dist-packages (from onnxruntime>=1.14.1->chromadb) (25
Requirement	already	satisfied:	protobuf in /usr/local/lib/python3.12/dist-packages (from onnxruntime>=1.14.1->chromadb) (5.29
Requirement	already	satisfied:	sympy in /usr/local/lib/python3.12/dist-packages (from onnxruntime>=1.14.1->chromadb) (1.14.0)
Requirement	already	satisfied:	importlib-metadata<8.8.0,>=6.0 in /usr/local/lib/python3.12/dist-packages (from opentelemetry-a
Requirement	already	satisfied:	googleapis-common-protos~=1.57 in /usr/local/lib/python3.12/dist-packages (from opentelemetry-e
Requirement	already	satisfied:	opentelemetry-exporter-otlp-proto-common==1.39.1 in /usr/local/lib/python3.12/dist-packages (fr
Requirement	already	satisfied:	opentelemetry-proto==1.39.1 in /usr/local/lib/python3.12/dist-packages (from opentelemetry-expo
Requirement	already	satisfied:	opentelemetry-semantic-conventions==0.60b1 in /usr/local/lib/python3.12/dist-packages (from ope
Requirement	already	satisfied:	backoff>=1.10.0 in /usr/local/lib/python3.12/dist-packages (from posthog<6.0.0,>=2.4.0->chromad
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Requirement	already	satisfied:	annotated-types>=0.6.0 in /usr/local/lib/python3.12/dist-packages (from pydantic<3.0.0,>=2.7.4-
Requirement	already	satisfied:	pydantic-core==2.41.4 in /usr/local/lib/python3.12/dist-packages (from pydantic<3.0.0,>=2.7.4-
Requirement	already	satisfied:	typing-inspection>=0.4.2 in /usr/local/lib/python3.12/dist-packages (from pydantic<3.0.0,>=2.7.
Requirement	already	satisfied:	python-dotenv>=0.21.0 in /usr/local/lib/python3.12/dist-packages (from pydantic-settings<3.0.0,
Requirement	already	satisfied:	charset-normalizer<4,>=2 in /usr/local/lib/python3.12/dist-packages (from requests<3.0.0,>=2.32
Requirement	already	satisfied:	markdown-it-py>=2.2.0 in /usr/local/lib/python3.12/dist-packages (from rich>=10.11.0->chromadb)
Requirement	already	satisfied:	pygments<3.0.0,>=2.13.0 in /usr/local/lib/python3.12/dist-packages (from rich>=10.11.0->chromad
Requirement	already	satisfied:	greenlet>=1 in /usr/local/lib/python3.12/dist-packages (from SQLAlchemy<3.0.0,>=1.4.0->langchai
Requirement	already	satisfied:	setuptools in /usr/local/lib/python3.12/dist-packages (from torch>=1.11.0->sentence-transformer
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Requirement	already	satisfied:	click>=8.0.0 in /usr/local/lib/python3.12/dist-packages (from typer>=0.9.0->chromadb) (8.3.1)
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Requirement	already	satisfied:	httptools>=0.6.3 in /usr/local/lib/python3.12/dist-packages (from uvicorn[standard]>=0.18.3->ch
Requirement	already	satisfied:	uvloop>=0.15.1 in /usr/local/lib/python3.12/dist-packages (from uvicorn[standard]>=0.18.3->chro
Requirement	already	satisfied:	watchfiles>=0.13 in /usr/local/lib/python3.12/dist-packages (from uvicorn[standard]>=0.18.3->ch
Requirement	already	satisfied:	websockets>=10.4 in /usr/local/lib/python3.12/dist-packages (from uvicorn[standard]>=0.18.3->ch
Requirement	already	satisfied:	joblib>=1.2.0 in /usr/local/lib/python3.12/dist-packages (from scikit-learn>sentence-transform
Requirement	already	satisfied:	threadpoolctl>=3.1.0 in /usr/local/lib/python3.12/dist-packages (from scikit-learn>sentence-tr
Requirement	already	satisfied:	cachetools>7.0,>=2.0.0 in /usr/local/lib/python3.12/dist-packages (from google-auth>=1.0.1->kube
Requirement	already	satisfied:	pyasn1-modules>=0.2.1 in /usr/local/lib/python3.12/dist-packages (from google-auth>=1.0.1->kube
Requirement	already	satisfied:	rsa<5,>=3.1.4 in /usr/local/lib/python3.12/dist-packages (from google-auth>=1.0.1->kubernet<=
Requirement	already	satisfied:	zipp>=3.20 in /usr/local/lib/python3.12/dist-packages (from importlib-metadata<8.8.0,>=6.0->ope
Requirement	already	satisfied:	jsonpinter>=1.9 in /usr/local/lib/python3.12/dist-packages (from jsonpatch<2.0.0,>=1.33.0->lan
Requirement	already	satisfied:	ormsgpack>=1.12.0 in /usr/local/lib/python3.12/dist-packages (from langgraph-checkpoint<4.0.0,>
Requirement	already	satisfied:	mdurl~=0.1 in /usr/local/lib/python3.12/dist-packages (from markdown-it-py>=2.2.0->rich>=10.11.
Requirement	already	satisfied:	mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.12/dist-packages (from sympy>onnxruntime>=1.14.1-
Requirement	already	satisfied:	mypy-extensions>=0.3.0 in /usr/local/lib/python3.12/dist-packages (from typing-inspect<1,>=0.4.
Requirement	already	satisfied:	humanfriendly>=9.1 in /usr/local/lib/python3.12/dist-packages (from coloredlogs>onnxruntime>=1
Requirement	already	satisfied:	MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist-packages (from jinja2>torch>=1.11.0->sentenc
Requirement	already	satisfied:	oauthlib>=3.0.0 in /usr/local/lib/python3.12/dist-packages (from requests-oauthlib>kubernet<=
Requirement	already	satisfied:	pyasn1<0.7.0,>=0.6.1 in /usr/local/lib/python3.12/dist-packages (from pyasn1-modules>=0.2.1->go

```
Pages loaded: 1
Preview:
```

