

# How to work with Lisette

## An Introduction to Answer.ai's Lisette Library

2024-01-15

### This is how to write some text including some citations as sidenotes

Quarto (abbreviated Qto, 4to or 4<sup>o</sup>) is the format of a book or pamphlet produced from full sheets printed with eight pages of text, four to a side, then folded twice to produce four leaves. The leaves are then trimmed along the folds to produce eight book pages. Each printed page presents as one-fourth size of the full sheet.<sup>1</sup>

<sup>1</sup> If this is working that is really nice.

The earliest known European printed book is a quarto, the Sibyllenbuch, believed to have been printed by Johannes Gutenberg in 1452–53, before the Gutenberg Bible, surviving only as a fragment. Quarto is also used as a general description of size of books that are about 12 inches (30 cm) tall, and as such does not necessarily indicate the actual printing format of the books, which may even be unknown, as is the case for many modern books. These terms are discussed in greater detail in book sizes.

```
# this is a sample code block to reverse a list
def reverse_list(list):
    if something_happens:
        print('this happened')
    else:
        print('this happened becuae the other did not')
```

① will this code annotation work ? hardly

This is how to embed an image



What can we do with lisette lib

**Pro Tip:** This dataset was cleaned using the Pandas library before ingestion.

## Overview

Feature	Description
<b>DataBlock API</b>	A flexible, lego-like system to build datasets from scratch.
<code>lr_find()</code>	Automatically plots loss vs. learning rate to find the optimal hyperparameter.
<code>fine_tune()</code>	One-line transfer learning method to adapt pre-trained models.
<b>One-Cycle Policy</b>	A training schedule that varies learning rates for faster convergence.
<b>Layered API</b>	A hierarchy of APIs ranging from high-level defaults to pure PyTorch access.

```
!uv pip list # this is how you look for what is installed in your environment
```

this is the exact code-block used to render this table

```
(1) (added)  
why don't this work ?  
(2)
```

Imagine you need to write a simple tools(or fuctions).How can you do that ?. Here is how and it is so easy.

```
def adder(a:float,b:float):  
    '''This adds two number a and b'''  
    return a + b
```

①

① you always need to add a docstring.

```
!uv pip install lisette -qq
```

```
from litellm import (acompletion, completion, stream_chunk_builder, Message,  
                    ModelResponse, ModelResponseStream, get_model_info, register_model, Usage)
```

```
from lisette import *
```

```
!uv pip install ipywidgets
```

Using Python 3.12.8 environment at: /Users/lochana-mbp/q/.venv

Resolved 20 packages in 793ms

Installed 3 packages in 17ms.0.16

+ ipywidgets==8.1.8

+ jupyterlab-widgets==3.0.16

+ widgetsnbextension==4.0.15

```
import os  
from dotenv import load_dotenv
```

```
load_dotenv()
```

True

```
model = 'gemini/gemini-2.5-pro'
```

```
c = Chat(model)
```

```
res = c('What is the capital of Australia')
```

```
from lisette.core import Chat
from fastcore.utils import patch
import ipywidgets as widgets
from IPython.display import display, clear_output

@patch
def edit_last(self: Chat):
    """
    Displays an interactive widget to edit the last message in history.
    Updates the Chat history in-place upon clicking 'Update'.
    """
    if not self.hist:
        print("No history to edit.")
        return

    # 1. Get the last message object
    last_msg = self.hist[-1]

    # 2. Extract current content safely (handle dict vs object)
    if isinstance(last_msg, dict):
        current_content = last_msg.get('content', '')
    else:
        # It is a litellm Message object
        current_content = getattr(last_msg, 'content', '')

    # Guard against non-text content (like tool calls or images)
    if not isinstance(current_content, str):
        print(f"Cannot edit content type: {type(current_content)}")
        return

    # 3. Create Widgets
    textarea = widgets.Textarea(
        value=current_content,
        placeholder='Type something...',
```

```

        description='Edit:',
        layout=widgets.Layout(width='100%', height='200px')
    )

    save_btn = widgets.Button(
        description='Update History',
        button_style='success', # 'success', 'info', 'warning', 'danger' or ''
        icon='check'
    )

    out_log = widgets.Output()

    # 4. Define Save Action
    def on_save(_):
        new_text = textarea.value

        # Update the history object in-place
        if isinstance(last_msg, dict):
            last_msg['content'] = new_text
        else:
            last_msg.content = new_text

        with out_log:
            clear_output()
            print(" History updated successfully!")

    save_btn.on_click(on_save)

    # 5. Display
    display(widgets.VBox([textarea, save_btn, out_log]))

