ERROR MESSAGES

DATA SCIENCE IMMERSIVE

LEARNING OBJECTIVES

After this lesson, you will be able to:

❑ List two types of errors

❑ Understand how to read common error messages

❑ Begin understanding how to fix errors in your Python code

WHY?

Running into errors in our code is inevitable. Understanding how to read and use error messages to debug our code will save you a lot of time and energy going forward!

TYPES OF ERRORS

Activity: take a moment to read the documentation on syntax errors and exceptions, taken from the python documentation - after 3 minutes write some differences between a syntax error and an exception on the Slack thread.

Feel free to use other resources to find more information, examples, etc.!

TYPES OF ERRORS

Syntax Errors:

Your code cannot be understood.

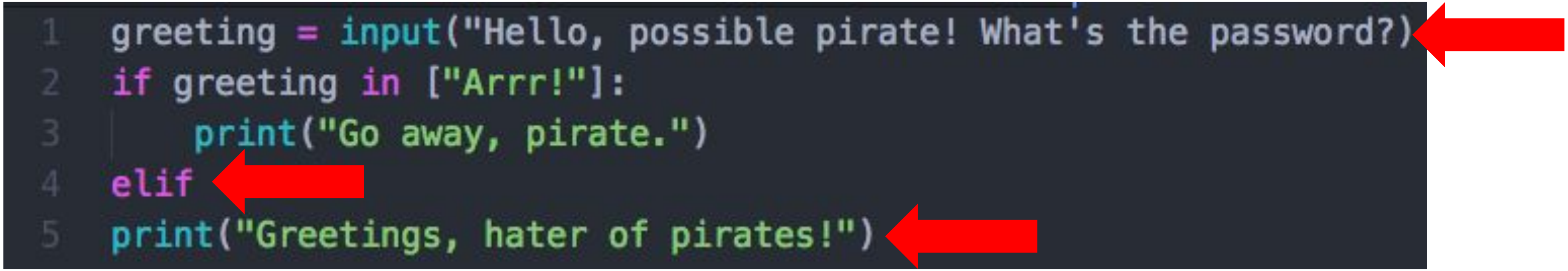
Exceptions:

Your code is understood, but cannot be run.

ERROR & DEBUGGING PRACTICE

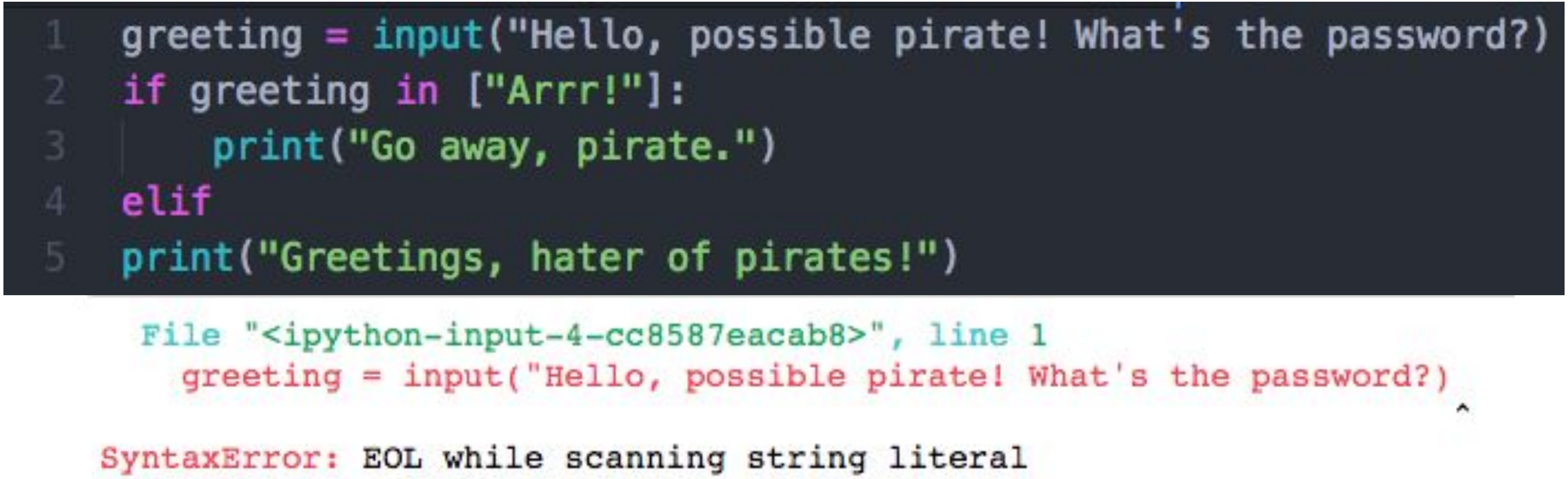
To the Jupyter notebook!

