

# CSCA08 FALL 2016

WEEK 4 – DESIGN RECIPE

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## DESIGN RECIPE

- 8 steps in the design recipe
  1. Header
  2. Type Contract
  3. Requirements
  4. Examples
  5. Description
  6. Internal Comments
  7. Code
  8. Tests

- good variable names, sensible function name

## Type contract & REQ

- Make it crystal clear
- Users have to follow all the restrictions
- Some functions do not have REQ

# Examples

- Make sure a user really understand what our function does
- Must cover **boundary cases**
- DO NOT COPY FROM THE HANDOUT

## Description

- Focus on making it clear, but also conveying everything a user would need to know to use our function

## Internal commenting

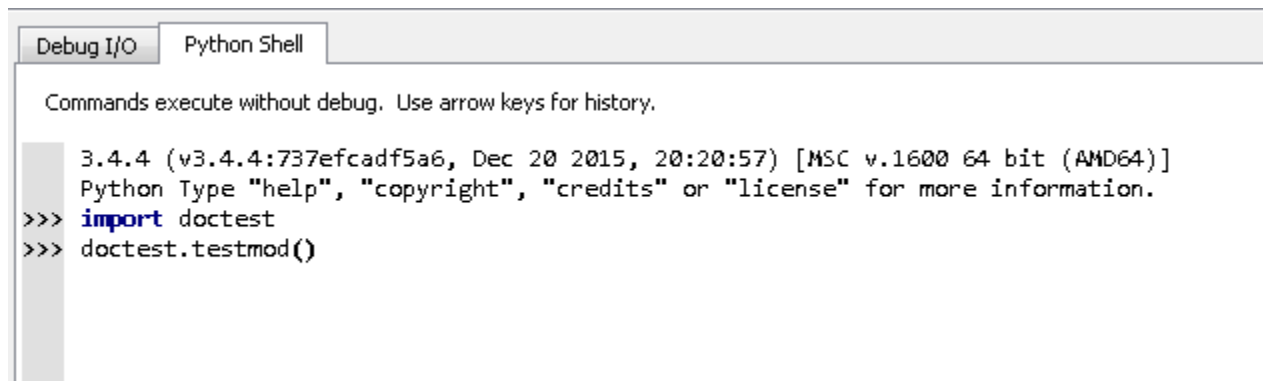
- Design your algorithm

- Fill in the code for each line of our comments



# Test(Doctest)

- Type the following code in Python shell



The screenshot shows a Python Shell window with two tabs: 'Debug I/O' and 'Python Shell'. The 'Python Shell' tab is active. The text inside the shell reads: 'Commands execute without debug. Use arrow keys for history.' Below this, the Python version and system information are displayed: '3.4.4 (v3.4.4:737efcadf5a6, Dec 20 2015, 20:20:57) [MSC v.1600 64 bit (AMD64)]'. A prompt 'Python Type "help", "copyright", "credits" or "license" for more information.' follows. The user has entered two commands: '>>> import doctest' and '>>> doctest.testmod()'. The first command is highlighted in blue.

```
Debug I/O Python Shell
Commands execute without debug. Use arrow keys for history.
3.4.4 (v3.4.4:737efcadf5a6, Dec 20 2015, 20:20:57) [MSC v.1600 64 bit (AMD64)]
Python Type "help", "copyright", "credits" or "license" for more information.
>>> import doctest
>>> doctest.testmod()
```

- Always re-run doctest before submission

## Summary

```
1. H 1 def is_it_the_weekend(day_of_week):
2. T 2 '''(str) -> bool
3. R 3 Return True iff day_of_week is a
4. E 4 weekend day (Saturday or Sunday)
5. D 5 REQ: day_of_week in {"Monday",
6. I 6 "Tuesday", "Wednesday", "Thursday",
7. C 7 "Friday", "Saturday", "Sunday"}
8. T 8 >>> is_it_the_weekend("Saturday")
9 9 True
10 10 >>> is_it_the_weekend("Friday")
11 11 False
12 12 '''
13 13 # accept Saturday or Sunday
14 14 result = ((day_of_week == "Saturday")
15 15 or (day_of_week == "Sunday"))
16 16 return result
```

The diagram illustrates the mapping between a list of line numbers and a Python code snippet. Blue arrows connect the line numbers 1 through 8 to their corresponding lines in the code. A red arrow connects line 5 to a comment box that spans lines 3 and 4. The comment box contains the text: "Return True iff day\_of\_week is a weekend day (Saturday or Sunday)".

- <http://pep8online.com/>