```

```

from litellm import (acompletion, completion, stream_chunk_builder, Message,
                    ModelResponse, ModelResponseStream, get_model_info, register_model, Usage)

```

```

from IPython.display import Markdown, Image

```

```

from litellm import ModelResponse

```

```
def _response(self: litellm.ModelResponse):
    response = self.model_dump.get('choices')[0]['message']['content']
    return response
```

NameError: name 'litellm' is not defined

```
-----
NameError                                Traceback (most recent call last)
Cell In[90], line 1
----> 1 def _response(self: litellm.ModelResponse):
      2     response = self.model_dump.get('choices')[0]['message']['content']
      3     return response
NameError: name 'litellm' is not defined
```

```
res.model_dump()
```

```
{'id': '6BsxabbaJoGL4-EP146qiQE',
 'created': 1764826083,
 'model': 'gemini-2.5-pro',
 'object': 'chat.completion',
 'system_fingerprint': None,
 'choices': [{'finish_reason': 'stop',
               'index': 0,
               'message': {'content': "The capital of Australia is **Canberra**.\n\nA common misconception
known cities. However, Canberra was chosen as a compromise between these two rivals in 1908.",
               'role': 'assistant',
               'tool_calls': None,
               'function_call': None,
               'images': [],
               'thinking_blocks': [],
               'provider_specific_fields': None}}],
 'usage': {'completion_tokens': 520,
           'prompt_tokens': 7,
           'total_tokens': 527,
           'completion_tokens_details': {'accepted_prediction_tokens': None,
           'audio_tokens': None,
           'reasoning_tokens': 464,
           'rejected_prediction_tokens': None,
           'text_tokens': 56,
           'image_tokens': None},
           'prompt_tokens_details': {'audio_tokens': None,
```

```

    'cached_tokens': None,
    'text_tokens': 7,
    'image_tokens': None}},
'vertex_ai_grounding_metadata': [],
'vertex_ai_url_context_metadata': [],
'vertex_ai_safety_results': [],
'vertex_ai_citation_metadata': []}

```

```

model_dump = res.model_dump()
y = model_dump.get('choices')[0]['message']['content']
y

```

"The capital of Australia is **Canberra**.\n\nA common misconception is that it's Sydney or Melbourne, the two most known cities. However, Canberra was chosen as a compromise between these two rivals in 1908."

```

dir(res)

```

```

['__abstractmethods__',
 '__annotations__',
 '__class__',
 '__class_getitem__',
 '__class_vars__',
 '__contains__',
 '__copy__',
 '__deepcopy__',
 '__delattr__',
 '__dict__',
 '__dir__',
 '__doc__',
 '__eq__',
 '__fields__',
 '__fields_set__',
 '__format__',
 '__ge__',
 '__get_pydantic_core_schema__',
 '__get_pydantic_json_schema__',
 '__getattr__',
 '__getattribute__',
 '__getitem__',