DEBUGGING 1: In what line does the error occur?



```
1  greeting = input("Hello, possible pirate! What's the password?)
2  if greeting in ["Arrr!"]:
3      print("Go away, pirate.")
4  elif
5  print("Greetings, hater of pirates!")
```

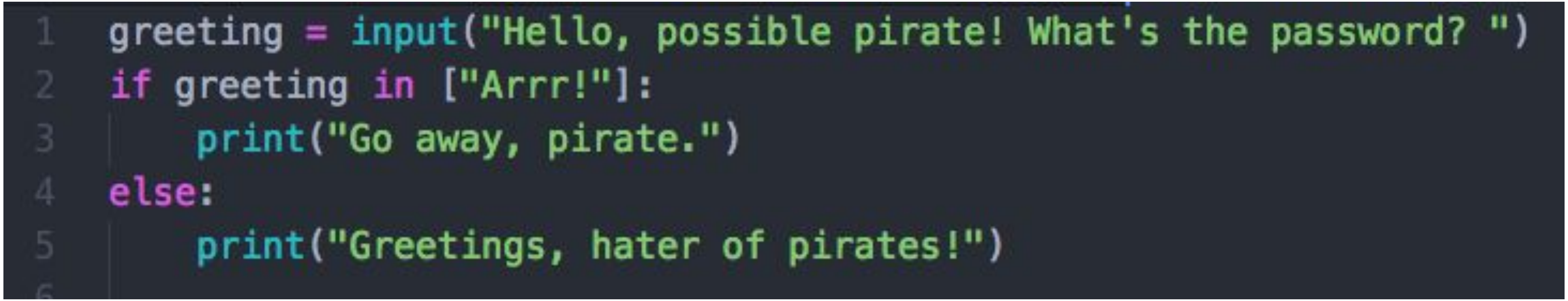
DEBUGGING 1: What is the error?



```
greeting = input("Hello, possible pirate! What's the password?)
if greeting in ["Arrr!"]:
    print("Go away, pirate.")
elif
print("Greetings, hater of pirates!")
```

