MITx CSE.0002x
Introduction to Computational Science and Engineering

Help sandipan_dey

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FE code submissions
m_powers 1w

The grader passed my initial submission of FE 3.1.3. If the submission had not passed, I presume there is some sort of feedback; then are additional submissions possible? And is there an indication of how many remaining submissions are available? Trying to understand what to expect.

Related to 8.4 Introduction to Python Classes / 8.4.1 Practice with the following finger exercises

Showing 4 responses Newest first

sandipan_dey 4d

Does it mean that there is a really difference in scatter plotting of a set of points using *scatter()* and *plot()* functions with appropriate arguments (producing identical output plots)? it seems that there is at least one testcase that can catch the difference... is there a difference in implementation of the functions?

It's interesting to know how the testcase can report error for *scatter()* but not for *plot()*, any insight regarding the internal implementation of the functions will be helpful... I guess the testcase is not naively checking the name of the function, how is it behaving differently for the functions then?

wangaj_mit Staff 4d

In brief, `plot` is designed to handle sequences of data, while `scatter` accepts sets of points, which may not be inherently ordered. Hence, the default behavior of `plot` is to draw a line through the data points, whereas `scatter` simply plops down the points in the plotting area. Below is the official documentation, plus an SO response with more details.

https://matplotlib.org/stable/api/_as_gen/matplotlib.axes.Axes.plot.html
https://matplotlib.org/stable/api/_as_gen/matplotlib.axes.Axes.scatter.html
https://stackoverflow.com/questions/38196130/difference-between-plot-and-scatter-matlab

Behind the scenes, `plot` and `scatter` produce quite different objects that are being drawn into the figure, even if (with the appropriate arguments), the visual result looks the same. Our autograder, though, cannot simply "look" at the figure, and instead must programmatically inspect the objects contained within the figure Axes. So to reduce grader complexity, and to encourage usage of functions that's aligned with their purpose, we request that you use `plot` instead of `scatter` for the figures in Pset 1.

wangaj_mit Staff 1w

__kiwi__, the test failures associated with your Veplot:

```
AssertionError: Error vs. t subplot should have 1 data series,
found 0
```

are because you've used `scatter` instead of the `plot` function. In section 4.1.5, there's a note that for this problem, the grader needs the data to be displayed using `plot`.

Btw, there appears to be a display bug in the Submission Report popup. The `len()` statements should each have an argument, one being the list of data series in the plot you produce, and the other being a list of data series in the staff solution's plot.

```
FAILED test_hail.py::test_Veplot_data[step_FE] - AssertionError:
Error vs. t subplot should have 1 data series, found 0
assert 0 == 1
 +  where 0 = len(<a list of 0 Line2D objects>)
 +  and   1 = len(<a list of 1 Line2D objects>)
```

Fortunately, you should be able to see this in the plaintext report in your Vocareum workspace's Submissions directory (as .vocStudentSubmissionReport.txt) mentioned in section 4.1.3. However, I will let Vocareum know and see if they are able to fix how it's displayed in the popup.

👍 1

wangaj_mit Staff 2d •••

@sandipan_dey: I appreciate your curiosity, but I'd rather not give away too much of how the grader operates. To give you a sense, if you look at Matplotlib's documentation for `plot` vs `scatter`, you'll see that they return different objects. These objects are also embedded in the Axes, so that is what we're looking for.

sandipan_dey 4d •••

Thank you very much @STAFF for the clarification and references. I was just curious to know what logic the testcase used that resulted in failure in case of *scatter()* and passing in case of *plot()*, what exactly did it check, was it the underlying data structure (e.g., some sort of series like pandas vs. unordered set)?

__kiwi__ 1w •••

Shows what happens when I rely on what I can see - I'd fixed some but not all uses of scatter. There is a reason we encourage people to learn to use diffchecker.com in 6.00.1x.

For anyone reading this, there is a clear instruction to use plt.plot not plt.scatter in the instructions and above is the error that occurs if you miss them. A quick search of your code will reveal such errors and an easy way to plot without lines is

```
ax[0].plot(t, V, linestyle="None", marker=...
```

Now back to my code to see if the things I tried to fix it yesterday improved it or are likely to fail the remaining tests when the deadline passes!

wangaj_mit Staff 1w

Yes, we don't restrict the number of submissions, as described in course policies here.

__kiwi__, that's a good clarification point: The grader will nominally run tests on all the code you submit. So in your situation, even though certain tests are failing on hail.py, other tests for lander.py are still being run and passing.

However, this requires that there are no errors, e.g., syntax issues, preventing your code from being run. If there were such errors, you would see ERROR near the end of the submission report, and, in most cases, a traceback above indicating the location of the error. In the grade report, you would also see a message like, "submission code has error, cannot grade". This means one receives 0 credit for the assignment until the error is fixed.

