

Async API

LangChain provides async support for LLMs by leveraging the [asyncio](#) library.

Async support is particularly useful for calling multiple LLMs concurrently, as these calls are network-bound. Currently, `OpenAI`, `PromptLayerOpenAI`, `ChatOpenAI` and `Anthropic` are supported, but async support for other LLMs is on the roadmap.

You can use the `agenerate` method to call an OpenAI LLM asynchronously.

```
import time
import asyncio

from langchain.llms import OpenAI

def generate_serially():
    llm = OpenAI(temperature=0.9)
    for _ in range(10):
        resp = llm.generate(["Hello, how are you?"])
        print(resp.generations[0][0].text)

async def async_generate(llm):
    resp = await llm.agenerate(["Hello, how are you?"])
    print(resp.generations[0][0].text)
```

```
async def generate_concurrently():
    llm = OpenAI(temperature=0.9)
    tasks = [async_generate(llm) for _ in range(10)]
    await asyncio.gather(*tasks)

s = time.perf_counter()
# If running this outside of Jupyter, use asyncio.run(generate_concurrently())
await generate_concurrently()
elapsed = time.perf_counter() - s
print("\033[1m" + f"Concurrent executed in {elapsed:0.2f} seconds." + "\033[0m")

s = time.perf_counter()
generate_serially()
elapsed = time.perf_counter() - s
print("\033[1m" + f"Serial executed in {elapsed:0.2f} seconds." + "\033[0m")
```

I'm doing well, thank you. How about you?

I'm doing well, thank you. How about you?

I'm doing well, how about you?

I'm doing well, thank you. How about you?

I'm doing well, thank you. How about you?

I'm doing well, thank you. How about yourself?

I'm doing well, thank you! How about you?

I'm doing well, thank you. How about you?

I'm doing well, thank you! How about you?

I'm doing well, thank you. How about you?
Concurrent executed in 1.39 seconds.

I'm doing well, thank you. How about you?

I'm doing well, thank you. How about you?

I'm doing well, thank you. How about you?

I'm doing well, thank you. How about you?

I'm doing well, thank you. How about yourself?

I'm doing well, thanks for asking. How about you?

```
I'm doing well, thanks! How about you?
```

```
I'm doing well, thank you. How about you?
```

```
I'm doing well, thank you. How about yourself?
```

```
I'm doing well, thanks for asking. How about you?  
Serial executed in 5.77 seconds.
```