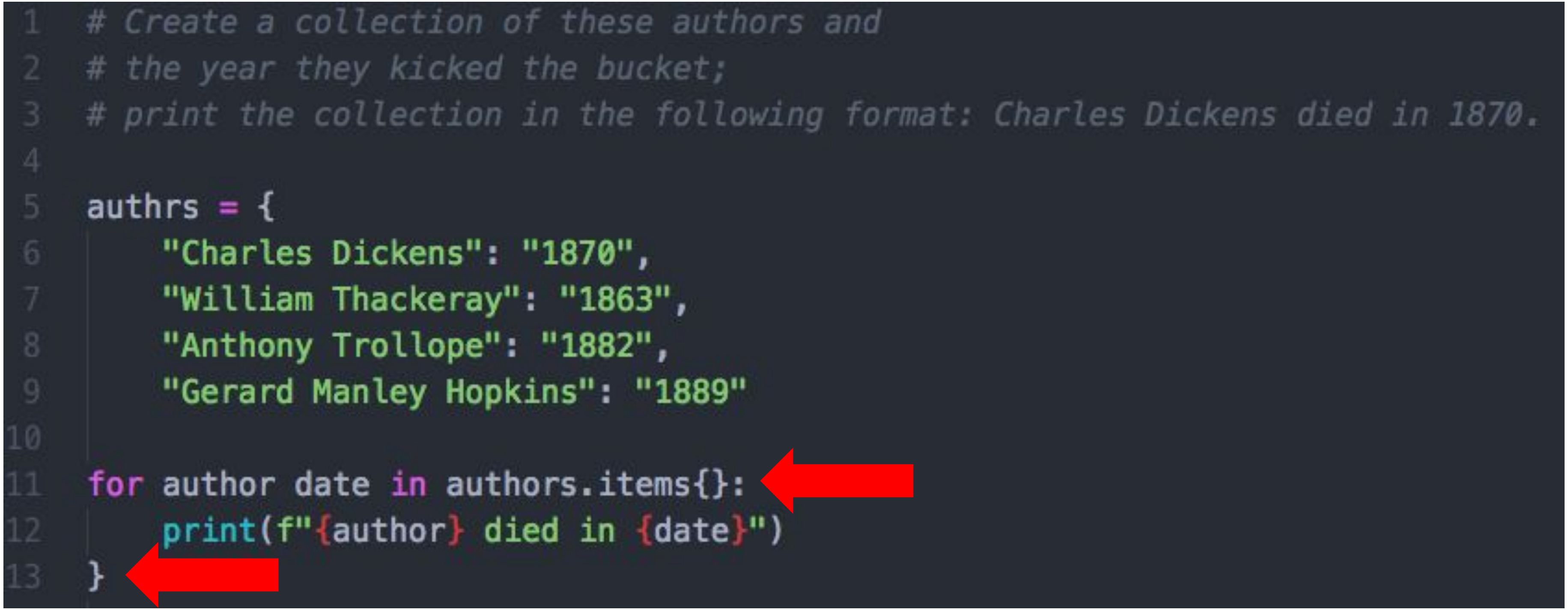
```
  File "<ipython-input-4-cc8587eacab8>", line 1
    greeting = input("Hello, possible pirate! What's the password?)
                                                                   ^

SyntaxError: EOL while scanning string literal
```

DEBUGGING 1: How would you fix it?



