```
In [1]:  !pip install langchain
```

```
Collecting langchain
  Downloading langchain-0.3.1-py3-none-any.whl.metadata (7.1 kB)
Requirement already satisfied: PyYAML>=5.3 in /usr/local/lib/python3.10/dist-packages (fr
om langchain) (6.0.2)
Requirement already satisfied: SQLAlchemy<3,>=1.4 in /usr/local/lib/python3.10/dist-packa
ges (from langchain) (2.0.35)
Requirement already satisfied: aiohttp<4.0.0,>=3.8.3 in /usr/local/lib/python3.10/dist-pa
ckages (from langchain) (3.10.5)
Requirement already satisfied: async-timeout<5.0.0,>=4.0.0 in /usr/local/lib/python3.10/d
ist-packages (from langchain) (4.0.3)
Collecting langchain-core<0.4.0,>=0.3.6 (from langchain)
  Downloading langchain_core-0.3.6-py3-none-any.whl.metadata (6.3 kB)
Collecting langchain-text-splitters<0.4.0,>=0.3.0 (from langchain)
  Downloading langchain_text_splitters-0.3.0-py3-none-any.whl.metadata (2.3 kB)
Collecting langsmith<0.2.0,>=0.1.17 (from langchain)
  Downloading langsmith-0.1.129-py3-none-any.whl.metadata (13 kB)
Requirement already satisfied: numpy<2,>=1 in /usr/local/lib/python3.10/dist-packages (fr
om langchain) (1.26.4)
Requirement already satisfied: pydantic<3.0.0,>=2.7.4 in /usr/local/lib/python3.10/dist-p
ackages (from langchain) (2.9.2)
Requirement already satisfied: requests<3,>=2 in /usr/local/lib/python3.10/dist-packages
(from langchain) (2.32.3)
Collecting tenacity!=8.4.0,<9.0.0,>=8.1.0 (from langchain)
  Downloading tenacity-8.5.0-py3-none-any.whl.metadata (1.2 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) (2.4.0)
Requirement already satisfied: aiosignal>=1.1.2 in /usr/local/lib/python3.10/dist-package
s (from aiohttp<4.0.0,>=3.8.3->langchain) (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) (24.2.0)
Requirement already satisfied: frozenlist>=1.1.1 in /usr/local/lib/python3.10/dist-packag
es (from aiohttp<4.0.0,>=3.8.3->langchain) (1.4.1)
Requirement already satisfied: multidict<7.0,>=4.5 in /usr/local/lib/python3.10/dist-pack
ages (from aiohttp<4.0.0,>=3.8.3->langchain) (6.1.0)
Requirement already satisfied: yarl<2.0,>=1.0 in /usr/local/lib/python3.10/dist-packages
(from aiohttp<4.0.0,>=3.8.3->langchain) (1.11.1)
Collecting jsonpatch<2.0,>=1.33 (from langchain-core<0.4.0,>=0.3.6->langchain)
  Downloading jsonpatch-1.33-py2.py3-none-any.whl.metadata (3.0 kB)
Requirement already satisfied: packaging<25,>=23.2 in /usr/local/lib/python3.10/dist-pack
ages (from langchain-core<0.4.0,>=0.3.6->langchain) (24.1)
Requirement already satisfied: typing-extensions>=4.7 in /usr/local/lib/python3.10/dist-p
ackages (from langchain-core<0.4.0,>=0.3.6->langchain) (4.12.2)
Collecting httpx<1,>=0.23.0 (from langsmith<0.2.0,>=0.1.17->langchain)
  Downloading httpx-0.27.2-py3-none-any.whl.metadata (7.1 kB)
Collecting orjson<4.0.0,>=3.9.14 (from langsmith<0.2.0,>=0.1.17->langchain)
  Downloading orjson-3.10.7-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.me
tadata (50 kB)
                                         ━━━━━━━━━━━━━━━━━━━━━━━━ 50.4/50.4 kB 686.3 kB/s eta 0:00:00
Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.10/dist-p
ackages (from pydantic<3.0.0,>=2.7.4->langchain) (0.7.0)
Requirement already satisfied: pydantic-core==2.23.4 in /usr/local/lib/python3.10/dist-pa
ckages (from pydantic<3.0.0,>=2.7.4->langchain) (2.23.4)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist
-packages (from requests<3,>=2->langchain) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (f
rom requests<3,>=2->langchain) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packa
ges (from requests<3,>=2->langchain) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packa
ges (from requests<3,>=2->langchain) (2024.8.30)
Requirement already satisfied: greenlet!=0.4.17 in /usr/local/lib/python3.10/dist-package
s (from SQLAlchemy<3,>=1.4->langchain) (3.1.1)
```

```
Requirement already satisfied: anyio in /usr/local/lib/python3.10/dist-packages (from htt
px<1,>=0.23.0->langsmith<0.2.0,>=0.1.17->langchain) (3.7.1)
Collecting httpcore==1.* (from httpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.17->langchain)
  Downloading httpcore-1.0.5-py3-none-any.whl.metadata (20 kB)
Requirement already satisfied: sniffio in /usr/local/lib/python3.10/dist-packages (from h
ttpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.17->langchain) (1.3.1)
Collecting h11<0.15,>=0.13 (from httpcore==1.*->httpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.1
7->langchain)
  Downloading h11-0.14.0-py3-none-any.whl.metadata (8.2 kB)
Collecting jsonpointer>=1.9 (from jsonpatch<2.0,>=1.33->langchain-core<0.4.0,>=0.3.6->lan
gchain)
  Downloading jsonpointer-3.0.0-py2.py3-none-any.whl.metadata (2.3 kB)
Requirement already satisfied: exceptiongroup in /usr/local/lib/python3.10/dist-packages
(from anyio->httpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.17->langchain) (1.2.2)
Downloading langchain-0.3.1-py3-none-any.whl (1.0 MB)
  ──────────────────────────────────────── 1.0/1.0 MB 20.4 MB/s eta 0:00:00
Downloading langchain_core-0.3.6-py3-none-any.whl (399 kB)
  ──────────────────────────────────────── 399.9/399.9 kB 15.3 MB/s eta 0:00:00
Downloading langchain_text_splitters-0.3.0-py3-none-any.whl (25 kB)
Downloading langsmith-0.1.129-py3-none-any.whl (292 kB)
  ──────────────────────────────────────── 292.2/292.2 kB 13.3 MB/s eta 0:00:00
Downloading tenacity-8.5.0-py3-none-any.whl (28 kB)
Downloading httpx-0.27.2-py3-none-any.whl (76 kB)
  ──────────────────────────────────────── 76.4/76.4 kB 5.5 MB/s eta 0:00:00
Downloading httpcore-1.0.5-py3-none-any.whl (77 kB)
  ──────────────────────────────────────── 77.9/77.9 kB 5.2 MB/s eta 0:00:00
Downloading jsonpatch-1.33-py2.py3-none-any.whl (12 kB)
Downloading orjson-3.10.7-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (141
kB)
  ──────────────────────────────────────── 141.9/141.9 kB 9.9 MB/s eta 0:00:00
Downloading jsonpointer-3.0.0-py2.py3-none-any.whl (7.6 kB)
Downloading h11-0.14.0-py3-none-any.whl (58 kB)
  ──────────────────────────────────────── 58.3/58.3 kB 2.5 MB/s eta 0:00:00
Installing collected packages: tenacity, orjson, jsonpointer, h11, jsonpatch, httpcore, h
ttpx, langsmith, langchain-core, langchain-text-splitters, langchain
  Attempting uninstall: tenacity
    Found existing installation: tenacity 9.0.0
    Uninstalling tenacity-9.0.0:
      Successfully uninstalled tenacity-9.0.0
Successfully installed h11-0.14.0 httpcore-1.0.5 httpx-0.27.2 jsonpatch-1.33 jsonpointer-
3.0.0 langchain-0.3.1 langchain-core-0.3.6 langchain-text-splitters-0.3.0 langsmith-0.1.1
29 orjson-3.10.7 tenacity-8.5.0
```