```

```
'__getstate__',
'__gt__',
'__hash__',
'__init__',
'__init_subclass__',
'__iter__',
'__le__',
'__lt__',
'__module__',
'__ne__',
'__new__',
'__pretty__',
'__private_attributes__',
'__pydantic_complete__',
'__pydantic_computed_fields__',
'__pydantic_core_schema__',
'__pydantic_custom_init__',
'__pydantic_decorators__',
'__pydantic_extra__',
'__pydantic_fields__',
'__pydantic_fields_set__',
'__pydantic_generic_metadata__',
'__pydantic_init_subclass__',
'__pydantic_on_complete__',
'__pydantic_parent_namespace__',
'__pydantic_post_init__',
'__pydantic_private__',
'__pydantic_root_model__',
'__pydantic_serializer__',
'__pydantic_setattr_handlers__',
'__pydantic_validator__',
'__reduce__',
'__reduce_ex__',
'__replace__',
'__repr__',
'__repr_args__',
'__repr_name__',
'__repr_recursion__',
'__repr_str__',
'__rich_repr__',
'__setattr__',
```



```
'__setstate__',
'__signature__',
'__sizeof__',
'__slots__',
'__str__',
'__subclasshook__',
'__weakref__',
'_abc_impl',
'_calculate_keys',
'_copy_and_set_values',
'_get_value',
'_iter',
'_repr_markdown_',
'_response_ms',
'_setattr_handler',
'choices',
'construct',
'copy',
'created',
'dict',
'from_orm',
'get',
'id',
'json',
'model',
'model_computed_fields',
'model_config',
'model_construct',
'model_copy',
'model_dump',
'model_dump_json',
'model_extra',
'model_fields',
'model_fields_set',
'model_json_schema',
'model_parametrized_name',
'model_post_init',
'model_rebuild',
'model_validate',
'model_validate_json',
'model_validate_strings',
```

```

'object',
'parse_file',
'parse_obj',
'parse_raw',
'schema',
'schema_json',
'system_fingerprint',
'to_dict',
'to_json',
'update_forward_refs',
'validate']

```

```
list_of_choices
```

```

[{'finish_reason': 'stop',
  'index': 0,
  'message': {'content': "The capital of Australia is **Canberra**.\n\nA common misconception :
known cities. However, Canberra was chosen as a compromise between these two rivals in 1908.",
  'role': 'assistant',
  'tool_calls': None,
  'function_call': None,
  'images': [],
  'thinking_blocks': [],
  'provider_specific_fields': None}}]

```

```
k = Chat(model)
```

```
res = k('what is the capital of sri lanka')
```

```
res.hist
```

```
AttributeError: 'ModelResponse' object has no attribute 'hist'
```

```

-----
AttributeError                                Traceback (most recent call last)
Cell In[100], line 1
----> 1 res.hist
File ~/q/.venv/lib/python3.12/site-packages/pydantic/main.py:1026, in BaseModel.__getattr__(self, item)
    1023     return super().__getattr__(item) # Raises AttributeError if appropriate
    1024 else:

```

```
1025     # this is the current error
-> 1026     raise AttributeError(f'{type(self).__name__!r} object has no attribute {item!r}')
AttributeError: 'ModelResponse' object has no attribute 'hist'
```

## Import CACHY

```
from cachy import enable_cachy
enable_cachy()
```

```
res = c('This is nice,can you tell me a joke?')
res
```

Of course!

Why don't scientists trust atoms?

...Because they make up everything!

- id: YbwaaeaPMd7ijuMPriGt2A0
- model: gemini-2.5-pro
- finish\_reason: stop
- usage: Usage(completion\_tokens=556, prompt\_tokens=25, total\_tokens=581, completion\_tokens\_details=CompletionTokensDetailsWrapper(accepted\_prediction\_tokens=535, audio\_tokens=None, reasoning\_tokens=535, rejected\_prediction\_tokens=None, text\_tokens=21, image\_tokens=None), prompt\_tokens\_details=PromptTokensDetailsWrapper(audio\_tokens=None, cached\_tokens=None, text\_tokens=25, image\_tokens=None))

**Ok now if we try to do the same prompt again what would happen?**

```
res_2 = c('This is nice,can you tell me a joke?')
res_2
```

Glad you liked it! Here's another one for you:

What do you call a fake noodle?

...An impasta!

- id: srwwafe4EofKg8UPjvDlkQ4
- model: gemini-2.5-pro
- finish\_reason: stop
- usage: Usage(completion\_tokens=544, prompt\_tokens=59, total\_tokens=603, completion\_tokens\_details=CompletionTokensDetailsWrapper(accepted\_prediction\_tokens=544, audio\_tokens=None, reasoning\_tokens=515, rejected\_prediction\_tokens=None, text\_tokens=29, image\_tokens=None), prompt\_tokens\_details=PromptTokensDetailsWrapper(audio\_tokens=None, cached\_tokens=None, text\_tokens=59, image\_tokens=None))

I think you need `patch_litellm()`

```
patch_litellm()
```

```
first = c('Tell me about Sri Lanka')
```

```
first
```

Of course! Sri Lanka is a fascinating and beautiful country with a rich history and diverse culture. Here's a comprehensive overview for you.