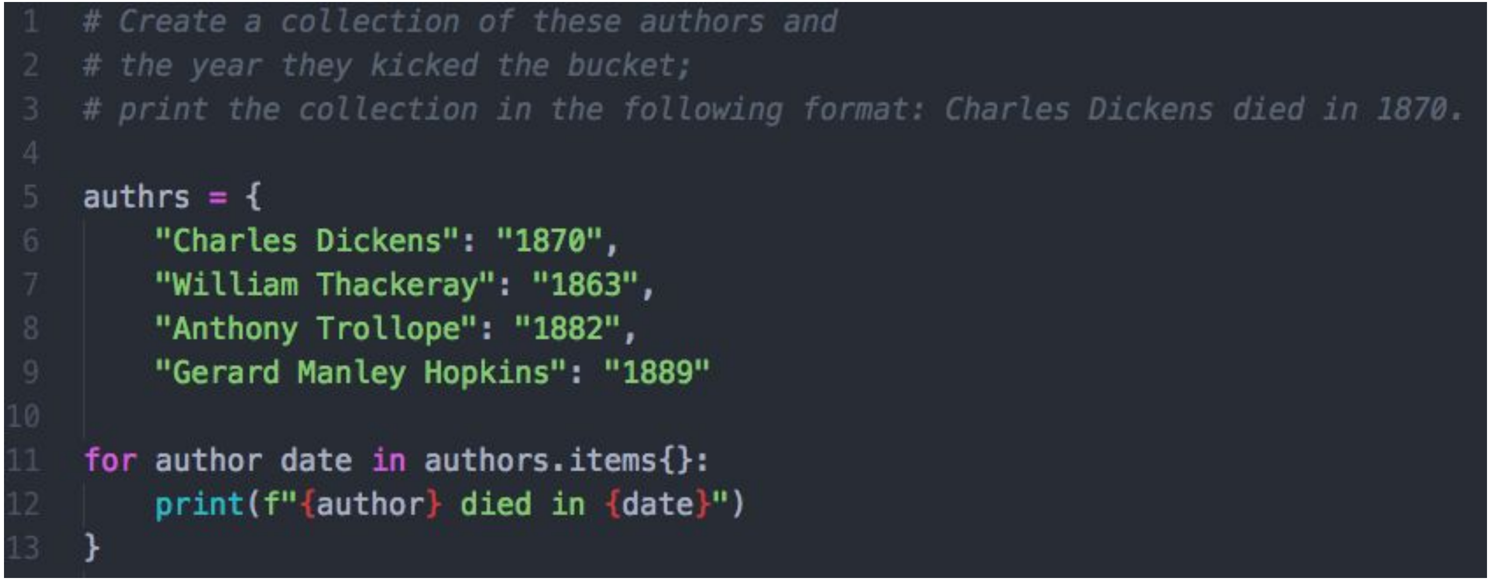
```python
greeting = input("Hello, possible pirate! What's the password? ")
if greeting in ["Arrr!"]:
    print("Go away, pirate.")
else:
    print("Greetings, hater of pirates!")
```

DEBUGGING 2: In what line does the error occur?



```
1   # Create a collection of these authors and
2   # the year they kicked the bucket;
3   # print the collection in the following format: Charles Dickens died in 1870.
4
5   authrs = {
6       "Charles Dickens": "1870",
7       "William Thackeray": "1863",
8       "Anthony Trollope": "1882",
9       "Gerard Manley Hopkins": "1889"
10
11  for author date in authors.items{}:
12      print(f"{author} died in {date}")
13  }
```

DEBUGGING 2: What is the error?