In [2]: `!pip install langchain-groq`

```
Collecting langchain-groq
  Downloading langchain_groq-0.2.0-py3-none-any.whl.metadata (2.9 kB)
Collecting groq<1,>=0.4.1 (from langchain-groq)
  Downloading groq-0.11.0-py3-none-any.whl.metadata (13 kB)
Requirement already satisfied: langchain-core<0.4,>=0.3 in /usr/local/lib/python3.10/dist
-packages (from langchain-groq) (0.3.6)
Requirement already satisfied: anyio<5,>=3.5.0 in /usr/local/lib/python3.10/dist-packages
(from groq<1,>=0.4.1->langchain-groq) (3.7.1)
Requirement already satisfied: distro<2,>=1.7.0 in /usr/lib/python3/dist-packages (from g
roq<1,>=0.4.1->langchain-groq) (1.7.0)
Requirement already satisfied: httpx<1,>=0.23.0 in /usr/local/lib/python3.10/dist-package
s (from groq<1,>=0.4.1->langchain-groq) (0.27.2)
Requirement already satisfied: pydantic<3,>=1.9.0 in /usr/local/lib/python3.10/dist-packa
ges (from groq<1,>=0.4.1->langchain-groq) (2.9.2)
Requirement already satisfied: sniffio in /usr/local/lib/python3.10/dist-packages (from g
roq<1,>=0.4.1->langchain-groq) (1.3.1)
Requirement already satisfied: typing-extensions<5,>=4.7 in /usr/local/lib/python3.10/dis
t-packages (from groq<1,>=0.4.1->langchain-groq) (4.12.2)
Requirement already satisfied: PyYAML>=5.3 in /usr/local/lib/python3.10/dist-packages (fr
om langchain-core<0.4,>=0.3->langchain-groq) (6.0.2)
Requirement already satisfied: jsonpatch<2.0,>=1.33 in /usr/local/lib/python3.10/dist-pac
kages (from langchain-core<0.4,>=0.3->langchain-groq) (1.33)
Requirement already satisfied: langsmith<0.2.0,>=0.1.125 in /usr/local/lib/python3.10/dis
t-packages (from langchain-core<0.4,>=0.3->langchain-groq) (0.1.129)
Requirement already satisfied: packaging<25,>=23.2 in /usr/local/lib/python3.10/dist-pack
ages (from langchain-core<0.4,>=0.3->langchain-groq) (24.1)
Requirement already satisfied: tenacity!=8.4.0,<9.0.0,>=8.1.0 in /usr/local/lib/python3.1
0/dist-packages (from langchain-core<0.4,>=0.3->langchain-groq) (8.5.0)
Requirement already satisfied: idna>=2.8 in /usr/local/lib/python3.10/dist-packages (from
anyio<5,>=3.5.0->groq<1,>=0.4.1->langchain-groq) (3.10)
Requirement already satisfied: exceptiongroup in /usr/local/lib/python3.10/dist-packages
(from anyio<5,>=3.5.0->groq<1,>=0.4.1->langchain-groq) (1.2.2)
Requirement already satisfied: certifi in /usr/local/lib/python3.10/dist-packages (from h
ttpx<1,>=0.23.0->groq<1,>=0.4.1->langchain-groq) (2024.8.30)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.10/dist-packages
(from httpx<1,>=0.23.0->groq<1,>=0.4.1->langchain-groq) (1.0.5)
Requirement already satisfied: h11<0.15,>=0.13 in /usr/local/lib/python3.10/dist-packages
(from httpcore==1.*->httpx<1,>=0.23.0->groq<1,>=0.4.1->langchain-groq) (0.14.0)
Requirement already satisfied: jsonpointer>=1.9 in /usr/local/lib/python3.10/dist-package
s (from jsonpatch<2.0,>=1.33->langchain-core<0.4,>=0.3->langchain-groq) (3.0.0)
Requirement already satisfied: orjson<4.0.0,>=3.9.14 in /usr/local/lib/python3.10/dist-pa
ckages (from langsmith<0.2.0,>=0.1.125->langchain-core<0.4,>=0.3->langchain-groq) (3.10.
7)
Requirement already satisfied: requests<3,>=2 in /usr/local/lib/python3.10/dist-packages
(from langsmith<0.2.0,>=0.1.125->langchain-core<0.4,>=0.3->langchain-groq) (2.32.3)
Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.10/dist-p
ackages (from pydantic<3,>=1.9.0->groq<1,>=0.4.1->langchain-groq) (0.7.0)
Requirement already satisfied: pydantic-core==2.23.4 in /usr/local/lib/python3.10/dist-pa
ckages (from pydantic<3,>=1.9.0->groq<1,>=0.4.1->langchain-groq) (2.23.4)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist
-packages (from requests<3,>=2->langsmith<0.2.0,>=0.1.125->langchain-core<0.4,>=0.3->lang
chain-groq) (3.3.2)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packa
ges (from requests<3,>=2->langsmith<0.2.0,>=0.1.125->langchain-core<0.4,>=0.3->langchain-
groq) (2.2.3)
Downloading langchain_groq-0.2.0-py3-none-any.whl (14 kB)
Downloading groq-0.11.0-py3-none-any.whl (106 kB)
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 106.5/106.5 kB 6.0 MB/s eta 0:00:00
Installing collected packages: groq, langchain-groq
Successfully installed groq-0.11.0 langchain-groq-0.2.0
```

```python
In [3]: from langchain_groq import ChatGroq
```

```python
In [4]: llm = ChatGroq(
            model="llama-3.1-70b-versatile",
            temperature=0,
            groq_api_key='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'
        )
        response = llm.invoke("the first person to to published a paper on AI")
        print(response)
```

