

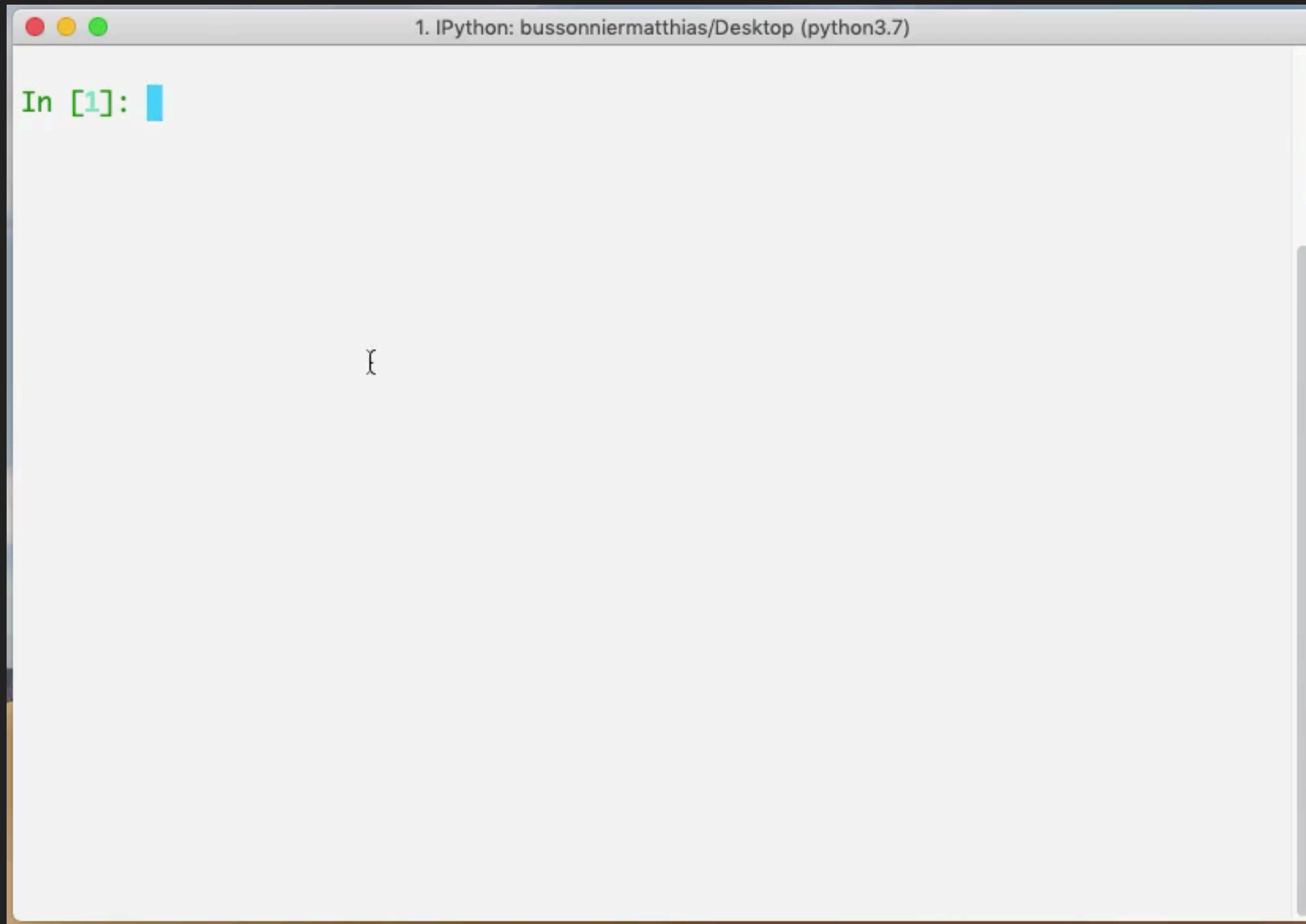
ASYNC/AWAIT IN THE REPL