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 2  # the year they kicked the bucket;
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 6      "Charles Dickens": "1870",
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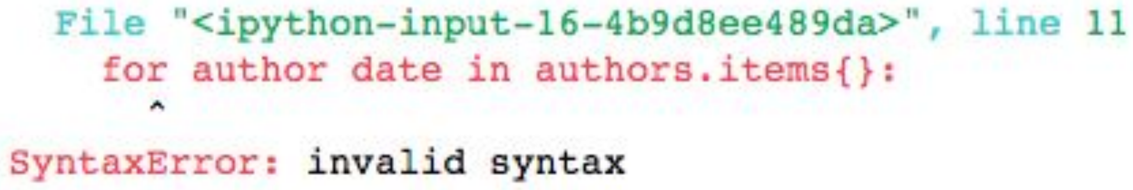
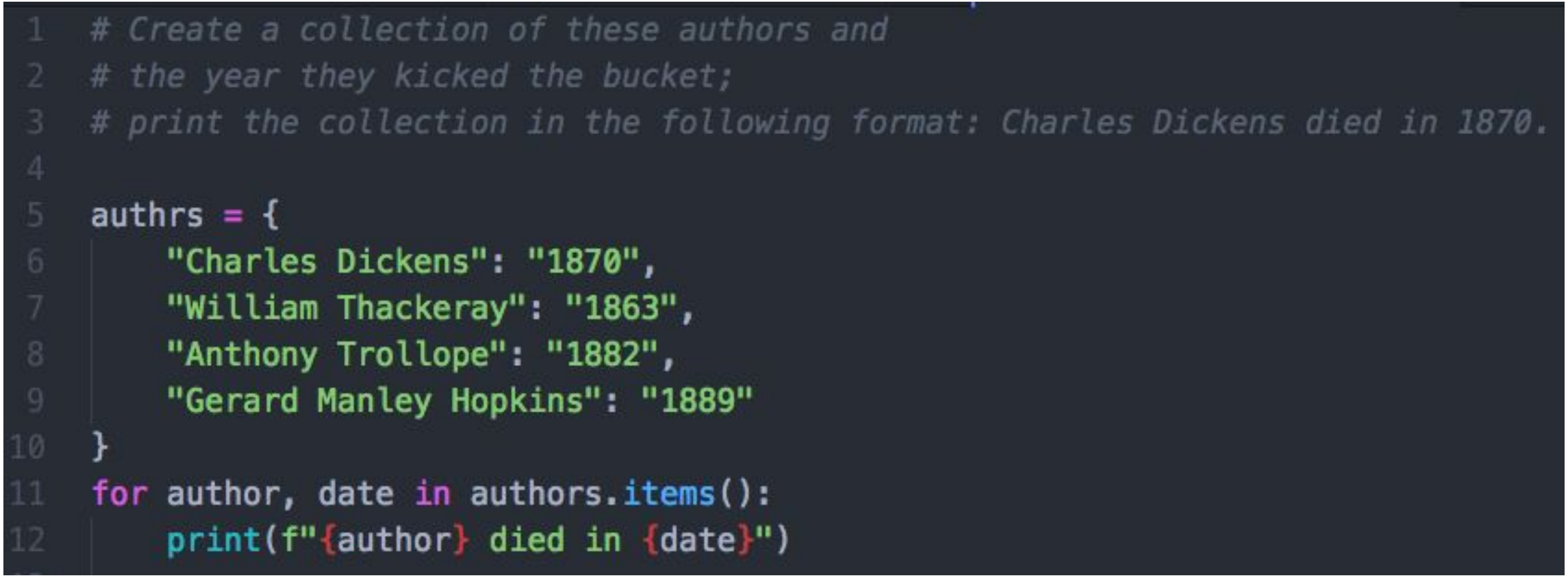
 9      "Gerard Manley Hopkins": "1889"
10
11  for author date in authors.items{}:
12      print(f"{author} died in {date}")
13  }
```