## An Introduction to Sri Lanka

Often called the “**Pearl of the Indian Ocean**” or the “**Resplendent Isle**,” Sri Lanka is a teardrop-shaped island nation located just south of India. It's a country of incredible diversity packed into a relatively small area. You can go from sun-drenched beaches to cool, misty mountains covered in tea plantations in just a few hours.

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## Key Aspects of Sri Lanka

### 1. Geography and Nature

- **Diverse Landscapes:** The coastal belt is lined with stunning beaches and lagoons. The interior features a central highland region with mountains, waterfalls, and vast tea estates. The northern and eastern parts are flatter and drier.
- **Incredible Wildlife:** Sri Lanka is one of the world's top biodiversity hotspots. It's famous for its large population of **Asian elephants**, which can be seen in national parks like Udawalawe and Minneriya. It's also one of the best places in the world to spot **leopards** (in Yala National Park) and **blue whales** (off the southern coast near Mirissa).
- **National Parks:** The country has numerous protected areas, including Sinharaja Forest Reserve, a UNESCO World Heritage Site and the last viable area of primary tropical rainforest in the country.

## 2. History and Culture

- **Ancient Roots:** Sri Lanka has a documented history of over 2,500 years. The ancient cities of **Anuradhapura** and **Polonnaruwa** were magnificent capitals with enormous stupas (dome-shaped Buddhist shrines) and advanced irrigation systems.
- **The Cultural Triangle:** This area in the center of the country is home to several UNESCO World Heritage Sites, including:
  - **Sigiriya Rock Fortress:** An ancient palace and fortress built atop a massive rock column, famous for its stunning frescoes.
  - **Dambulla Cave Temple:** A complex of caves filled with hundreds of Buddha statues and intricate paintings.
  - **The Sacred City of Kandy:** Home to the Temple of the Tooth Relic, which houses a sacred tooth of the Buddha.
- **Colonial Influence:** The island was colonized by the Portuguese, Dutch, and finally the British, who introduced tea cultivation on a massive scale. This colonial past is

visible in the architecture of cities like **Galle**, with its famous Dutch Fort.

- **People and Religion:** The majority of the population is **Sinhalese** (mostly Buddhist), with a significant **Tamil** minority (mostly Hindu). There are also Muslim and Christian communities. This mix of cultures makes for a vibrant tapestry of festivals, traditions, and languages (Sinhala and Tamil are the official languages).

### 3. The Economy and Famous Exports

- **Ceylon Tea:** Sri Lanka (formerly known as Ceylon) is one of the world's largest tea exporters. A visit to the hill country isn't complete without a tour of a tea plantation.
- **Spices:** The island has been a hub for the spice trade for centuries. It's famous for its high-quality **cinnamon**, as well as cloves, nutmeg, and pepper.
- **Gems:** Known as the "Gem Island," Sri Lanka is a source of beautiful sapphires, rubies, and other precious stones.
- **Tourism:** Tourism is a vital part of the economy, attracting visitors with its blend of nature, culture, adventure, and wellness.

### 4. Food

Sri Lankan cuisine is a treat! It's known for its vibrant colors and rich, spicy flavors. \* **Rice and Curry:** This is the national dish, but it's not just one curry. It's a plate of rice served with a variety of small, flavorful dishes made from vegetables, meat, or fish, often using coconut milk and a unique blend of spices.

\* **Kottu Roti:** A popular street food made from chopped flatbread, vegetables, egg, and/or meat, all stir-fried on a hot griddle with a rhythmic clanging of metal blades. \* **Hoppers (Appa):** Bowl-shaped pancakes made from fermented rice flour and coconut milk. They are crispy on the edges and soft in the center, often served with an egg cooked inside (**Egg Hopper**). \* **String Hoppers (Idiyappam):** Steamed nests of rice flour noodles, usually eaten for breakfast with a coconut sambol and curry.

---

## Recent History

It's also important to acknowledge that Sri Lanka has faced significant challenges. The country endured a long and painful civil war from 1983 to 2009. In recent years, it has also faced economic difficulties. Despite these hardships, the people are known for their resilience, warmth, and hospitality.

