

DSC80 Discussion 3

10/20/2023

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Announcements

Lab 3 due Monday

Project 2 due Wednesday

Reflection due today (on Gradescope after discussion)

Thank you for feedback on office hours, please keep letting us know your experiences!

We are also looking to improve our use of Ed

Why conda install instead of pip install?



Preventing Bugs

1. Clean up your code
2. Print one line at a time
3. Create custom tests
4. Make sure to save/update
your python scripts

University of Washington Code Quality Guide

https://courses.cs.washington.edu/courses/cse163/22sp/resources/code_quality/

```
# Calling a function with many arguments
some_function(first_arg="This is a function",
               second_arg="With many arguments",
               third_arg="indent until everything lines up")

# Breaking a long expression
# (use \ after an operator and indent once on the second line)
total = first_num + second_num + third_num + \
    fourth_num

# Breaking a long string
print("When you have a very very very long string, "
      "this is how you could break it properly")

# Breaking a long DataFrame filter into separate variables
# This line is too long and less readable
data = data[(data['primary_color'] == 'Magenta') & (data['size'] != 'Large')]

# You can do the following instead
is_magenta = data['primary_color'] == 'Magenta'
is_not_large = data['size'] != 'Large'

data = data[is_magenta & is_not_large]
```

```
"""
Jane Doe
CSE 163 AX
This program implements a function that adds two numbers
"""

# add any import below the file header comment

def add_two_numbers(a, b, return_zero=False):
    """
    This function returns the sum of the two given numbers a, b
    if return_zero is False. Otherwise returns 0.
    return_zero has False as its default value.
    """
    if return_zero:
        return 0
    else:
        return a + b
```

Debugging

1. Say it out loud
2. Check your variables
3. Test a simple case
4. Follow the error message

Reading Exceptions

Exception raised:

Traceback (most recent call last):

```
File "/root/miniconda3/envs/otter-env/lib/python3.8/doctest.py", line 1336, in __run
    exec(compile(example.source, filename, "single",
```

```
File "<doctest q3 0[0]>", line 1, in <module>
```

```
    out = last_minute_submissions(grades)
```

```
File "/autograder/submission/project.py", line 81, in last_minute_submissions
```

```
    labs_lateness = labs_lateness.append(pd.Series(late_counts, index = [lab]))
```

```
File "/root/miniconda3/envs/otter-env/lib/python3.8/site-packages/pandas/core/generic.py", line 5989,
```

```
    return object.__getattr__(self, name)
```

```
AttributeError: 'Series' object has no attribute 'append'
```

Reading Autograder

q10 results: All test cases passed!

q11 results:

q11 - 1 result:

Test case passed!

q11 - 2 result:

Test case passed!

q11 - 3 result:

Trying:

0.07 < proportion_improved(grades_combined) < 0.12

Expecting:

True

Line 1, in q11 2

Failed example:

0.07 < proportion_improved(grades_combined) < 0.12

Expected:

True

Got:

False

q11 - 3 message: Check proportion_improved with public grades_co

q9 - 1 result:

```
Trying:
    out = raw_redemption(final_breakdown, [1])
Expecting nothing
*****
Line 1, in q9 0
Failed example:
    out = raw_redemption(final_breakdown, [1])
Exception raised:
    Traceback (most recent call last):
```

```
        exec(compile(example.source, filename, "single",
            File "", line 1, in
                out = raw_redemption(final_breakdown, [1])
            TypeError: 'DataFrame' object is not callable
Trying:
    'PID' in out.columns and 'Raw Redemption Score' in out.columns
Expecting:
    True
*****
Line 2, in q9 0
Failed example:
    'PID' in out.columns and 'Raw Redemption Score' in out.columns
Exception raised:
    Traceback (most recent call last):
```

```
        exec(compile(example.source, filename, "single",
            File "", line 1, in
                'PID' in out.columns and 'Raw Redemption Score' in out.columns
            NameError: name 'out' is not defined
```

q9 - 1 message: Check the column names of the DataFrame returned by raw_redemption!

Both Tracebacks lead to doctest3.py

```
/var/folders/x8/9m80mxjd4c16s4q1wryxdkwh0000gn/T/ipykernel_20181/775575397.py:25: SettingWithCopyWarning:  
A value is trying to be set on a copy of a slice from a DataFrame
```

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
`df[c][df[c].isna()] = 'MISSING'`

```
/var/folders/x8/9m80mxjd4c16s4q1wryxdkwh0000gn/T/ipykernel_20181/775575397.py:25: SettingWithCopyWarning:  
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`df[c][df[c].isna()] = 'MISSING'`

Debug #2

```
/var/folders/7t/qp5nbn7s1wq8lmyvmpkcc0180000gn/T/ipykernel_11751/4245768962.py:5: FutureWarning: Dropping of nuisance columns in DataFrame reductions (with 'numeric_only=None') is deprecated; in a future version this will raise TypeError. Select only valid columns before calling the reduction.
```

```
    most_superpowers_idx = df.sum(axis=1).idxmax()
```

```
/var/folders/7t/qp5nbn7s1wq8lmyvmpkcc0180000gn/T/ipykernel_11751/4245768962.py:12: FutureWarning: Dropping of nuisance columns in DataFrame reductions (with 'numeric_only=None') is deprecated; in a future version this will raise TypeError. Select only valid columns before calling the reduction.
```

```
    amongst_one_power = df[df.sum(axis=1) == 1].drop('hero_names',axis=1).sum().sort_values(ascending = False).index[0]
```