content='The first person to publish a paper on Artificial Intelligence (AI) is often cre
dited to be Alan Turing, a British mathematician, computer scientist, and logician. His p
aper, titled "On Computable Numbers, with an Application to the Entscheidungsproblem," wa
s published in 1936 in the Proceedings of the London Mathematical Society.\n\nHowever, th
e paper that is often considered the foundation of AI as a field is Turing\'s 1950 paper,
"Computing Machinery and Intelligence," which was published in the journal Mind. In this
paper, Turing proposed the Turing Test, a measure of a machine\'s ability to exhibit inte
lligent behavior equivalent to, or indistinguishable from, that of a human.\n\nTuring\'s
work laid the foundation for the development of AI as a field of research, and his ideas
continue to influence AI research to this day.\n\nOther notable early papers on AI includ
e:\n\n* "A Logical Calculus of the Ideas Immanent in Nervous Activity" by Warren McCulloc
h and Walter Pitts (1943), which introduced the concept of artificial neural networks.\n*
"The Logical Theory of Automata" by Stephen Kleene (1951), which introduced the concept o
f finite automata.\n* "A Proposal for the Dartmouth Summer Research Project on Artificial
Intelligence" by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon (1
956), which proposed the first AI research project and coined the term "Artificial Intell
igence".\n\nThese papers, along with Turing\'s work, helped establish AI as a field of re
search and laid the foundation for the development of modern AI systems.' additional_kwar
gs={} response_metadata={'token_usage': {'completion_tokens': 324, 'prompt_tokens': 45,
'total_tokens': 369, 'completion_time': 1.296, 'prompt_time': 0.011000887, 'queue_time':
0.005083534000000001, 'total_time': 1.307000887}, 'model_name': 'llama-3.1-70b-versatil
e', 'system_fingerprint': 'fp_5c5d1b5cfb', 'finish_reason': 'stop', 'logprobs': None} id
='run-075b9a49-8a83-4359-b004-b0fa4ff81c7c-0' usage_metadata={'input_tokens': 45, 'output
_tokens': 324, 'total_tokens': 369}

```python
In [6]: !pip install langchain-community
```

```
Collecting langchain-community
  Downloading langchain_community-0.3.1-py3-none-any.whl.metadata (2.8 kB)
Requirement already satisfied: PyYAML>=5.3 in /usr/local/lib/python3.10/dist-packages (fr
om langchain-community) (6.0.2)
Requirement already satisfied: SQLAlchemy<3,>=1.4 in /usr/local/lib/python3.10/dist-packa
ges (from langchain-community) (2.0.35)
Requirement already satisfied: aiohttp<4.0.0,>=3.8.3 in /usr/local/lib/python3.10/dist-pa
ckages (from langchain-community) (3.10.5)
Collecting dataclasses-json<0.7,>=0.5.7 (from langchain-community)
  Downloading dataclasses_json-0.6.7-py3-none-any.whl.metadata (25 kB)
Requirement already satisfied: langchain<0.4.0,>=0.3.1 in /usr/local/lib/python3.10/dist-
packages (from langchain-community) (0.3.1)
Requirement already satisfied: langchain-core<0.4.0,>=0.3.6 in /usr/local/lib/python3.10/
dist-packages (from langchain-community) (0.3.6)
Requirement already satisfied: langsmith<0.2.0,>=0.1.125 in /usr/local/lib/python3.10/dis
t-packages (from langchain-community) (0.1.129)
Requirement already satisfied: numpy<2,>=1 in /usr/local/lib/python3.10/dist-packages (fr
om langchain-community) (1.26.4)
Collecting pydantic-settings<3.0.0,>=2.4.0 (from langchain-community)
  Downloading pydantic_settings-2.5.2-py3-none-any.whl.metadata (3.5 kB)
Requirement already satisfied: requests<3,>=2 in /usr/local/lib/python3.10/dist-packages
(from langchain-community) (2.32.3)
Requirement already satisfied: tenacity!=8.4.0,<9.0.0,>=8.1.0 in /usr/local/lib/python3.1
0/dist-packages (from langchain-community) (8.5.0)
Requirement already satisfied: aiohappyeyeballs>=2.3.0 in /usr/local/lib/python3.10/dist-
packages (from aiohttp<4.0.0,>=3.8.3->langchain-community) (2.4.0)
Requirement already satisfied: aiosignal>=1.1.2 in /usr/local/lib/python3.10/dist-package
s (from aiohttp<4.0.0,>=3.8.3->langchain-community) (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-community) (24.2.0)
Requirement already satisfied: frozenlist>=1.1.1 in /usr/local/lib/python3.10/dist-packag
es (from aiohttp<4.0.0,>=3.8.3->langchain-community) (1.4.1)
Requirement already satisfied: multidict<7.0,>=4.5 in /usr/local/lib/python3.10/dist-pack
ages (from aiohttp<4.0.0,>=3.8.3->langchain-community) (6.1.0)
Requirement already satisfied: yarl<2.0,>=1.0 in /usr/local/lib/python3.10/dist-packages
(from aiohttp<4.0.0,>=3.8.3->langchain-community) (1.11.1)
Requirement already satisfied: async-timeout<5.0,>=4.0 in /usr/local/lib/python3.10/dist-
packages (from aiohttp<4.0.0,>=3.8.3->langchain-community) (4.0.3)
