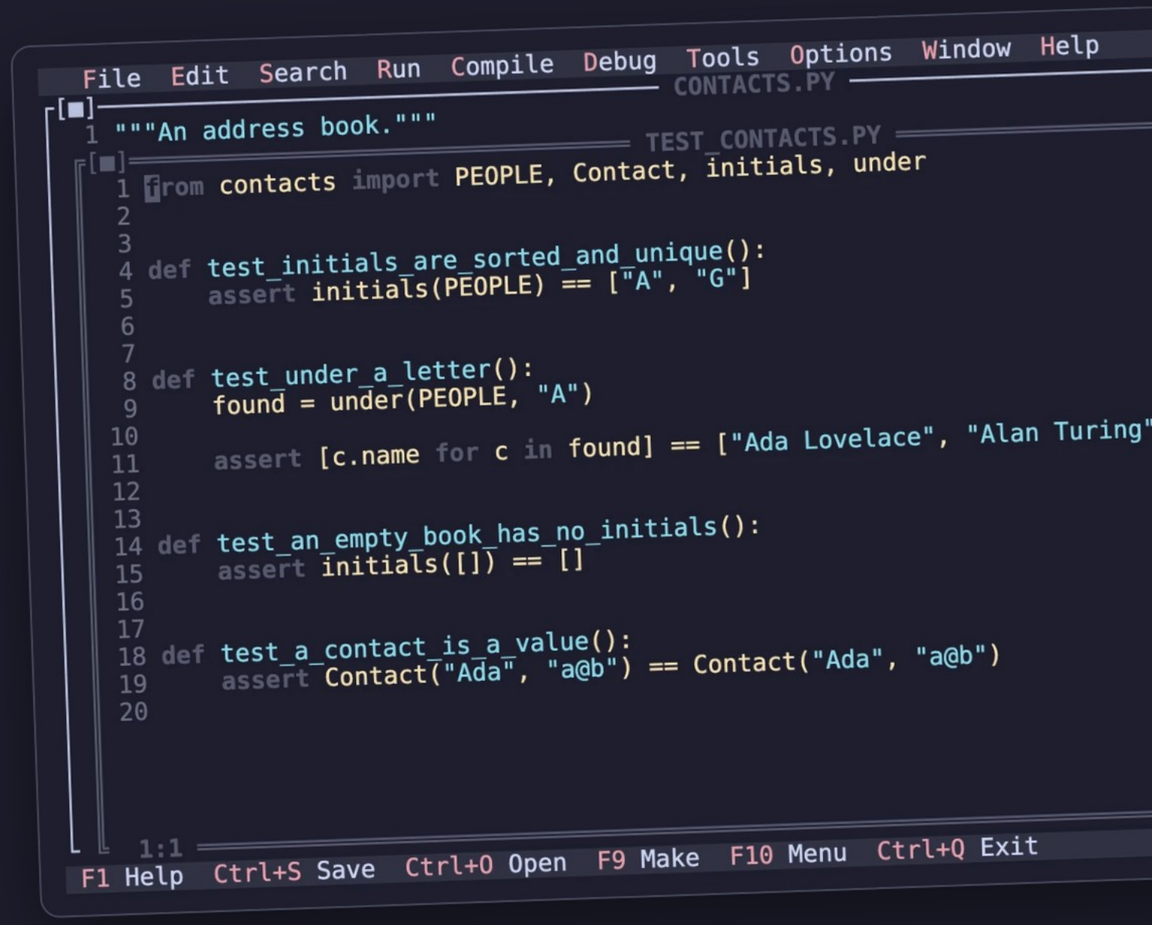
turbodesk

Write terminal applications
as functions of their state.



An open source Python library

Terminal interfaces are hard to test.

Most Python terminal libraries keep a tree of widget objects alive between frames. The state of the screen is spread across them. To check one screen, a test builds the tree, drives it, and queries it back.

