CS21: INTRODUCTION TO COMPUTER SCIENCE

Prof. Mathieson

Fall 2017

Swarthmore College

Informal quiz: discuss with a new partner

Code draft from student X: mystery_error.py

```
10  def mystery(lst):
11      s = 0
12      for i in lst:
13          s = s + lst[i]
14      print(s)
15
16  def main():
17      my_lst = [8, 3, 7, 2, 4, 9, 1, 19, 2, 17]
18
19      mystery(my_lst)
20      print("result1 is:", s)
21      print("result2 is:", s/len(my_lst))
22
23  main()
```

1) What is student X trying to do?

2) What errors do you notice in this program?

3) What style modifications would you make?

Outline Sept 27:

- Hand back Quiz 1
- Continue Functions (go over **factorial.py**)
- Scope and program execution
- Multi-function example: **min_max_range.py**

Notes

- **Lab 3** due **Saturday** night
- **Office hours Thursday 2-4pm (just this week!)**

Quiz 1

Question 3: Loops

Loops	Output

`x = 3`
`for i in range(x):`
`    print(i*x)`
`print("loops!")`	

`name_lst = ["Sara","Jeff","Rich"]`
`for name in name_lst:`
`    print("initial:", name[0])`	

`for ch in "code":`
`    print("----")`
`    print(ch+ch)`	

Question 3: Loops

Loops

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Output

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loops!
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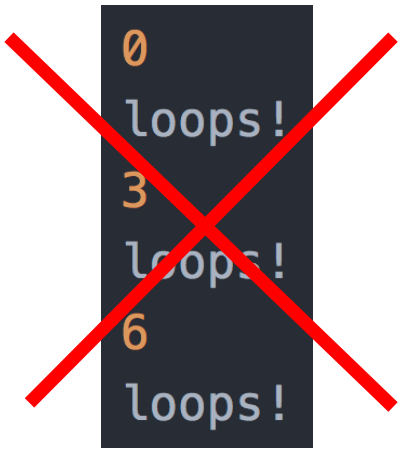

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```
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----
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~~---- codecode ---- codecode ---- codecode ---- codecode~~

Continue Functions

factorial.py example solution

```
def factorial(n):
    """
    Given a non-negative integer n, return n! = n*(n-1)*(n-2)....3*2*1.
    """
    fac = 1 # set up an accumulator variable
    for i in range(n):
        fac = fac * (i+1) # accumulator pattern
    return fac


def main():
    """
    In the main function, test the factorial function.
    """

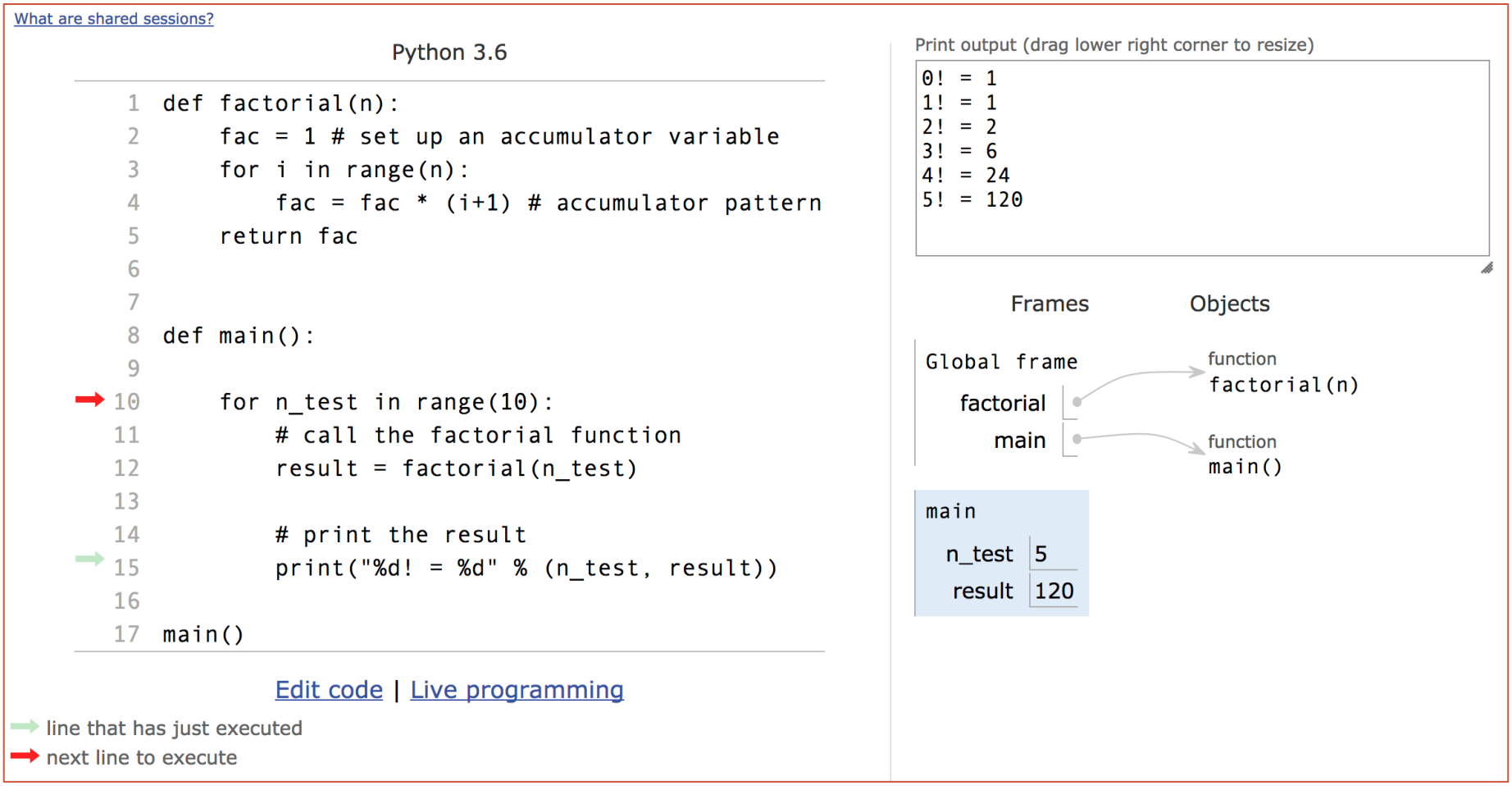
    for n in range(10):
        # call the factorial function
        result = factorial(n)

        # print the result
        print("%d! = %d" % (n, result))

main()
```

Optional modification: range(1,n+1)

Scope and program execution



pythontutor.com

Program for today

- **cs21/inclass/week04/min_max_range.py**
- Work with a partner
- Write the functions in order, testing each one
- No need to change main! Only to uncomment test cases

Function practice problems

- cs21/week04/lettercount.py
- cs21/practice/sum_list.py
- cs21/practice/series_function.py
- cs21/practice/fib_function.py