Collecting marshmallow<4.0.0,>=3.18.0 (from dataclasses-json<0.7,>=0.5.7->langchain-commu
nity)
  Downloading marshmallow-3.22.0-py3-none-any.whl.metadata (7.2 kB)
Collecting typing-inspect<1,>=0.4.0 (from dataclasses-json<0.7,>=0.5.7->langchain-communi
ty)
  Downloading typing_inspect-0.9.0-py3-none-any.whl.metadata (1.5 kB)
Requirement already satisfied: langchain-text-splitters<0.4.0,>=0.3.0 in /usr/local/lib/p
ython3.10/dist-packages (from langchain<0.4.0,>=0.3.1->langchain-community) (0.3.0)
Requirement already satisfied: pydantic<3.0.0,>=2.7.4 in /usr/local/lib/python3.10/dist-p
ackages (from langchain<0.4.0,>=0.3.1->langchain-community) (2.9.2)
Requirement already satisfied: jsonpatch<2.0,>=1.33 in /usr/local/lib/python3.10/dist-pac
kages (from langchain-core<0.4.0,>=0.3.6->langchain-community) (1.33)
Requirement already satisfied: packaging<25,>=23.2 in /usr/local/lib/python3.10/dist-pack
ages (from langchain-core<0.4.0,>=0.3.6->langchain-community) (24.1)
Requirement already satisfied: typing-extensions>=4.7 in /usr/local/lib/python3.10/dist-p
ackages (from langchain-core<0.4.0,>=0.3.6->langchain-community) (4.12.2)
Requirement already satisfied: httpx<1,>=0.23.0 in /usr/local/lib/python3.10/dist-package
s (from langsmith<0.2.0,>=0.1.125->langchain-community) (0.27.2)
Requirement already satisfied: orjson<4.0.0,>=3.9.14 in /usr/local/lib/python3.10/dist-pa
ckages (from langsmith<0.2.0,>=0.1.125->langchain-community) (3.10.7)
Collecting python-dotenv>=0.21.0 (from pydantic-settings<3.0.0,>=2.4.0->langchain-communi
ty)
  Downloading python_dotenv-1.0.1-py3-none-any.whl.metadata (23 kB)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist
```

```
                          -packages (from requests<3,>=2->langchain-community) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (f
rom requests<3,>=2->langchain-community) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packa
ges (from requests<3,>=2->langchain-community) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packa
ges (from requests<3,>=2->langchain-community) (2024.8.30)
Requirement already satisfied: greenlet!=0.4.17 in /usr/local/lib/python3.10/dist-package
s (from SQLAlchemy<3,>=1.4->langchain-community) (3.1.1)
Requirement already satisfied: anyio in /usr/local/lib/python3.10/dist-packages (from htt
px<1,>=0.23.0->langsmith<0.2.0,>=0.1.125->langchain-community) (3.7.1)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.10/dist-packages
(from httpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.125->langchain-community) (1.0.5)
Requirement already satisfied: sniffio in /usr/local/lib/python3.10/dist-packages (from h
ttpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.125->langchain-community) (1.3.1)
Requirement already satisfied: h11<0.15,>=0.13 in /usr/local/lib/python3.10/dist-packages
(from httpcore==1.*->httpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.125->langchain-community)
(0.14.0)
Requirement already satisfied: jsonpointer>=1.9 in /usr/local/lib/python3.10/dist-package
s (from jsonpatch<2.0,>=1.33->langchain-core<0.4.0,>=0.3.6->langchain-community) (3.0.0)
Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.10/dist-p
ackages (from pydantic<3.0.0,>=2.7.4->langchain<0.4.0,>=0.3.1->langchain-community) (0.7.
0)
Requirement already satisfied: pydantic-core==2.23.4 in /usr/local/lib/python3.10/dist-pa
ckages (from pydantic<3.0.0,>=2.7.4->langchain<0.4.0,>=0.3.1->langchain-community) (2.23.
4)
Collecting mypy-extensions>=0.3.0 (from typing-inspect<1,>=0.4.0->dataclasses-json<0.7,>=
0.5.7->langchain-community)
  Downloading mypy_extensions-1.0.0-py3-none-any.whl.metadata (1.1 kB)
Requirement already satisfied: exceptiongroup in /usr/local/lib/python3.10/dist-packages
(from anyio->httpx<1,>=0.23.0->langsmith<0.2.0,>=0.1.125->langchain-community) (1.2.2)
Downloading langchain_community-0.3.1-py3-none-any.whl (2.4 MB)
   ──────────────────────────────────────────── 2.4/2.4 MB 36.5 MB/s eta 0:00:00
Downloading dataclasses_json-0.6.7-py3-none-any.whl (28 kB)
Downloading pydantic_settings-2.5.2-py3-none-any.whl (26 kB)
Downloading marshmallow-3.22.0-py3-none-any.whl (49 kB)
   ──────────────────────────────────────────── 49.3/49.3 kB 3.6 MB/s eta 0:00:00
Downloading python_dotenv-1.0.1-py3-none-any.whl (19 kB)
Downloading typing_inspect-0.9.0-py3-none-any.whl (8.8 kB)
Downloading mypy_extensions-1.0.0-py3-none-any.whl (4.7 kB)
Installing collected packages: python-dotenv, mypy-extensions, marshmallow, typing-inspec
t, pydantic-settings, dataclasses-json, langchain-community
Successfully installed dataclasses-json-0.6.7 langchain-community-0.3.1 marshmallow-3.22.
0 mypy-extensions-1.0.0 pydantic-settings-2.5.2 python-dotenv-1.0.1 typing-inspect-0.9.0
```

