
Project Setup Steps for Product Price Checker App with LLM Integration

1. Obtain API Keys

1.1. Acquire a **LangSmith API key** from the LangSmith platform: <https://smith.langchain.com>

1.2. Obtain an **OpenAI API key** from the OpenAI platform:

<https://platform.openai.com/account/api-keys>

2. Set Up the Project Structure Using uv

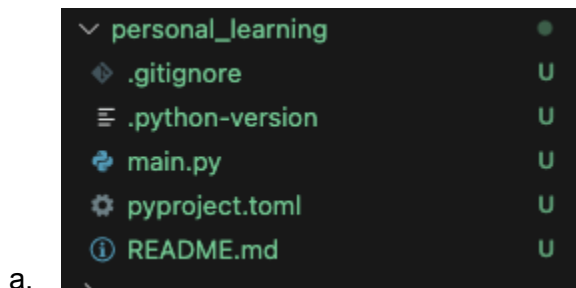
2.1. Install **uv** if not already installed:

```
pip install uv
```

2.2. Navigate to the desired project directory and initialize the project:

```
uv init
```

This command will automatically create a `.venv`, `pyproject.toml`, and other necessary files.



3. Install Dependencies

3.1. Add LangChain to the project:

```
uv add langchain
```

This installs the package and updates `pyproject.toml` accordingly.

pyproject.toml U X

code > personal_learning > pyproject.toml

```
1 [project]
2 name = "personal-learning"
3 version = "0.1.0"
4 description = "Add your description here"
5 readme = "README.md"
6 requires-python = ">=3.12"
7 dependencies = [
8     "langchain>=0.3.25",
9 ]
10
```

PROBLEMS

TERMINAL

...

Python - personal_learning + v [] [] ...

```
Successfully installed uv-0.7.8
(base) avijit@SPHDELCMLT035 personal_learning % pwd
/Users/avijit/Desktop/local_codes/code/personal_learning
(base) avijit@SPHDELCMLT035 personal_learning % uv init
Initialized project `personal-learning`
(base) avijit@SPHDELCMLT035 personal_learning % uv add langchain
Using CPython 3.12.7 interpreter at: /opt/anaconda3/bin/python3.12
Creating virtual environment at: .venv
```

```
Resolved 32 packages in 338ms
Prepared 28 packages in 448ms
Installed 28 packages in 35ms
+ annotated-types==0.7.0
+ anyio==4.9.0
+ certifi==2025.4.26
+ charset-normalizer==3.4.2
+ h11==0.16.0
+ httpcore==1.0.9
+ httpx==0.28.1
+ idna==3.10
+ jsonpatch==1.33
+ jsonpointer==3.0.0
+ langchain==0.3.25
+ langchain-core==0.3.61
+ langchain-text-splitters==0.3.8
+ langsmith==0.3.42
+ orjson==3.10.18
+ packaging==24.2
+ pydantic==2.11.5
+ pydantic-core==2.33.2
+ pyyaml==6.0.2
+ requests==2.32.3
+ requests-toolbelt==1.0.0
+ sniffio==1.3.1
+ sqlalchemy==2.0.41
+ tenacity==9.1.2
```

3.2. Install other required dependencies using the same approach:

```
uv add streamlit
uv add python-dotenv
uv add openai
```

(Include any additional libraries required for your application.)

4. Set Environment Variables

4.1. Create a `.env` file in the root of your project.

4.2. Add the necessary environment variables, e.g.:

```
OPENAI_API_KEY=your_openai_api_key
LANGCHAIN_API_KEY=your_langsmith_api_key
LANGCHAIN_TRACING_V2=true
LANGCHAIN_PROJECT=product-price-checker
```

5. Develop the Application

5.1. Implement the **Product Price Checker** backend logic using LangChain or LLM APIs.

5.2. Create a user interface using **Streamlit**, for example:

```
# main.py
import streamlit as st

st.title("Product Price Checker")
# UI logic here
```

6. Add Code Formatting and Linting Tools

6.1. Install `ruff` using `uv`:

```
uv tool install ruff
uv tool update-shell
```

6.2. Restart your shell/terminal session.

6.3. Auto-fix formatting issues:

```
ruff check --fix .
```

7. Activate Virtual Environment

Activate the virtual environment manually:

```
source .venv/bin/activate
```

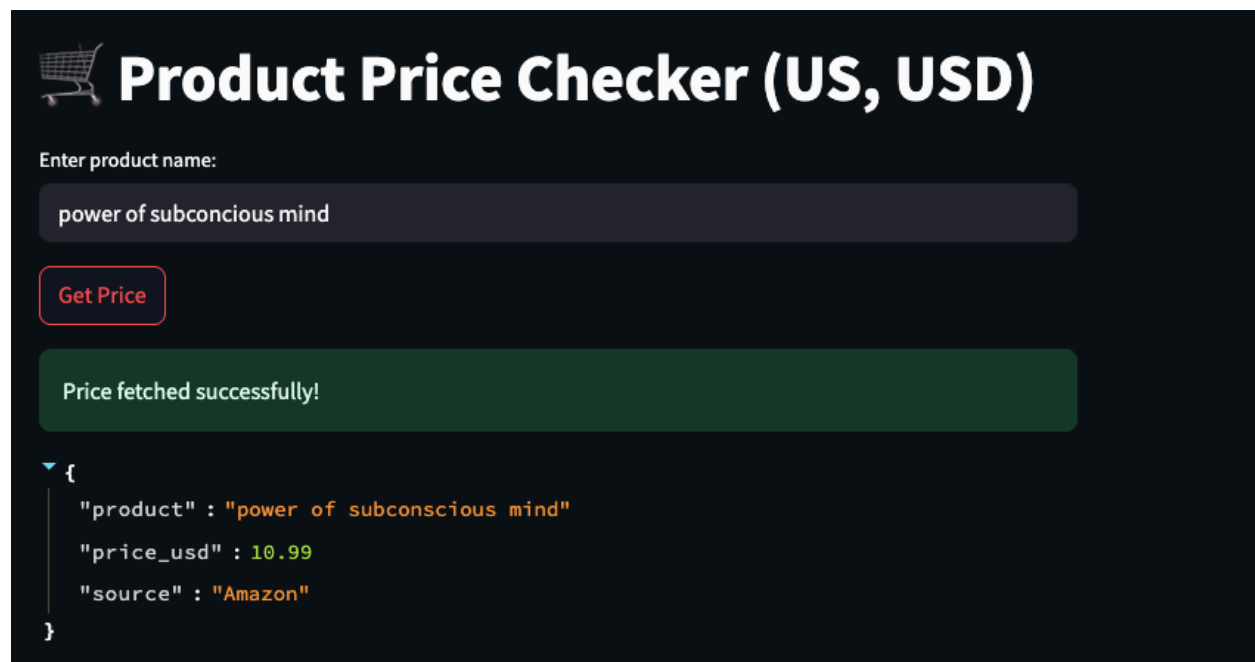
8. Run the Application

Start the Streamlit application:

```
streamlit run main.py
```

Access the frontend through the provided local URL in your terminal output.

b.





Product Price Checker (US, USD)

Enter product name:

black shirt

Get Price

Price fetched successfully!

```
{
  "product" : "black shirt"
  "price_usd" : 20
  "source" : "general clothing retail average"
}
```

c.



Product Price Checker (US, USD)

Enter product name:

sunglasses

Get Price

Price fetched successfully!

```
{
  "product" : "sunglasses"
  "price_usd" : 150
  "source" : "Based on the average price of branded sunglasses in the US market"
}
```

d.

9. Validate in LangSmith UI (Optional)

2.

	Name	Input	Output	Error	Start Time	Latency	Dataset	Annotation Queue	Tokens	Cost	First Token
<input type="checkbox"/>	GetProductPrice	watch	{ "success": true, "...		25/05/2025, 00:21:09	1.54s			148	\$0.00549	
<input type="checkbox"/>	GetProductPrice	iphone16	{ "success": true, "...		25/05/2025, 00:19:51	2.25s			150	\$0.00558	
<input type="checkbox"/>	GetProductPrice	sunglasses	{ "success": true, "...		25/05/2025, 00:18:41	2.10s			151	\$0.00567	
<input type="checkbox"/>	GetProductPrice	black shirt	{ "success": true, "...		25/05/2025, 00:14:12	1.66s			124	\$0.00465	
<input type="checkbox"/>	GetProductPrice	power of subconclou...	{ "success": true, "...		25/05/2025, 00:13:12	7.67s			127	\$0.00471	
<input type="checkbox"/>	GetProductPrice	white shirt	{ "success": true, "...		25/05/2025, 00:02:01	2.39s			123	\$0.00459	
<input type="checkbox"/>	GetProductPrice	iphone7	{ "success": true, "...		25/05/2025, 00:01:25	28.67s			121	\$0.00447	
<input type="checkbox"/>	GetProductPrice	iphone5	{ "success": true, "...		25/05/2025, 00:01:14	1.85s			121	\$0.00447	
<input type="checkbox"/>	GetProductPrice	iphone15	Validation failed		25/05/2025, 00:01:00	1.67s			121	\$0.00447	
<input type="checkbox"/>	GetProductPrice	iphone6	Validation failed		24/05/2025, 23:58:...	3.43s			159	\$0.00774	
<input type="checkbox"/>	GetProductPrice	iphone6	Validation failed		24/05/2025, 23:56:...	8.45s			115	\$0.00507	
<input type="checkbox"/>	GetProductPrice	iphone15	Validation failed		24/05/2025, 23:56:...	1.57s			99	\$0.00411	
<input type="checkbox"/>	GetProductPrice	I phone	Validation failed		24/05/2025, 23:55:...	2.19s			114	\$0.00501	
<input type="checkbox"/>	GetProductPrice	Titan watch	Validation failed		24/05/2025, 23:54:...	2.99s			111	\$0.00483	

Stats
Last 7 days
RUN COUNT
14
TOTAL TOKENS
1,784 / \$0.07
MEDIAN TOKENS
122
ERROR RATE
0%
% STREAMING
0%
LATENCY
P50: 2.22s P99: 26.04s
Filter Shortcuts
Input Key
☐ Product Name
Input Key Value
☐ Product Name == "iphone15"
☐ Product Name == "iphone5"
☐ Product Name == "iphone7"
☐ Product Name == "Titan Watch"

If logging is enabled for your LangChain workflows, verify traces and run outputs in the **LangSmith UI** at <https://smith.langchain.com>