3. An Informal Introduction to Python – Python 3.14.2 documentation

```
from langchain_text_splitters import RecursiveCharacterTextSplitter

splitter = RecursiveCharacterTextSplitter(
    chunk_size=500,
    chunk_overlap=50
)

splits = splitter.split_documents(docs)

print("Total chunks created:", len(splits))
print("\nExample chunk:\n", splits[0].page_content[:200])
```

Theme

Auto  
Light  
Dark

Table of Contents

3. An Informal Introduction

```
from langchain_community.embeddings import HuggingFaceEmbeddings

embedding_model = HuggingFaceEmbeddings(
    model_name="sentence-transformers/all-MiniLM-L6-v2"
)

print("Embedding model loaded!")
```

Embedding model loaded!

```
from langchain_community.vectorstores import Chroma

vector_db = Chroma.from_documents(
    documents=splits,
    embedding=embedding_model
)

retriever = vector_db.as_retriever()

print("Vector database created!")
print("Total vectors stored:", vector_db._collection.count())
```

Vector database created!  
Total vectors stored: 72

```
question = "What are Python lists?"

retrieved_docs = retriever.invoke(question)

print("Retrieved knowledge chunks:\n")
for i, doc in enumerate(retrieved_docs):
    print(i+1, "->", doc.page_content[:150], "\n")
```

Retrieved knowledge chunks:

```
1 -> 3.1.3. Lists¶
Python knows a number of compound data types, used to group together other
values. The most versatile is the list, which can be written

2 -> language's flavor and style. After reading it, you will be able to read and
write Python modules and programs, and you will be ready to learn more abo
```

```

3 -> 4.9.4. Arbitrary Argument Lists
4.9.5. Unpacking Argument Lists
4.9.6. Lambda Expressions
4.9.7. Documentation Strings
4.9.8. Function Annotations

```

```
4
```

```
4 -> This tutorial introduces the reader informally to the basic concepts and
features of the Python language and system. Be aware that it expects you to
h
```

```
from transformers import pipeline
```

```

llm = pipeline(
    "text2text-generation",
    model="google/flan-t5-base",
    max_new_tokens=150
)

```

```
print("LLM loaded!")
```

```
config.json:      1.40k/? [00:00<00:00, 96.0kB/s]
```

```
model.safetensors: 100%                               990M/990M [00:09<00:00, 134MB/s]
```

```
generation_config.json: 100%                          147/147 [00:00<00:00, 7.13kB/s]
```

```
tokenizer_config.json:   2.54k/? [00:00<00:00, 117kB/s]
```

```
spiece.model: 100%                                   792k/792k [00:00<00:00, 5.09MB/s]
```

```
tokenizer.json:      2.42M/? [00:00<00:00, 35.1MB/s]
```

```
special_tokens_map.json:   2.20k/? [00:00<00:00, 146kB/s]
```

```
Device set to use cpu
LLM loaded!
```

```
context = "\n".join([doc.page_content for doc in retrieved_docs])
```

```

prompt = f"""
Answer the question using only the context below.

```

```

Context:
{context}

```

```
Question: {question}
```

```

Answer:
"""

```

```
print("Prompt sent to LLM:\n", prompt)
```

```

response = llm(prompt)
print("\nFinal Answer:\n", response[0]["generated_text"])

```

```
Prompt sent to LLM:
```

```
Answer the question using only the context below.
```

```
Context:
```

```
3.1.3. Lists¶
```

```

Python knows a number of compound data types, used to group together other
values. The most versatile is the list, which can be written as a list of
comma-separated values (items) between square brackets. Lists might contain
items of different types, but usually the items all have the same type.

```

```
>>> squares = [1, 4, 9, 16, 25]
```

```
>>> squares
```

```
[1, 4, 9, 16, 25]
```

```

language's flavor and style. After reading it, you will be able to read and
write Python modules and programs, and you will be ready to learn more about the
various Python library modules described in The Python Standard Library.

```

```
The Glossary is also worth going through.
```

```
4.9.4. Arbitrary Argument Lists
```

```
4.9.5. Unpacking Argument Lists
```

- 4.9.6. Lambda Expressions
- 4.9.7. Documentation Strings
- 4.9.8. Function Annotations

#### 4.10. Intermezzo: Coding Style

- 5. Data Structures
  - 5.1. More on Lists
    - 5.1.1. Using Lists as Stacks
    - 5.1.2. Using Lists as Queues
    - 5.1.3. List Comprehensions
    - 5.1.4. Nested List Comprehensions

This tutorial introduces the reader informally to the basic concepts and features of the Python language and system. Be aware that it expects you to have a basic understanding of programming in general. It helps to have a Python interpreter handy for hands-on experience, but all examples are self-contained, so the tutorial can be read off-line as well.  
For a description of standard objects and modules, see The Python Standard Library.

Question: What are Python lists?

Answer:

Final Answer:

a list of comma-separated values (items) between square brackets