In [7]:
```python
from langchain_community.document_loaders import WebBaseLoader
```

```
WARNING:langchain_community.utils.user_agent:USER_AGENT environment variable not set, con
sider setting it to identify your requests.
```

In [47]:
```python
loader = WebBaseLoader("https://jobs.nike.com/job/R-38844")
page_data = loader.load().pop().page_content
print(page_data)
```

Apply for Software Engineer I

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* This overview explains our hiring process for corporate roles. Note there may be different hiring steps involved for non-corporate roles.Start nowBenefitsWhether it's transportation or financial health, we continually invest in our employees to help them achieve gr

eatness — inside and outside of work. All who work here should be able to realize their full potential.Employee Assistance ProgramEmployee Stock Purchase Plan (ESPP)HolidaysMedical PlanPaid Time Off (PTO)Product DiscountsSabbaticalsLearn moreGIFT CARDSPROMOTIONSFIND A STORESIGN UP FOR EMAILBECOME A MEMBERNIKE JOURNALSEND US FEEDBACKGET HELPGET HELPOrder StatusShipping and DeliveryReturnsPayment OptionsGift Cards BalanceContact UsABOUT NIKEABOUT NIKENewsCareersInvestorsPurposeSustainabilityUnited States© 2024 Nike, Inc. All Rights ReservedGuidesNike AdaptNike Air MaxNike FlyleatherNike ReactSpace HippieNike AirNike FlyEaseNike Free Nike VaporflyNike Air Force 1 Nike FlyknitNike JoyrideNike ZoomXTerms of SaleTerms of UseNike Privacy PolicyYour Privacy ChoicesCA Supply Chain Act

In [48]:
```python
from langchain_core.prompts import PromptTemplate
```

In [49]:
```python
prompt_extract = PromptTemplate.from_template(
    """
    ### SCRAPED TEXT FROM WEBSITE:
    {page_data}
    ### INSTRUCTION:
    The scraped text is from the career's page of a website.
    Your job is to extract the job postings and return them in JSON format containing th
    Only return the valid JSON.
    ### VALID JSON (NO PREAMBLE):
    """
)

chain_extract = prompt_extract | llm
res = chain_extract.invoke(input = {"page_data": page_data})
print(res.content)
```

```json
{
  "role": "Software Engineer I",
  "experience": "2+ years of professional experience in application engineering",
  "skills": [
    "JavaScript (Node.js, React.js, Vue.js, etc.)",
    "Agile processes",
    "Continuous integration",
    "Test automation",
    "AWS CloudFront",
    "AWS S3",
    "AWS Route 53",
    "AWS Certificate Manager",
    "AWS Lambda",
    "GitHub Co-pilot"
  ],
  "description": "The Digital Employee Experience Software Engineer I will be responsible for design, support, development, and testing of internal employee-facing websites and web applications."
}
```

In [50]:
```python
from langchain_core.output_parsers import JsonOutputParser

json_parser = JsonOutputParser()
json_res = json_parser.parse(res.content)
print(json_res)
```

{'role': 'Software Engineer I', 'experience': '2+ years of professional experience in application engineering', 'skills': ['JavaScript (Node.js, React.js, Vue.js, etc.)', 'Agile processes', 'Continuous integration', 'Test automation', 'AWS CloudFront', 'AWS S3', 'AWS Route 53', 'AWS Certificate Manager', 'AWS Lambda', 'GitHub Co-pilot'], 'description': 'The Digital Employee Experience Software Engineer I will be responsible for design, support, development, and testing of internal employee-facing websites and web applications.'}

```
In [51]:  import pandas as pd

          df = pd.read_csv("my_portfolio.csv")
          df
```

Out[51]:

	Techstack	Links
0	React, Node.js, MongoDB	https://example.com/react-portfolio
1	Angular, .NET, SQL Server	https://example.com/angular-portfolio
2	Vue.js, Ruby on Rails, PostgreSQL	https://example.com/vue-portfolio
3	Python, Django, MySQL	https://example.com/python-portfolio
4	Java, Spring Boot, Oracle	https://example.com/java-portfolio
5	Flutter, Firebase, GraphQL	https://example.com/flutter-portfolio
6	WordPress, PHP, MySQL	https://example.com/wordpress-portfolio
7	Magento, PHP, MySQL	https://example.com/magento-portfolio
8	React Native, Node.js, MongoDB	https://example.com/react-native-portfolio
9	iOS, Swift, Core Data	https://example.com/ios-portfolio
10	Android, Java, Room Persistence	https://example.com/android-portfolio
11	Kotlin, Android, Firebase	https://example.com/kotlin-android-portfolio
12	Android TV, Kotlin, Android NDK	https://example.com/android-tv-portfolio
13	iOS, Swift, ARKit	https://example.com/ios-ar-portfolio
14	Cross-platform, Xamarin, Azure	https://example.com/xamarin-portfolio
15	Backend, Kotlin, Spring Boot	https://example.com/kotlin-backend-portfolio
16	Frontend, TypeScript, Angular	https://example.com/typescript-frontend-portfolio
17	Full-stack, JavaScript, Express.js	https://example.com/full-stack-js-portfolio
18	Machine Learning, Python, TensorFlow	https://example.com/ml-python-portfolio
19	DevOps, Jenkins, Docker	https://example.com/devops-portfolio

```
In [52]:  !pip install chromadb
```

```
Requirement already satisfied: chromadb in /usr/local/lib/python3.10/dist-packages (0.5.1
1)
Requirement already satisfied: build>=1.0.3 in /usr/local/lib/python3.10/dist-packages (f
rom chromadb) (1.2.2)
Requirement already satisfied: pydantic>=1.9 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (2.9.2)
Requirement already satisfied: chroma-hnswlib==0.7.6 in /usr/local/lib/python3.10/dist-pa
ckages (from chromadb) (0.7.6)
Requirement already satisfied: fastapi>=0.95.2 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (0.115.0)
Requirement already satisfied: uvicorn>=0.18.3 in /usr/local/lib/python3.10/dist-packages
(from uvicorn[standard]>=0.18.3->chromadb) (0.31.0)
Requirement already satisfied: numpy>=1.22.5 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (1.26.4)
Requirement already satisfied: posthog>=2.4.0 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (3.6.6)
Requirement already satisfied: typing-extensions>=4.5.0 in /usr/local/lib/python3.10/dist
-packages (from chromadb) (4.12.2)
Requirement already satisfied: onnxruntime>=1.14.1 in /usr/local/lib/python3.10/dist-pack
ages (from chromadb) (1.19.2)
Requirement already satisfied: opentelemetry-api>=1.2.0 in /usr/local/lib/python3.10/dist
-packages (from chromadb) (1.27.0)
Requirement already satisfied: opentelemetry-exporter-otlp-proto-grpc>=1.2.0 in /usr/loca
l/lib/python3.10/dist-packages (from chromadb) (1.27.0)
Requirement already satisfied: opentelemetry-instrumentation-fastapi>=0.41b0 in /usr/loca
l/lib/python3.10/dist-packages (from chromadb) (0.48b0)
Requirement already satisfied: opentelemetry-sdk>=1.2.0 in /usr/local/lib/python3.10/dist
-packages (from chromadb) (1.27.0)
Requirement already satisfied: tokenizers>=0.13.2 in /usr/local/lib/python3.10/dist-packa
ges (from chromadb) (0.19.1)
Requirement already satisfied: pypika>=0.48.9 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (0.48.9)
Requirement already satisfied: tqdm>=4.65.0 in /usr/local/lib/python3.10/dist-packages (f
rom chromadb) (4.66.5)
Requirement already satisfied: overrides>=7.3.1 in /usr/local/lib/python3.10/dist-package
s (from chromadb) (7.7.0)
Requirement already satisfied: importlib-resources in /usr/local/lib/python3.10/dist-pack
ages (from chromadb) (6.4.5)
Requirement already satisfied: grpcio>=1.58.0 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (1.64.1)
Requirement already satisfied: bcrypt>=4.0.1 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (4.2.0)
Requirement already satisfied: typer>=0.9.0 in /usr/local/lib/python3.10/dist-packages (f
rom chromadb) (0.12.5)
Requirement already satisfied: kubernetes>=28.1.0 in /usr/local/lib/python3.10/dist-packa
ges (from chromadb) (31.0.0)
Requirement already satisfied: tenacity>=8.2.3 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (8.5.0)
Requirement already satisfied: PyYAML>=6.0.0 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (6.0.2)
Requirement already satisfied: mmh3>=4.0.1 in /usr/local/lib/python3.10/dist-packages (fr
om chromadb) (5.0.1)
Requirement already satisfied: orjson>=3.9.12 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (3.10.7)
Requirement already satisfied: httpx>=0.27.0 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (0.27.2)
Requirement already satisfied: rich>=10.11.0 in /usr/local/lib/python3.10/dist-packages
(from chromadb) (13.8.1)
Requirement already satisfied: packaging>=19.1 in /usr/local/lib/python3.10/dist-packages
(from build>=1.0.3->chromadb) (24.1)
Requirement already satisfied: pyproject_hooks in /usr/local/lib/python3.10/dist-packages
(from build>=1.0.3->chromadb) (1.1.0)
```

```
Requirement already satisfied: tomli>=1.1.0 in /usr/local/lib/python3.10/dist-packages (f
rom build>=1.0.3->chromadb) (2.0.1)
Requirement already satisfied: starlette<0.39.0,>=0.37.2 in /usr/local/lib/python3.10/dis
t-packages (from fastapi>=0.95.2->chromadb) (0.38.6)
Requirement already satisfied: anyio in /usr/local/lib/python3.10/dist-packages (from htt
px>=0.27.0->chromadb) (3.7.1)
Requirement already satisfied: certifi in /usr/local/lib/python3.10/dist-packages (from h
ttpx>=0.27.0->chromadb) (2024.8.30)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.10/dist-packages
(from httpx>=0.27.0->chromadb) (1.0.5)
Requirement already satisfied: idna in /usr/local/lib/python3.10/dist-packages (from http
x>=0.27.0->chromadb) (3.10)
Requirement already satisfied: sniffio in /usr/local/lib/python3.10/dist-packages (from h
ttpx>=0.27.0->chromadb) (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) (0.14.0)
Requirement already satisfied: six>=1.9.0 in /usr/local/lib/python3.10/dist-packages (fro
m kubernetes>=28.1.0->chromadb) (1.16.0)
Requirement already satisfied: python-dateutil>=2.5.3 in /usr/local/lib/python3.10/dist-p