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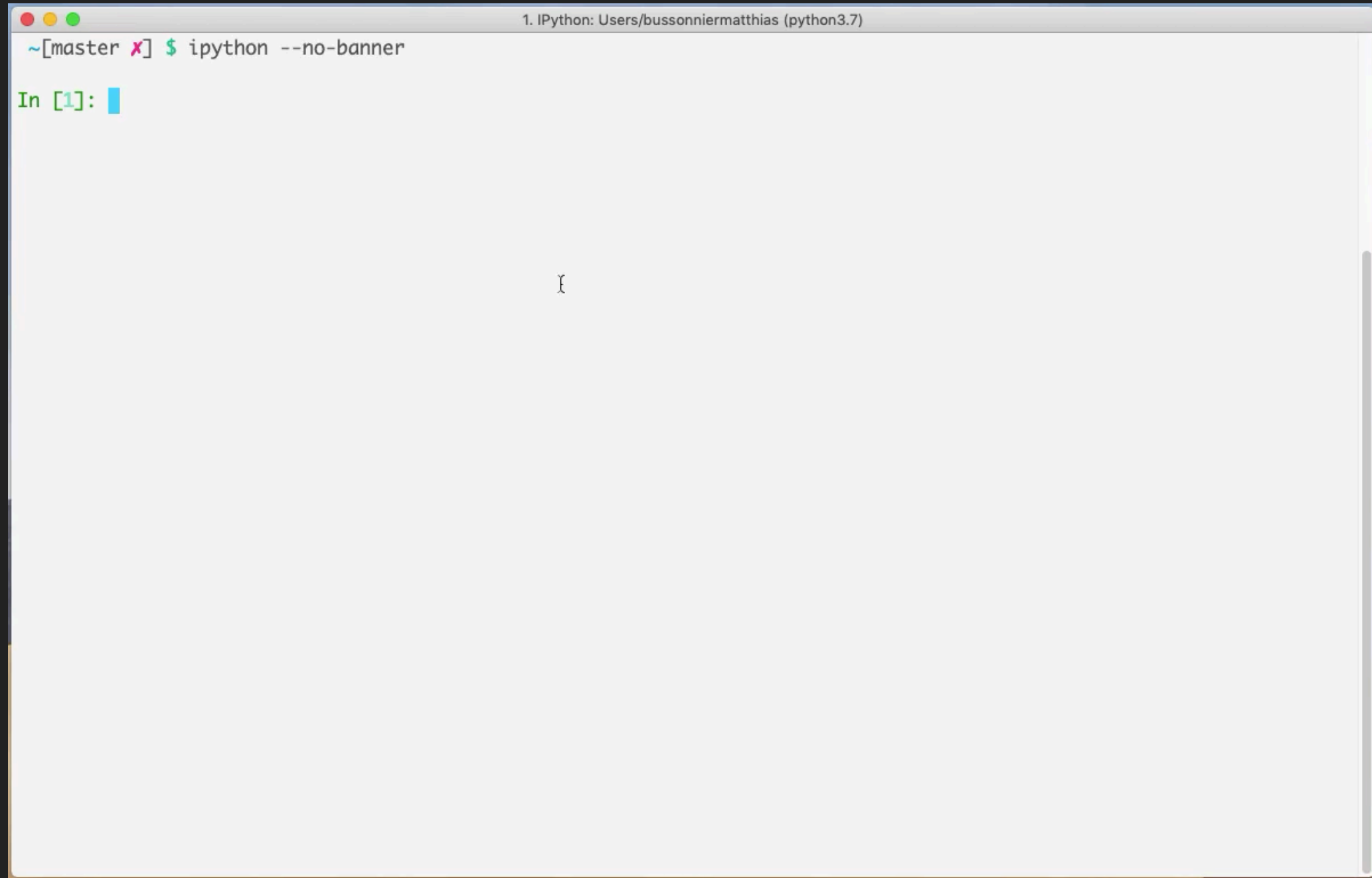
TL;DR: B.P.O 34616

WHAT IS ASYNC/AWAIT IN THE REPL

MAKE TOP LEVEL AWAIT VALID; AND DO THE RIGHT THING



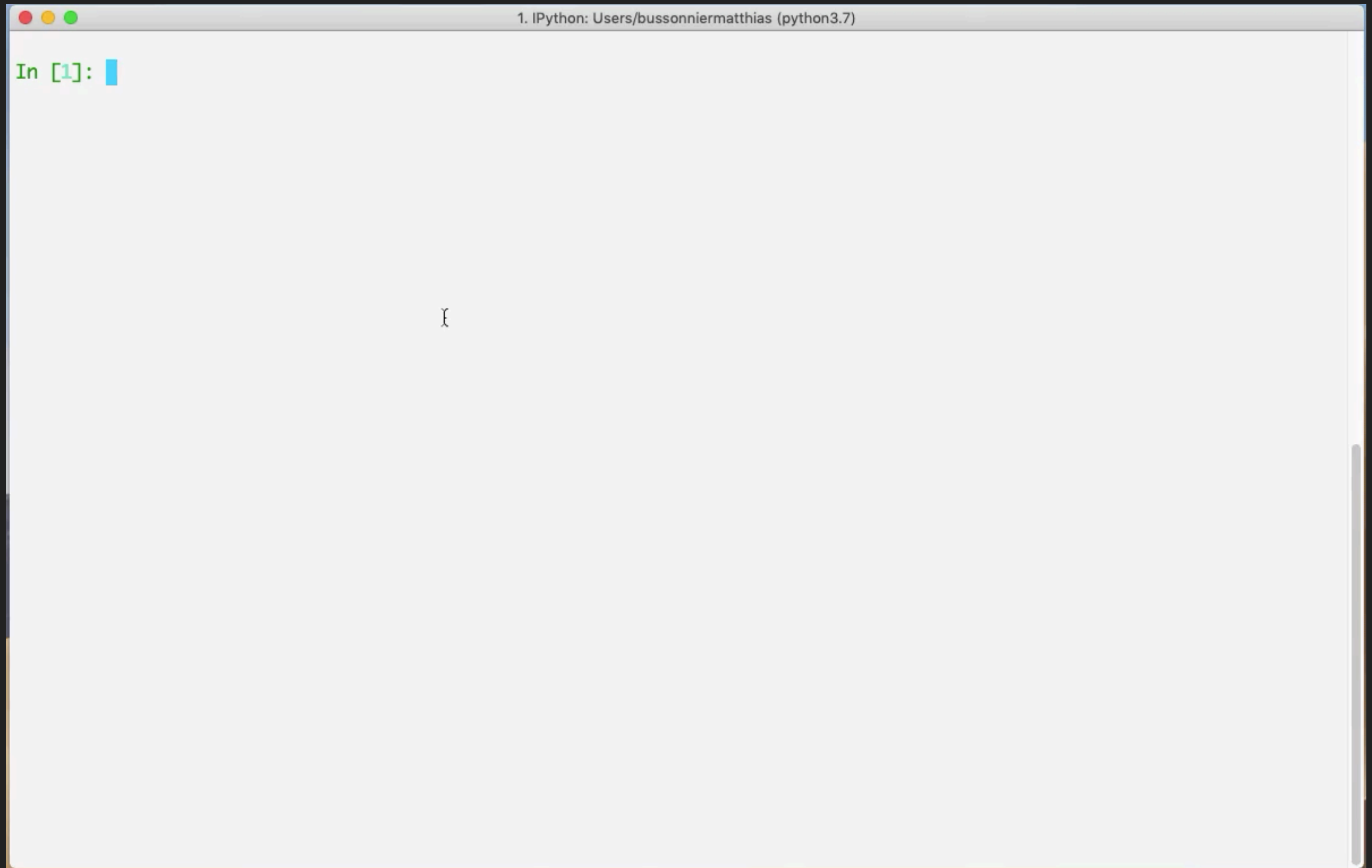
IS ACTUALLY USEFUL AND USED* WHEN WORKING AT THE REPL

A screenshot of a terminal window titled "1. IPython: Users/bussonniermatthias (python3.7)". The terminal shows the command prompt "~[master x] \$ ipython --no-banner" and the IPython prompt "In [1]:" with a blue cursor. The terminal has a light gray background and a dark gray border. The window title bar is light gray with three colored buttons (red, yellow, green) on the left.