In short, Sri Lanka is a land of contrasts and immense beauty, offering everything from ancient history and spiritual sites to thrilling wildlife safaris and relaxing beach holidays.

- id: chatcmpl-xxx
- model: gemini-2.5-pro
- finish\_reason: stop
- usage: Usage(completion\_tokens=2564, prompt\_tokens=95, total\_tokens=2659, completion\_tokens\_details=CompletionTokensDetailsWrapper(accepted\_prediction\_tokens=1471, audio\_tokens=None, reasoning\_tokens=1471, rejected\_prediction\_tokens=None, text\_tokens=1093, image\_tokens=None), prompt\_tokens\_details=PromptTokensDetailsWrapper(audio\_tokens=None, cached\_tokens=None, text\_tokens=95, image\_tokens=None))

```
# now let's see how cached response work
cached_response = c('Tell me about Sri Lanka')
cached_response
```

You got it! Since we've covered the general overview, let's dive into some of the most unique and fascinating facts about Sri Lanka.

Here are some things that make the island truly special:

**1. The Origin of the Word “Serendipity”** The English word “serendipity,” which means a fortunate or happy accident, comes from *Serendib*, an old Arabic name for Sri Lanka. The term was coined by Horace Walpole in 1754, inspired by a Persian fairy tale about three princes from Serendib who were always making discoveries by accident.

## **2. Home to the World’s First Female Prime Minister**

In 1960, Sri Lanka (then Ceylon) made history when Sirimavo Bandaranaike became the world’s first-ever female head of government.

## **3. The National Flag is One of the Oldest in the World**

The Sri Lankan flag is rich with symbolism. The golden lion represents the Sinhalese people, the four Bo leaves in the corners represent the four Buddhist virtues, and the orange and green stripes represent the Tamil and Muslim minorities, respectively.

**4. It’s the True Home of Cinnamon** While many countries use cinnamon, the “true cinnamon” (*Cinnamomum verum*) is native to Sri Lanka. For centuries, the island was the world’s primary source, making it a priceless hub for spice traders.

**5. The National Sport Isn’t Cricket** Although cricket is wildly popular and the country has a world-class team, the official national sport of Sri Lanka is actually **volleyball**.

**6. A Haven for Elephants** Sri Lanka has the highest density of wild Asian elephants in the world. Every year, hundreds of elephants gather at the Minneriya National Park in an event known as “The Gathering,” which is the largest meeting of Asian elephants on the planet.

**7. The Sacred Tooth of the Buddha** The city of Kandy is home to the *Sri Dalada Maligawa* (Temple of the Sacred Tooth Relic). This temple houses what is believed to be a real tooth of the Buddha, making it one of the most sacred pilgrimage sites for Buddhists worldwide.

**8. A Very High Literacy Rate** Despite its economic challenges, Sri Lanka boasts one of the highest literacy rates in South Asia, at over 92%. Education is highly valued in the culture.

Is there any of these points you’d find interesting to explore further? For example, we could talk more about the history of the spice trade or the significance of the Temple of the Tooth.