ackages (from kubernetes>=28.1.0->chromadb) (2.8.2)
Requirement already satisfied: google-auth>=1.0.1 in /usr/local/lib/python3.10/dist-packa
ges (from kubernetes>=28.1.0->chromadb) (2.27.0)
Requirement already satisfied: websocket-client!=0.40.0,!=0.41.*,!=0.42.*,>=0.32.0 in /us
r/local/lib/python3.10/dist-packages (from kubernetes>=28.1.0->chromadb) (1.8.0)
Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from
kubernetes>=28.1.0->chromadb) (2.32.3)
Requirement already satisfied: requests-oauthlib in /usr/local/lib/python3.10/dist-packag
es (from kubernetes>=28.1.0->chromadb) (1.3.1)
Requirement already satisfied: oauthlib>=3.2.2 in /usr/local/lib/python3.10/dist-packages
(from kubernetes>=28.1.0->chromadb) (3.2.2)
Requirement already satisfied: urllib3>=1.24.2 in /usr/local/lib/python3.10/dist-packages
(from kubernetes>=28.1.0->chromadb) (2.2.3)
Requirement already satisfied: durationpy>=0.7 in /usr/local/lib/python3.10/dist-packages
(from kubernetes>=28.1.0->chromadb) (0.7)
Requirement already satisfied: coloredlogs in /usr/local/lib/python3.10/dist-packages (fr
om onnxruntime>=1.14.1->chromadb) (15.0.1)
Requirement already satisfied: flatbuffers in /usr/local/lib/python3.10/dist-packages (fr
om onnxruntime>=1.14.1->chromadb) (24.3.25)
Requirement already satisfied: protobuf in /usr/local/lib/python3.10/dist-packages (from
onnxruntime>=1.14.1->chromadb) (3.20.3)
Requirement already satisfied: sympy in /usr/local/lib/python3.10/dist-packages (from onn
xruntime>=1.14.1->chromadb) (1.13.3)
Requirement already satisfied: deprecated>=1.2.6 in /usr/local/lib/python3.10/dist-packag
es (from opentelemetry-api>=1.2.0->chromadb) (1.2.14)
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) (8.4.0)
Requirement already satisfied: googleapis-common-protos~=1.52 in /usr/local/lib/python3.1
0/dist-packages (from opentelemetry-exporter-otlp-proto-grpc>=1.2.0->chromadb) (1.65.0)
Requirement already satisfied: opentelemetry-exporter-otlp-proto-common==1.27.0 in /usr/l
ocal/lib/python3.10/dist-packages (from opentelemetry-exporter-otlp-proto-grpc>=1.2.0->ch
romadb) (1.27.0)
Requirement already satisfied: opentelemetry-proto==1.27.0 in /usr/local/lib/python3.10/d
ist-packages (from opentelemetry-exporter-otlp-proto-grpc>=1.2.0->chromadb) (1.27.0)
Requirement already satisfied: opentelemetry-instrumentation-asgi==0.48b0 in /usr/local/l
ib/python3.10/dist-packages (from opentelemetry-instrumentation-fastapi>=0.41b0->chromad
b) (0.48b0)
Requirement already satisfied: opentelemetry-instrumentation==0.48b0 in /usr/local/lib/py
thon3.10/dist-packages (from opentelemetry-instrumentation-fastapi>=0.41b0->chromadb) (0.
48b0)
Requirement already satisfied: opentelemetry-semantic-conventions==0.48b0 in /usr/local/l
ib/python3.10/dist-packages (from opentelemetry-instrumentation-fastapi>=0.41b0->chromad
b) (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) (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) (71.0.4)
Requirement already satisfied: wrapt<2.0.0,>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from opentelemetry-instrumentation==0.48b0->opentelemetry-instrumentation-fastapi>=0.41b0->chromadb) (1.16.0)
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) (3.8.1)
Requirement already satisfied: monotonic>=1.5 in /usr/local/lib/python3.10/dist-packages (from posthog>=2.4.0->chromadb) (1.6)
Requirement already satisfied: backoff>=1.10.0 in /usr/local/lib/python3.10/dist-packages (from posthog>=2.4.0->chromadb) (2.2.1)
Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.10/dist-packages (from pydantic>=1.9->chromadb) (0.7.0)
Requirement already satisfied: pydantic-core==2.23.4 in /usr/local/lib/python3.10/dist-packages (from pydantic>=1.9->chromadb) (2.23.4)
Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python3.10/dist-packages (from rich>=10.11.0->chromadb) (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) (2.18.0)
Requirement already satisfied: huggingface-hub<1.0,>=0.16.4 in /usr/local/lib/python3.10/dist-packages (from tokenizers>=0.13.2->chromadb) (0.24.7)
Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.10/dist-packages (from typer>=0.9.0->chromadb) (8.1.7)
Requirement already satisfied: shellingham>=1.3.0 in /usr/local/lib/python3.10/dist-packages (from typer>=0.9.0->chromadb) (1.5.4)
Requirement already satisfied: httptools>=0.5.0 in /usr/local/lib/python3.10/dist-packages (from uvicorn[standard]>=0.18.3->chromadb) (0.6.1)
Requirement already satisfied: python-dotenv>=0.13 in /usr/local/lib/python3.10/dist-packages (from uvicorn[standard]>=0.18.3->chromadb) (1.0.1)
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) (0.20.0)
Requirement already satisfied: watchfiles>=0.13 in /usr/local/lib/python3.10/dist-packages (from uvicorn[standard]>=0.18.3->chromadb) (0.24.0)
Requirement already satisfied: websockets>=10.4 in /usr/local/lib/python3.10/dist-packages (from uvicorn[standard]>=0.18.3->chromadb) (13.1)
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) (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) (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) (4.9)
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from huggingface-hub<1.0,>=0.16.4->tokenizers>=0.13.2->chromadb) (3.16.1)
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.10/dist-packages (from huggingface-hub<1.0,>=0.16.4->tokenizers>=0.13.2->chromadb) (2024.6.1)
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) (3.20.2)
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) (0.1.2)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests->kubernetes>=28.1.0->chromadb) (3.3.2)
Requirement already satisfied: exceptiongroup in /usr/local/lib/python3.10/dist-packages (from anyio->httpx>=0.27.0->chromadb) (1.2.2)
Requirement already satisfied: humanfriendly>=9.1 in /usr/local/lib/python3.10/dist-packages (from coloredlogs->onnxruntime>=1.14.1->chromadb) (10.0)
Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.10/dist-packages (from sympy->onnxruntime>=1.14.1->chromadb) (1.3.0)
Requirement already satisfied: pyasn1<0.7.0,>=0.4.6 in /usr/local/lib/python3.10/dist-pac

kages (from pyasn1-modules>=0.2.1->google-auth>=1.0.1->kubernetes>=28.1.0->chromadb) (0.6.1)

In [53]:
```python
import chromadb
import uuid