```
  File "<ipython-input-16-4b9d8ee489da>", line 11
    for author date in authors.items{}:
             ^
SyntaxError: invalid syntax
```

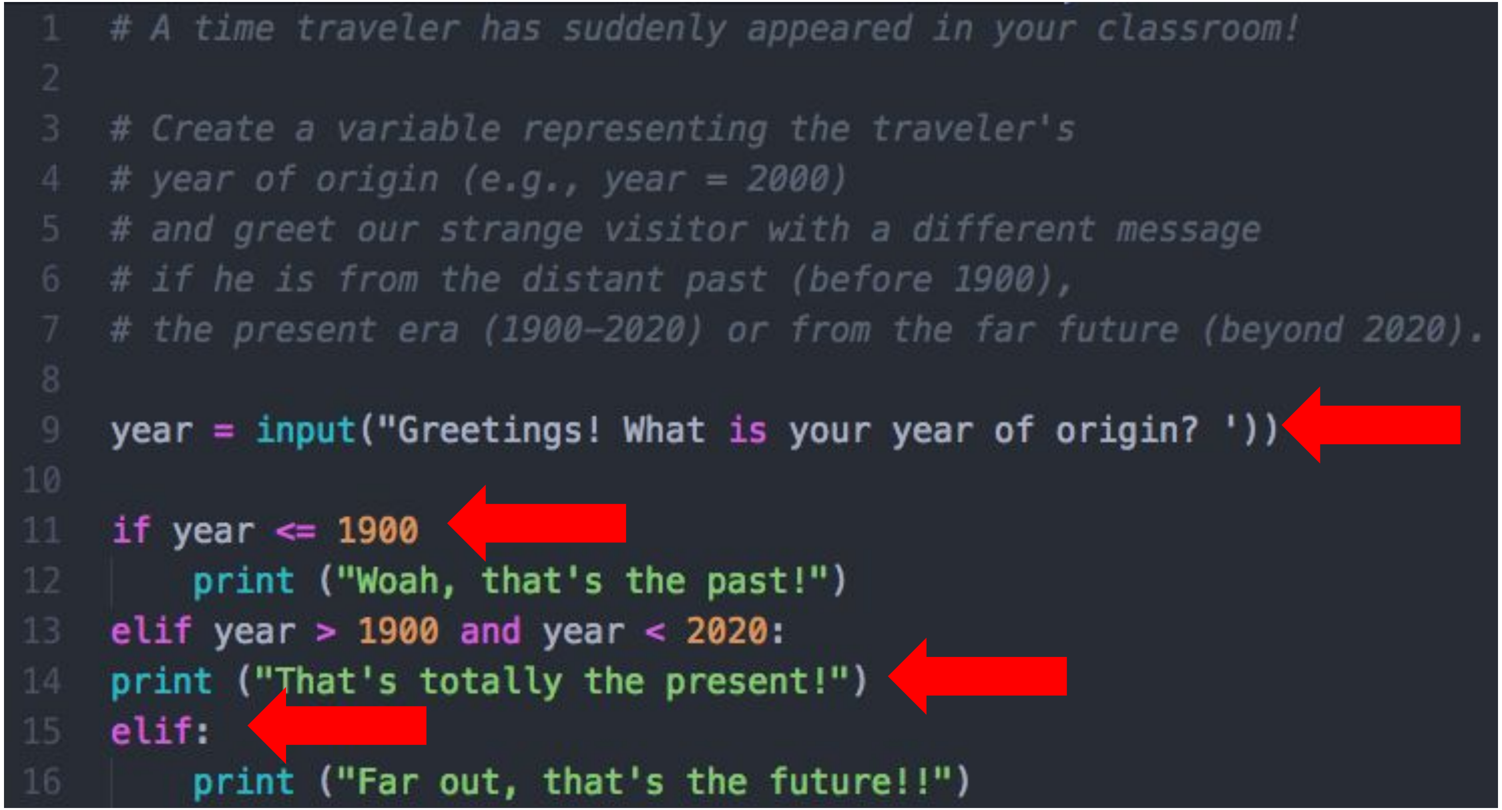
DEBUGGING 2: How would you fix it?



```
# Create a collection of these authors and
# the year they kicked the bucket;
# print the collection in the following format: Charles Dickens died in 1870.

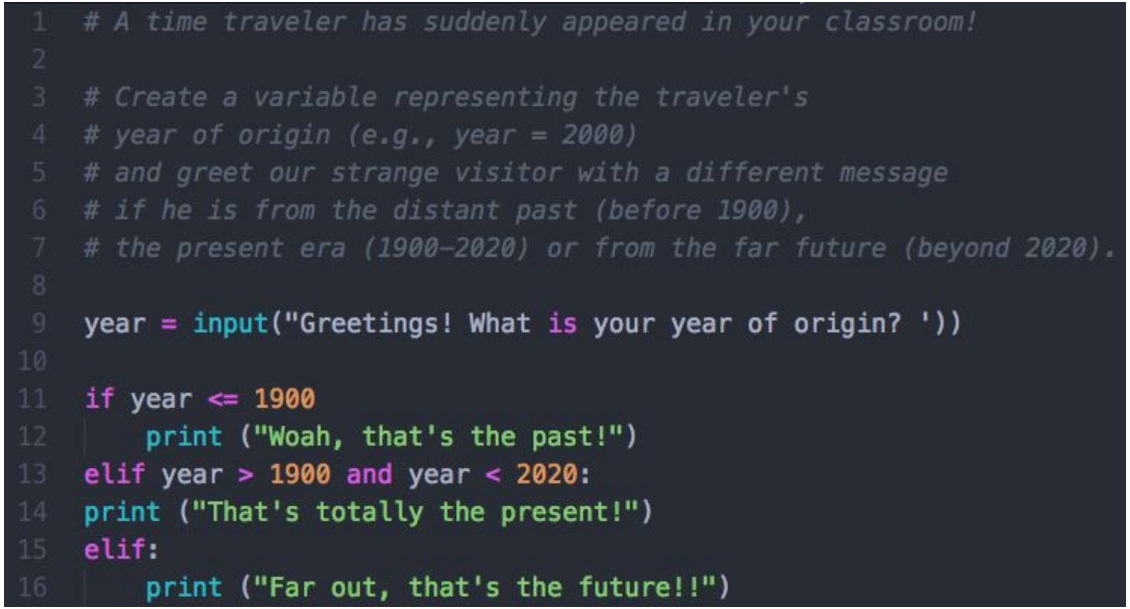
authrs = {
    "Charles Dickens": "1870",
    "William Thackeray": "1863",
    "Anthony Trollope": "1882",
    "Gerard Manley Hopkins": "1889"
}
for author, date in authors.items():
    print(f"{author} died in {date}")
```

DEBUGGING 3: In what line does the error occur?