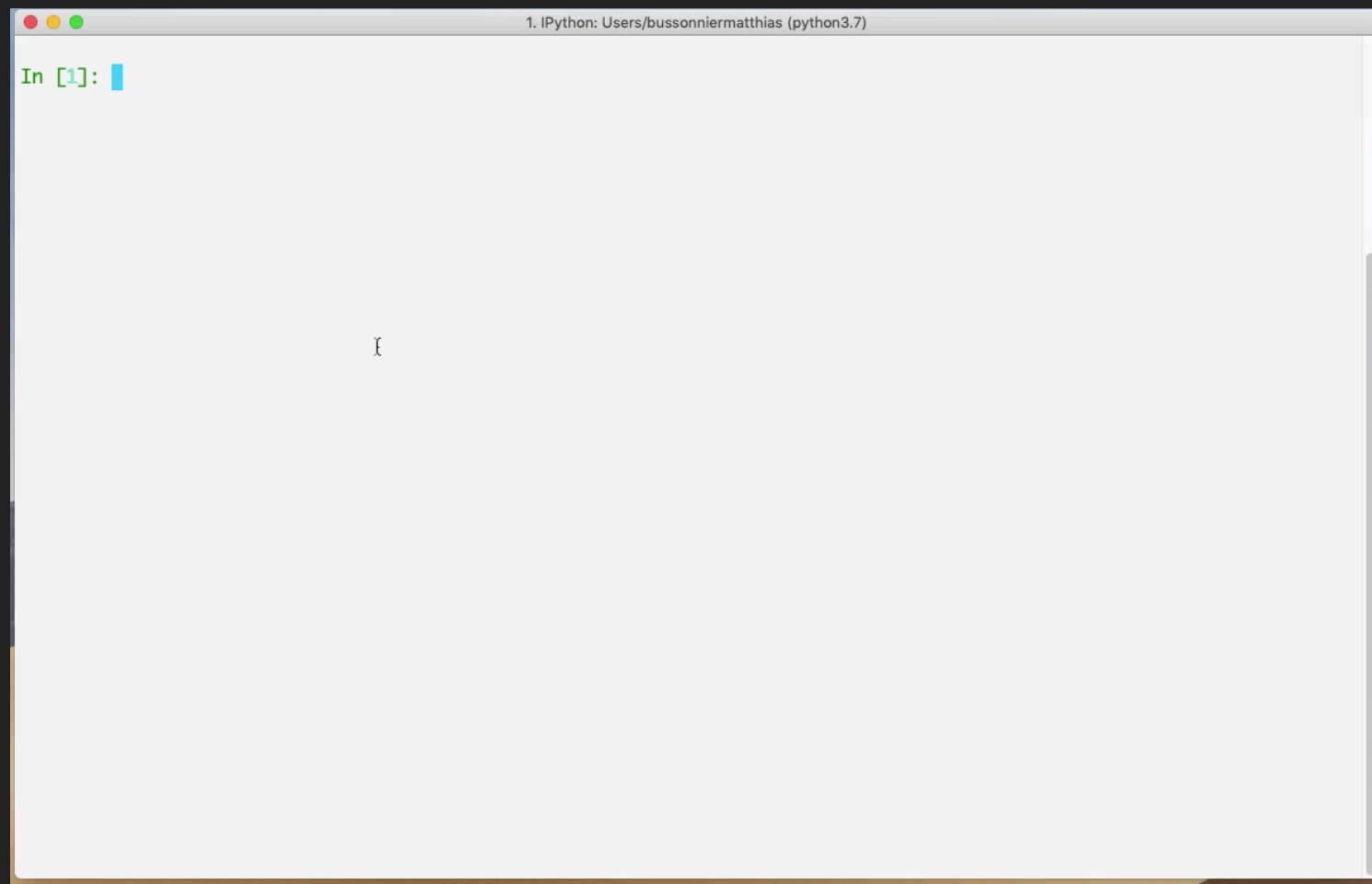
```
1. IPython: Users/bussonniermatthias (python3.7)
~[master x] $ ipython --no-banner
In [1]:
```

*WE GOT BUG REPORTS REALLY FAST AFTER RELEASE

WORKS WITH NON-ASYNCIO



... SOME ISSUES DUES TO WORKAROUND
PYTHON LIMITATIONS
BACKGROUND TASKS DON'T ALWAYS RUN



ALSO ISSUES WITH.....
DOCSTRINGS — LOCALS/GLOBALS — MULTIPLE STATEMENTS
— INCORRECT TRACEBACKS...

- ▶ Compile, and if `SyntaxError`:
 - ▶ String templating In `async-def`,
 - ▶ Exec that extract ast function body and Re-validate ast + modifs, (custom)
 - ▶ Copy `co_code.flags|no_new_locals`
 - ▶ Exec that -> coroutine
 - ▶ Await coroutine
- ▶ Else:
 - ▶ "World dumbest coroutine runner" for non-async code (can't nest event loops)

- ▶ top-level await valid **in a limited opt-in context**
 - ▶ **(Still forbidden in module context)**
 - ▶ Known Semantic for alternate implementations.
 - ▶ REPL-mode for "Compile(..., 'REPL')" & co
 - ▶ 'REPL' could also support multi-statements input
- ▶ Utility to detect if code is top-level-async
 - ▶ `code_object.is_top_level_async`
- ▶ `await exec(...)`
- ▶ `codeop.compile_command`, `ast...` (some work already done so THANKS !)

- ▶ 3rd party tools like linters could use Python Stdlib*
- ▶ Allow to copy-past any piece of code in the REPL.
- ▶ Useful for education (and non-developers)
 - ▶ Remove some misconception that ASYNC is hard.
- ▶ (Do it before Javascript Can ? – not sure if this is pro or con)

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