Errors are different from Failures, which is when our grader explicitly checks the result of your code, and finds some test condition isn't met. In these cases, you'll see FAILED near the end of the reports, along with a description of the condition. (__kiwi__, in your case, if you scroll right, you should see that the grader was unable to find the data series in your plot. More on that in an upcoming separate reply.) We try to make the descriptions informative, but sometimes it's hard to cover every possible scenario. If you encounter a Failure description that you're not sure how to interpret, feel free to post for clarification.

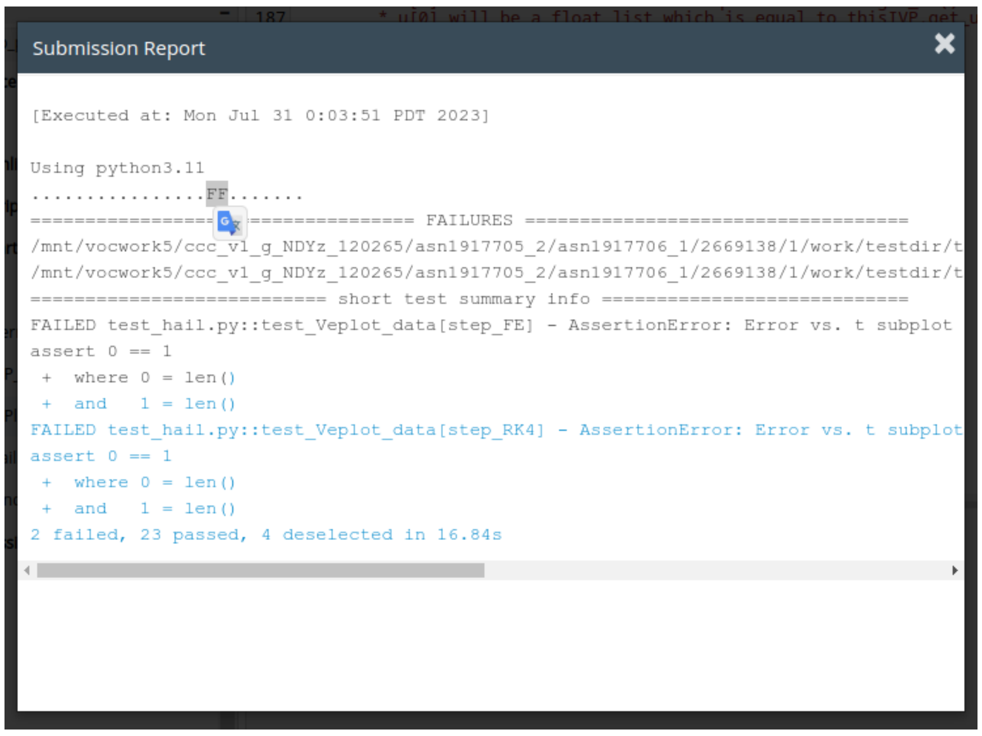
Failures correspond to points being deducted. And remember that for psets, not all tests are being run in the submission report (hence the "4 deselected" in this case). Only for the grade report do we run all tests, so only then do we include a score summary. For psets, the grade report should become visible after the submission deadline.

So our general advice for pset submission is to make sure your code runs locally before submitting, to minimize the chance of seeing Errors in your submission report, and focus on debugging any test Failures.

__kiwi__ 1w

Infinite submissions up to the deadline (see dates).

I just did my first submission for the PSET and here's the sort of thing you get when you aren't 100% right. Darn.



Submission Report

```
[Executed at: Mon Jul 31 0:03:51 PDT 2023]

Using python3.11
................FF.......
================= =============== FAILURES ===================================
/mnt/vocwork5/ccc_v1_g_NDYz_120265/asn1917705_2/asn1917706_1/2669138/1/work/testdir/t
/mnt/vocwork5/ccc_v1_g_NDYz_120265/asn1917705_2/asn1917706_1/2669138/1/work/testdir/t
========================== short test summary info ===========================
FAILED test_hail.py::test_Veplot_data[step_FE] - AssertionError: Error vs. t subplot
assert 0 == 1
 +  where 0 = len()
 +  and   1 = len()
FAILED test_hail.py::test_Veplot_data[step_RK4] - AssertionError: Error vs. t subplot
assert 0 == 1
 +  where 0 = len()
 +  and   1 = len()
2 failed, 23 passed, 4 deselected in 16.84s
```

Course staff: does the lack of error messages for lander mean I passed that (at this level) or will the grader have stopped once it found issues with hail?

Add a response

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