```
1   # A time traveler has suddenly appeared in your classroom!
2
3   # Create a variable representing the traveler's
4   # year of origin (e.g., year = 2000)
5   # and greet our strange visitor with a different message
6   # if he is from the distant past (before 1900),
7   # the present era (1900-2020) or from the far future (beyond 2020).
8
9   year = input("Greetings! What is your year of origin? '))
10
11  if year <= 1900
12      print ("Woah, that's the past!")
13  elif year > 1900 and year < 2020:
14  print ("That's totally the present!")
15  elif:
16      print ("Far out, that's the future!!")
```

DEBUGGING 3: What is the error?



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 1  # A time traveler has suddenly appeared in your classroom!
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 3  # Create a variable representing the traveler's
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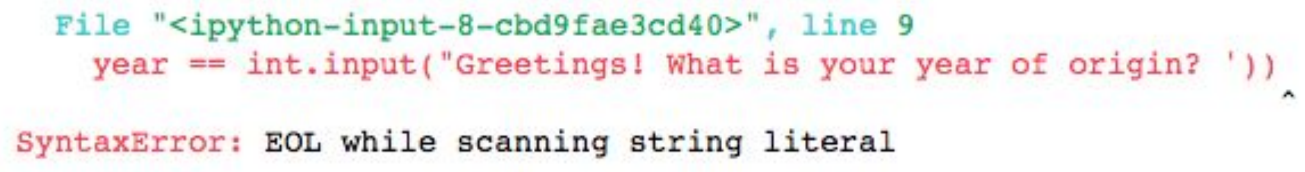
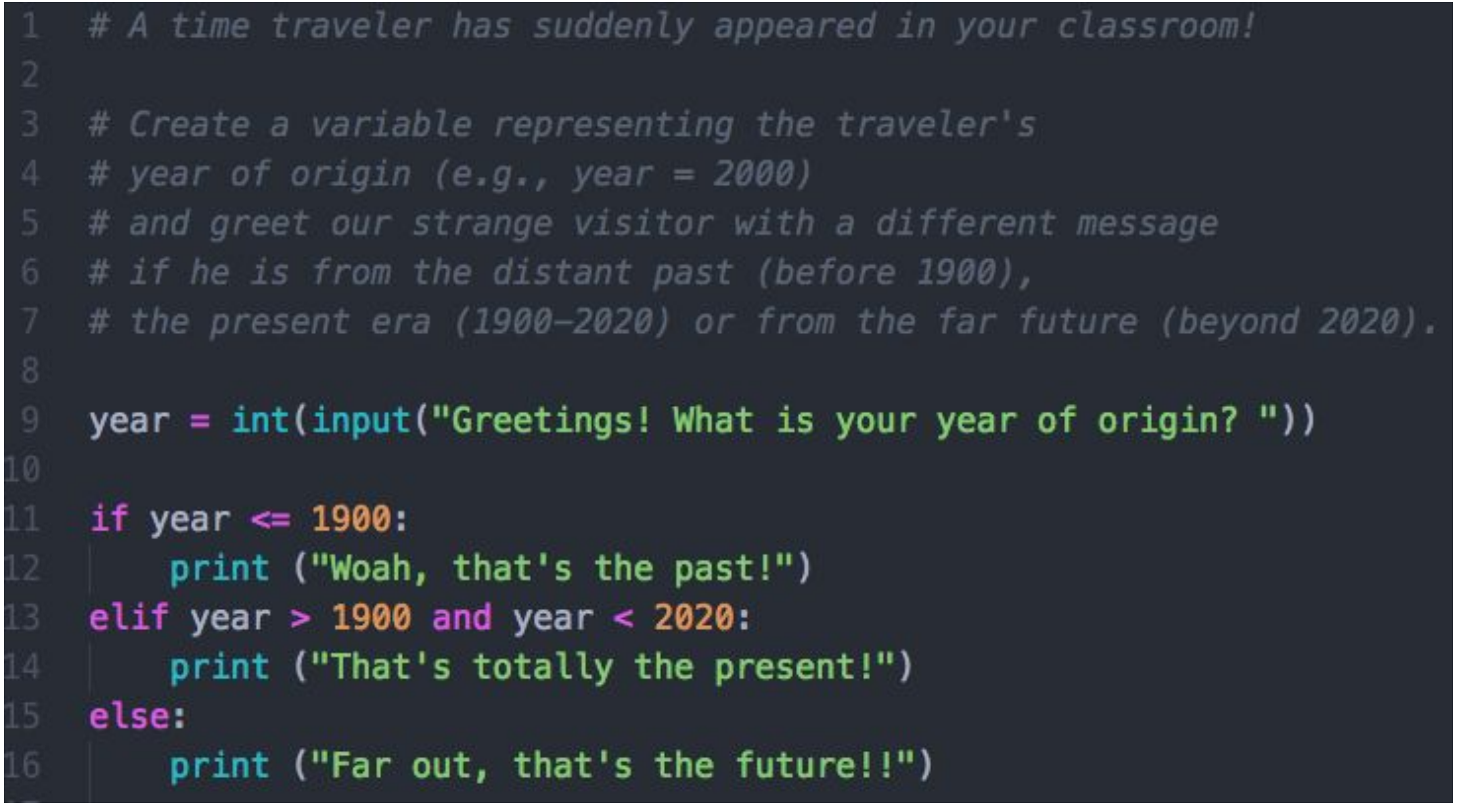


```
File "<ipython-input-8-cbd9fae3cd40>", line 9
  year == int.input("Greetings! What is your year of origin? '))
                                                                ^

SyntaxError: EOL while scanning string literal
```

DEBUGGING 3: How would you fix it?



```python
# A time traveler has suddenly appeared in your classroom!

# Create a variable representing the traveler's
# year of origin (e.g., year = 2000)
# and greet our strange visitor with a different message
# if he is from the distant past (before 1900),
# the present era (1900-2020) or from the far future (beyond 2020).

year = int(input("Greetings! What is your year of origin? "))

if year <= 1900:
    print ("Woah, that's the past!")
elif year > 1900 and year < 2020:
    print ("That's totally the present!")
else:
    print ("Far out, that's the future!!")
```

DEBUGGING: Independent Practice

Work through the final example on your own. See if you can get the code to work!

CONCLUSION

Let’s review our learning objectives:

- ❑ List two types of errors
- ❑ Understand how to read common error messages
- ❑ Begin understanding how to fix errors in your Python code

RESOURCES USED

Questions from: https://humanitiesprogramming.github.io/exercises/python-debugging/