client = chromadb. PersistentClient('vectorstore')
collection = client.get_or_create_collection (name="portfolio")

if not collection.count():
  for _, row in df. iterrows ():
    collection.add(documents=row["Techstack"],
                   metadatas={"links": row["Links"]},
                   ids=[str(uuid.uuid4())])
```

In [54]:
```python
links = collection.query(query_texts=["Experience in Python", "Experience in React Nativ
print(links)
```

[[{'links': 'https://example.com/ml-python-portfolio'}, {'links': 'https://example.com/python-portfolio'}], [{'links': 'https://example.com/react-native-portfolio'}, {'links': 'https://example.com/react-portfolio'}]]

In [59]:
```python
links = collection.query(query_texts=job['skills'], n_results=2).get('metadatas')
print(links)
```

[[{'links': 'https://example.com/full-stack-js-portfolio'}, {'links': 'https://example.com/react-portfolio'}], [{'links': 'https://example.com/devops-portfolio'}, {'links': 'https://example.com/kotlin-backend-portfolio'}], [{'links': 'https://example.com/wordpress-portfolio'}, {'links': 'https://example.com/magento-portfolio'}], [{'links': 'https://example.com/devops-portfolio'}, {'links': 'https://example.com/ml-python-portfolio'}], [{'links': 'https://example.com/xamarin-portfolio'}, {'links': 'https://example.com/ios-ar-portfolio'}], [{'links': 'https://example.com/ios-ar-portfolio'}, {'links': 'https://example.com/kotlin-backend-portfolio'}], [{'links': 'https://example.com/flutter-portfolio'}, {'links': 'https://example.com/vue-portfolio'}], [{'links': 'https://example.com/devops-portfolio'}, {'links': 'https://example.com/kotlin-backend-portfolio'}], [{'links': 'https://example.com/ios-ar-portfolio'}, {'links': 'https://example.com/xamarin-portfolio'}], [{'links': 'https://example.com/devops-portfolio'}, {'links': 'https://example.com/kotlin-backend-portfolio'}]]

In [57]:
```python
job = json_res
if 'skills' in job:
    skills = job['skills']
    print(skills)
else:
    print("Key 'skills' not found in the dictionary")
```

['JavaScript (Node.js, React.js, Vue.js, etc.)', 'Agile processes', 'Continuous integration', 'Test automation', 'AWS CloudFront', 'AWS S3', 'AWS Route 53', 'AWS Certificate Manager', 'AWS Lambda', 'GitHub Co-pilot']

In [60]:
```python
prompt_email = PromptTemplate.from_template(
    """
    ### JOB DESCRIPTION:
    {job_description}
    ### INSTRUCTION:
    You are Vikas, a master's student at Sacramento State in your last semester, pursuin

    In your recent work, you built a Storm Water Analytics platform, enhanced a heart di

    Your job is to write a cold email to the employer regarding the job mentioned above
    Also add the most relevant ones from the following links to showcase Vikas's portfol
    Remember you are Vikas, master student at SAC State.
    Do not provide a preamble.
```

```
        ### EMAIL (NO PREAMBLE) :
        """
)

chain_email = prompt_email | llm
res = chain_email.invoke(input = {"job_description": str(job), "link_list": links})
print(res.content)
```

Subject: Application for Software Engineer I Position – Enhancing Digital Employee Experience

Dear Hiring Manager,

I am excited to apply for the Software Engineer I position at your esteemed organization, where I can leverage my skills in full-stack development, machine learning, and generative AI to drive impactful projects. With a strong academic background in Computer Science (Master's student at Sacramento State, GPA: 3.85) and three years of industry experience as a backend developer at Tata Consultancy Services, I am confident in my ability to make a significant contribution to your team.

As a seasoned developer with expertise in JavaScript (Node.js, React.js, Vue.js), Agile processes, Continuous Integration, Test Automation, and AWS services (CloudFront, S3, Route 53, Certificate Manager, Lambda), I am well-equipped to design, support, develop, and test internal employee-facing websites and web applications. My experience in leading projects from inception to deployment has resulted in an 80% increase in user adoption and a 50% improvement in data processing efficiency.

I would like to highlight a few projects from my portfolio that demonstrate my skills and expertise:

* Full-stack development: https://example.com/full-stack-js-portfolio
* React-based projects: https://example.com/react-portfolio
* DevOps expertise: https://example.com/devops-portfolio
* Machine Learning (Python): https://example.com/ml-python-portfolio

In my recent projects, I built a Storm Water Analytics platform, enhanced a heart disease prediction model using K-Nearest Neighbors (KNN), and developed a social media application leveraging the MERN stack. These experiences have not only honed my technical skills but also instilled in me a passion for driving innovation and excellence in software development.

I am excited about the opportunity to join your team and contribute to the development of internal employee-facing websites and web applications. Thank you for considering my application. I would welcome the opportunity to discuss my qualifications further and explore how I can make a meaningful impact at your organization.

Best regards,

Vikas

In [ ]: