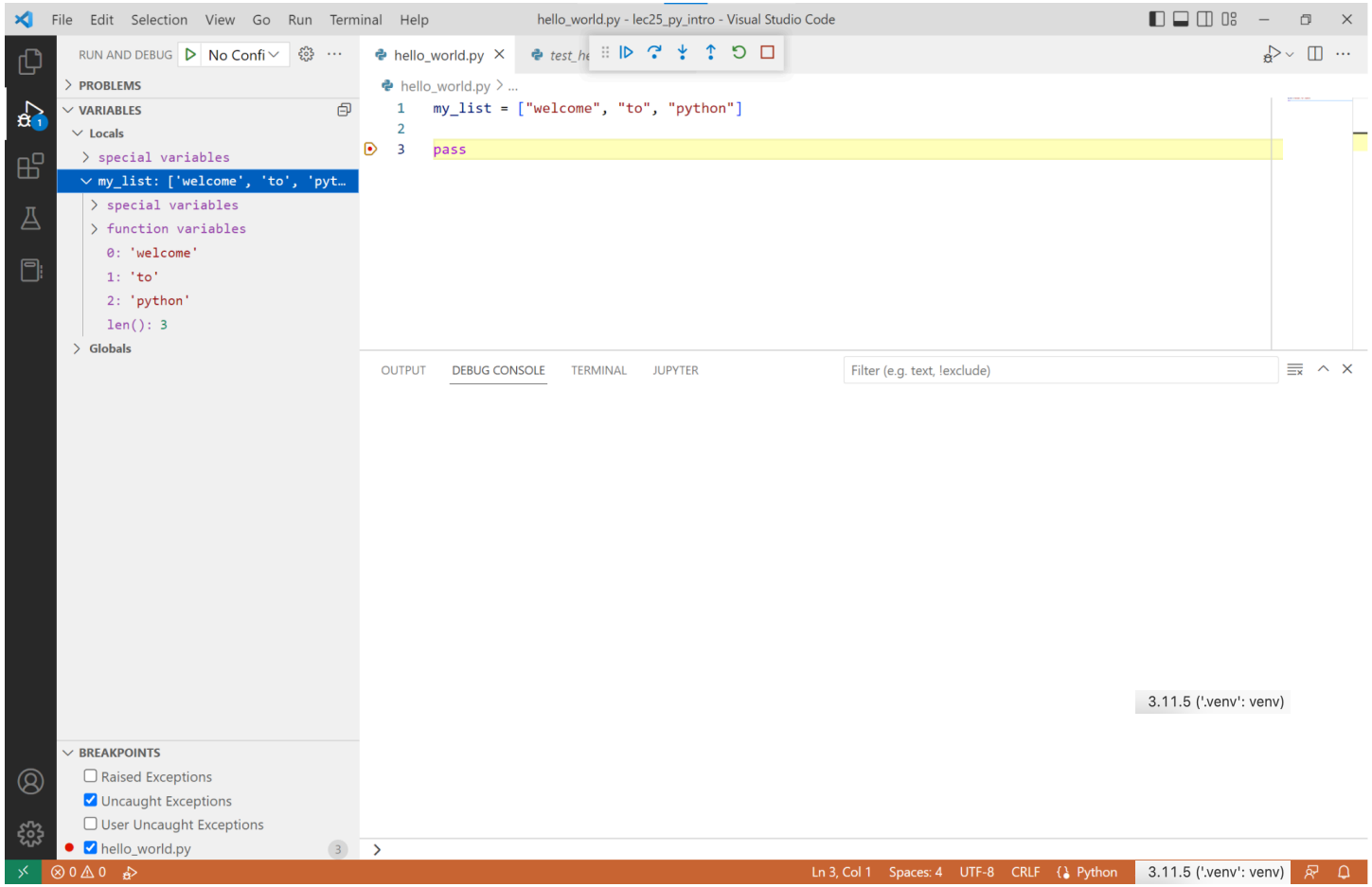
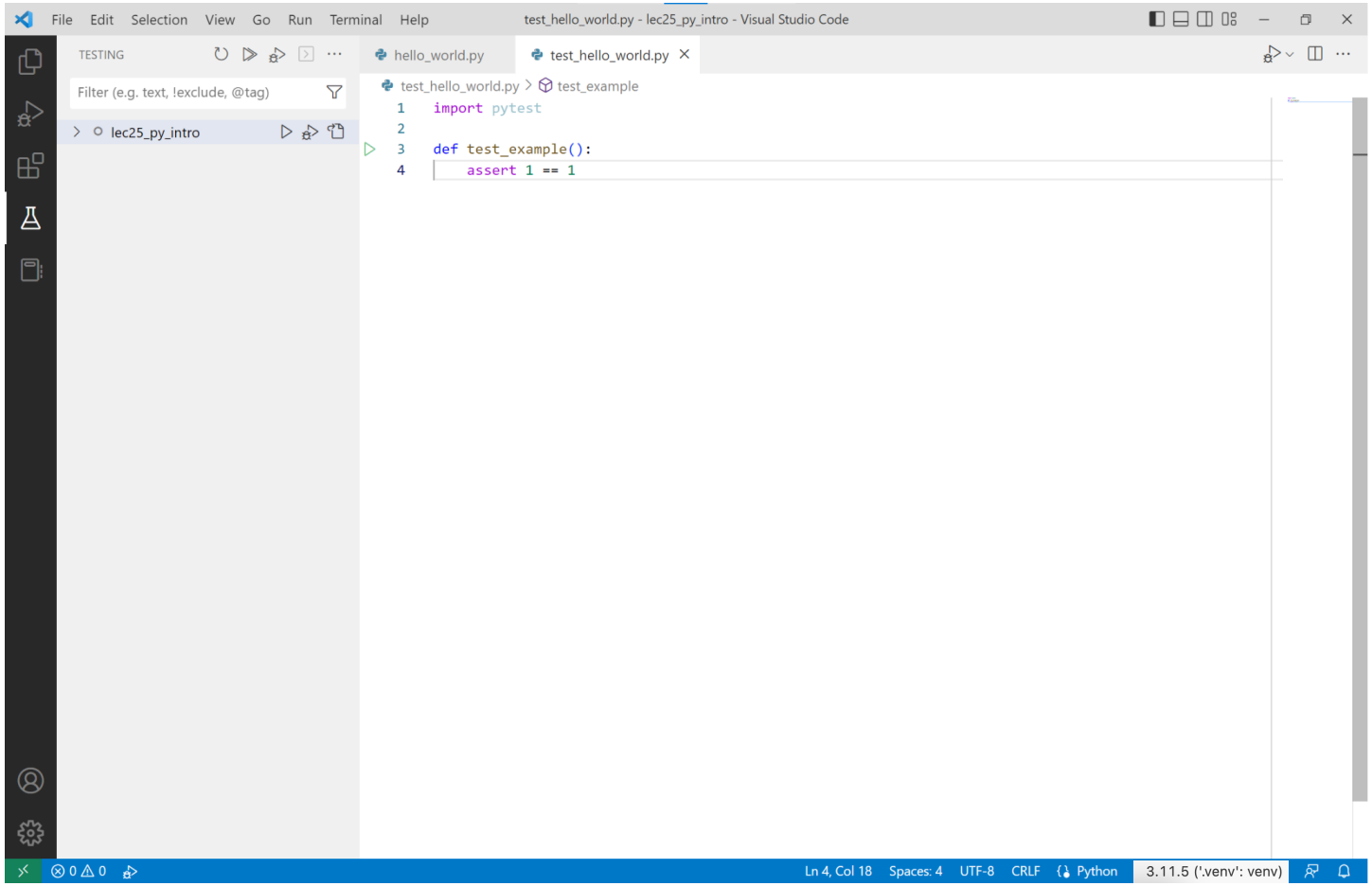
```python
class PollRecord:

    # Define fields and set them up
    # __init__ is the name for a constructor
    def __init__(self, name: str, options: list[str]):
        self.name = name      # Set up a field, assign a value to it
        self.options = options
        self.votes = list()   # Make a new field with an empty list

    def cast_vote(self, for_option):
        if for_option in self.options:   # is for_option contained in self.options
            self.votes.append(for_option)
        else:
            raise ValueError("Wrong option " + for_option)

    def count_votes(self):
        # len() gets the length of most Python objects (string, list, dictionary, ...)
        return len(self.votes)

    def count_votes_for(self, for_option: str) -> int:
        total = 0

        # "for each loop"
        for v in self.votes:
            if v == for_option:
                total += 1
        return total
```

```
def cast_vote(poll, option_picked: str):
   if option_picked not in poll["options"]:
       raise ValueError("Invalid option")

   poll["votes"].append(option_picked)

def total_votes(poll):
   return len(poll["votes"])

def count_votes_for(poll, for_option):
   total = 0

   for v in poll["votes"]:
       if v == for_option:
           total += 1

   return total

some_poll = {
   "name": "what is your favorite color?",
   "options": ["red", "green", "blue"],
   "votes": [],
}

cast_vote(some_poll, "red")
cast_vote(some_poll, "green")
print(total_votes(some_poll))
```


File Edit Selection View Go Run Terminal Help
hello_world.py - lec25_py_intro - Visual Studio Code
RUN AND DEBUG
No Confi
PROBLEMS
VARIABLES
Locals
special variables
my_list: ['welcome', 'to', 'pyt…
special variables
function variables
0: 'welcome'
1: 'to'
2: 'python'
len(): 3
Globals
BREAKPOINTS
Raised Exceptions
Uncaught Exceptions
User Uncaught Exceptions
hello_world.py
hello_world.py
test_he
hello_world.py > ...
1 my_list = ["welcome", "to", "python"]
2
3 pass
OUTPUT
DEBUG CONSOLE
TERMINAL
JUPYTER
Filter (e.g. text, !exclude)
3.11.5 ('.venv': venv)
0 0
Ln 3, Col 1
Spaces: 4
UTF-8
CRLF
Python
3.11.5 ('.venv': venv)


File Edit Selection View Go Run Terminal Help
test_hello_world.py - lec25_py_intro - Visual Studio Code
TESTING
Filter (e.g. text, !exclude, @tag)
lec25_py_intro
hello_world.py
test_hello_world.py
test_hello_world.py > test_example
1 import pytest
2
3 def test_example():
4 assert 1 == 1
0 0
Ln 4, Col 18
Spaces: 4
UTF-8
CRLF
Python
3.11.5 ('.venv': venv)

Bonus: list comprehensions

Map-like list comprehension

Transform [“8”, “10”, “-5.5”] to [8, 10, 5.5]

Transform [“hello”, “WORLD”, “pYthon”] to [“hello”, “world”, “python”]

Filter-like list comprehension

Transform [0, 5, -2, -4, 7] to [5, 7]

Combine map and filter

Transform [“pvd”, “boston”, “wos”, “newport”] to [“PVD”, “WOS”]

Combine map, filter, and enumerate

Transform [8, 3, 5, 9, 0, 2] to [0, 4, 5] (indices of the even numbers)