- id: chatcmpl-xxx
- model: gemini-2.5-pro



- finish\_reason: stop
- usage: Usage(completion\_tokens=1617, prompt\_tokens=1677, total\_tokens=3294, completion\_tokens\_details=CompletionTokensDetailsWrapper(accepted\_prediction\_tokens=1617, rejected\_prediction\_tokens=0), audio\_tokens=None, reasoning\_tokens=1068, rejected\_prediction\_tokens=None, text\_tokens=549, image\_tokens=None), prompt\_tokens\_details=PromptTokensDetailsWrapper(audio\_tokens=None, cached\_tokens=None, text\_tokens=1677, image\_tokens=None))

```
dir(Chat)
```

```
['__call__',
 '__class__',
 '__delattr__',
 '__dict__',
 '__dir__',
 '__doc__',
 '__eq__',
 '__format__',
 '__ge__',
 '__getattr__',
 '__getstate__',
 '__gt__',
 '__hash__',
 '__init__',
 '__init_subclass__',
 '__le__',
 '__lt__',
 '__module__',
 '__ne__',
 '__new__',
 '__reduce__',
 '__reduce_ex__',
 '__repr__',
 '__setattr__',
 '__sizeof__',
 '__str__',
 '__subclasshook__',
 '__weakref__',
 '_call',
 '_prep_msg',
 'print_hist']
```

```
display(c.print_hist())
```

```
{'role': 'user', 'content': 'hey'}
```

```
Message(content='Hey there! How can I help you today?', role='assistant', tool_calls=None, fun
```

```
{'role': 'user', 'content': 'This is nice,can you tell me a joke?'}
```

```
Message(content="Of course!\n\nWhy don't scientists trust atoms?\n\n...Because they make up ev
```

```
{'role': 'user', 'content': 'This is nice,can you tell me a joke?'}
```

```
Message(content="Glad you liked it! Here's another one for you:\n\nWhat do you call a fake noo
```

```
{'role': 'user', 'content': 'Tell me about Sri Lanka'}
```

```
Message(content='Of course! Sri Lanka is a fascinating and beautiful country with a rich histor  
shaped island nation located just south of India. It\'s a country of incredible diversity pack  
drenched beaches to cool, misty mountains covered in tea plantations in just a few hours.\n\n--  
\n\n### **Key Aspects of Sri Lanka**\n\n#### **1. Geography and Nature**\n*   **Diverse Landsc  
shaped Buddhist shrines) and advanced irrigation systems.\n*   **The Cultural Triangle:** This  
quality **cinnamon**, as well as cloves, nutmeg, and pepper.\n*   **Gems:** Known as the "Gem  
fried on a hot griddle with a rhythmic clanging of metal blades.\n*   **Hoppers (Appa):** Bowl  
shaped pancakes made from fermented rice flour and coconut milk. They are crispy on the edges a  
\n\n### **Recent History**\n\nIt\'s also important to acknowledge that Sri Lanka has faced sign
```

```
{'role': 'user', 'content': 'Tell me about Sri Lanka'}
```

```
Message(content='Of course! We just touched on it, but I can give you a more focused summary of  
a-glance" look at Sri Lanka:\n\n**Sri Lanka: The Essentials**\n\n*   **Nickname:** The Pearl o  
sand beaches, from the bustling surf spots in the south (like Weligama and Hikkaduwa) to the mo  
fry) is a must-try.\n\nIs there a particular part of that you\'d like to know more about? For e
```

```
{'role': 'user', 'content': 'Tell me about Sri Lanka'}
```

```
Message(content='You got it! Since we\'ve covered the general overview, let\'s dive into some o  
ever female head of government.\n\n**3. The National Flag is One of the Oldest in the World**\n  
class team, the official national sport of Sri Lanka is actually **volleyball**.\n\n**6. A Have
```

```
None
```

```
patch_litellm(seed=42)
pr = 'tell me a joke'
```

```
j = Chat(model)
first_joke = j(pr)
first_joke
```

Why don't scientists trust atoms?

Because they make up everything

- id: chatcmpl-xxx
- model: gemini-2.5-pro
- finish\_reason: stop
- usage: Usage(completion\_tokens=556, prompt\_tokens=5, total\_tokens=561, completion\_tokens\_details=CompletionTokensDetailsWrapper(accepted\_prediction\_tokens=556, audio\_tokens=None, reasoning\_tokens=542, rejected\_prediction\_tokens=None, text\_tokens=14, image\_tokens=None), prompt\_tokens\_details=PromptTokensDetailsWrapper(audio\_tokens=None, cached\_tokens=None, text\_tokens=5, image\_tokens=None))

```
second_joke = j(pr)
second_joke
```

I'm reading a book on anti-gravity.

It's impossible to put down

- id: chatcmpl-xxx
- model: gemini-2.5-pro
- finish\_reason: stop
- usage: Usage(completion\_tokens=788, prompt\_tokens=25, total\_tokens=813, completion\_tokens\_details=CompletionTokensDetailsWrapper(accepted\_prediction\_tokens=788, audio\_tokens=None, reasoning\_tokens=769, rejected\_prediction\_tokens=None, text\_tokens=19, image\_tokens=None), prompt\_tokens\_details=PromptTokensDetailsWrapper(audio\_tokens=None, cached\_tokens=None, text\_tokens=25, image\_tokens=None))