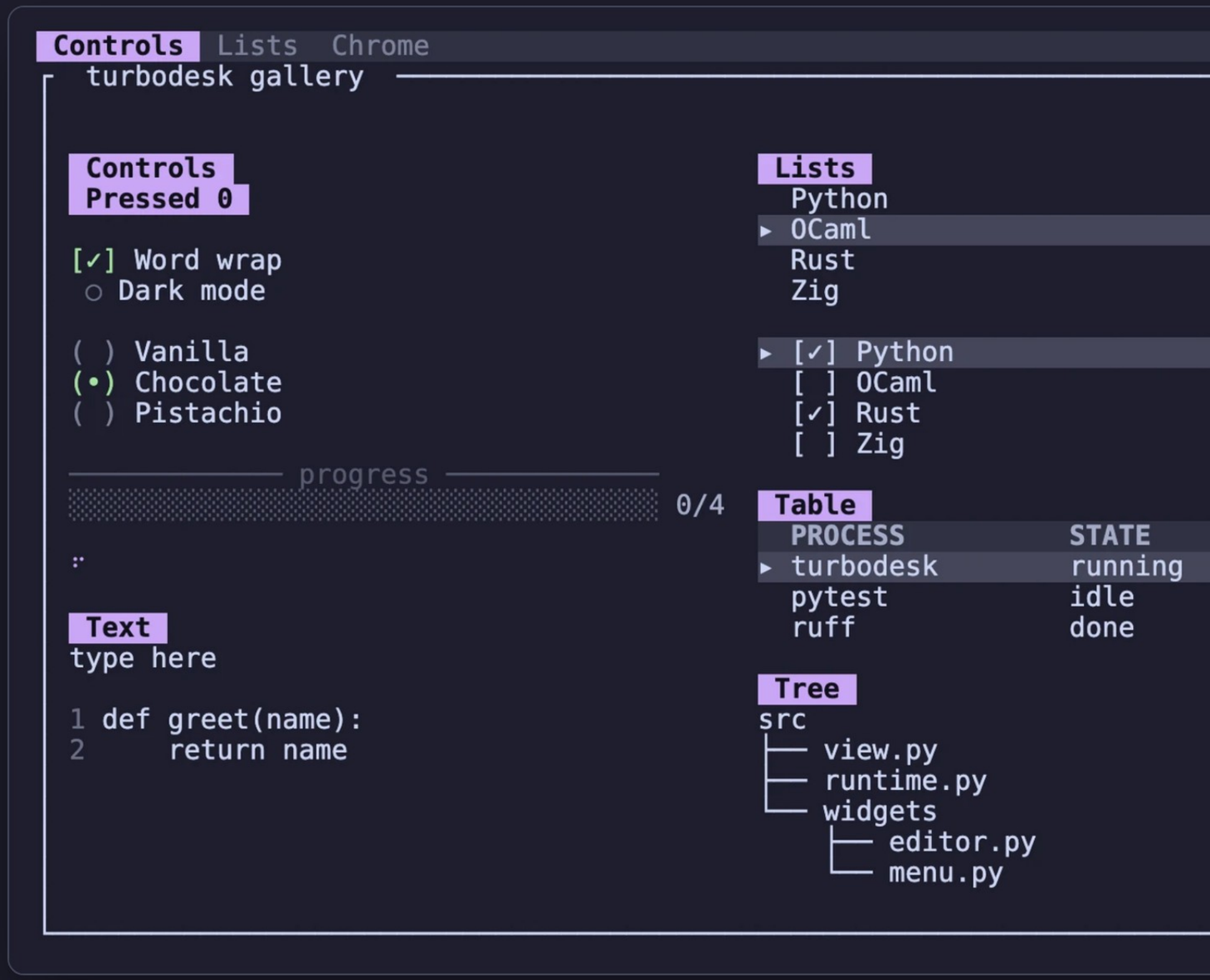
- Widgets that outlive the frame
- State spread across their attributes
- Watchers to keep them in step
- Selectors to find one again
- An async pilot in every test

One function from state to screen

Your application is a function.

It runs again when something changes, and returns a picture of the screen.

- Immutable views, placed beside, above or over each other
- State in hooks matched by call order, as in React
- Around twenty widgets, each one a function



A test calls the function.

Drawing has no side effect, so a test renders at any size and reads the text.

- Tests need no pilot or async harness
- 2,909 tests in about seventy seconds
- Every code sample in the documentation is checked

```
"""An address book."""

from typing import NamedTuple


class Contact(NamedTuple):
    name: str
    email: str


def initials(contacts: list[Contact]) -> list[str]:
    """The letters a contact's name starts with, in order."""
    return sorted({contact.name[0] for contact in contacts})

 NORMAL  contacts.py
from contacts import PEOPLE, Contact, initials, under


def test_initials_are_sorted_and_unique():
    assert initials(PEOPLE) == ["A", "G"]


def test_under_a_letter():
    found = under(PEOPLE, "A")

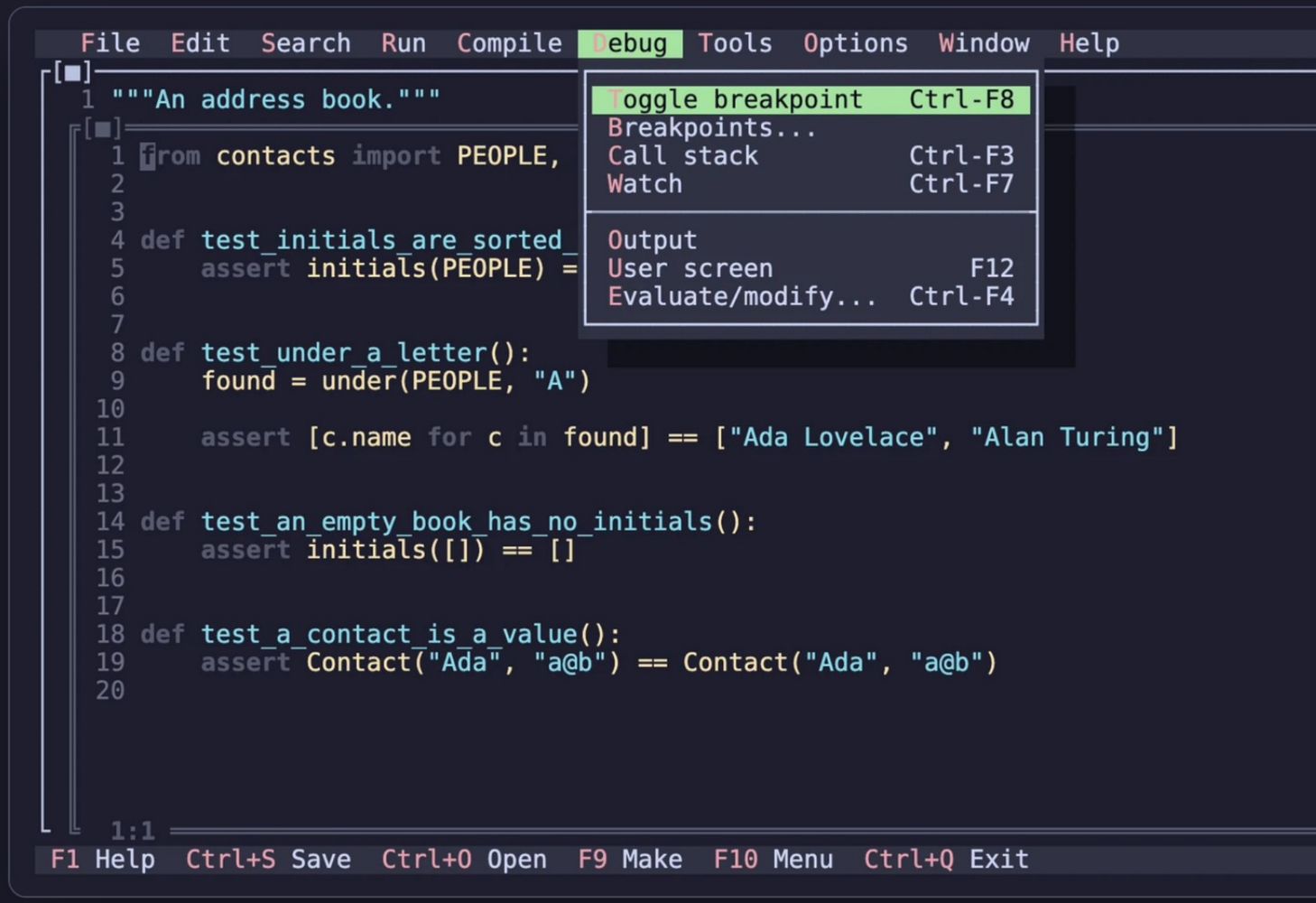
    assert [c.name for c in found] == ["Ada Lovelace", "Alan Turing"]


 test_contacts.py
```

Two programs run on it.

Turbo Python and TurboVI are on PyPI. Both shaped the library.

- An IDE with windows, menus, a debugger and a language server
- A vi clone that draws every cell without widgets
- Two Textual applications ported, 47% and 21% smaller



You can read all of it in an afternoon.

Open source

Apache 2.0. Install it from PyPI as `turbodesk`.

One dependency

Rich measures glyph widths. Pygments is optional, for syntax colouring.

Python 3.12 and later

It runs in Linux, macOS and FreeBSD terminals.

A stable core

Views, hooks and widget signatures freeze at 1.0.

Documentation and a guide: turbodesk.lab.abilian.com