

Presentation 6

Specifications & Testing

Announcements For This Lecture

Last Call

- Acad. Integrity Quiz
- Take it by tomorrow
- Also remember survey

Lesson Videos

- **Today:** Lessons 7, 8
- Next Time: Lesson 9

Assignment 1

- Posted on web page
 - Due Wed, Sep. 30th
 - Today's lab will help
 - Revise until correct
- Can work in pairs
 - **We will pair if needed**
 - Submit request TONIGHT
 - One submission per pair

One-on-One Sessions

- Started Monday: 1/2-hour one-on-one sessions
 - To help prepare you for the assignment
 - **Primarily for students with little experience**
- There are still a lot spots available
 - Sign up for a slot in CMS
- Will keep running after **September 30th**
 - Will open additional slots after the due date
 - Will help students revise Assignment 1

Reading Specifications

```
def has_a_vowel(s):
```

```
    """
```

```
    Returns: True if s has at least one vowel  
    (a, e, i, o, or u)
```

```
    This function does not count y as a vowel.
```

```
    Parameter s: a string to check
```

```
    """
```

What is Wrong with `has_a_vowel`?

- A. The letter 'y' should be a vowel.
- B. There are no examples.
- C. There is no description of parameter `s`
- D. There is no precondition for parameter `s`
- E. Nothing is wrong with it

Reading Specifications

```
def to_centigrade(x):
```

```
    """
```

```
    Converts x to centigrade
```

```
    Parameter x: temp in fahrenheit
```

```
    Precondition: x is a float
```

```
    """
```

```
    return 5*(x-32)/9.0
```

What is Wrong with `to_centigrade`?

- A. It does not explicitly say what it returns.
- B. There are no details after the first line.
- C. There are no examples
- D. It does not allow `x` to be an `int`
- E. Nothing is wrong with it

Reading Specifications

```
def greet(n):
```

```
    """Returns a greeting for the person n
```

```
    The greeting has format 'Hello <n>!'
```

```
    Parameter n: person to greet
```

```
    Precondition: n is a string"""
```

```
    print('Hello '+n+'!')
```


What is Wrong with greet?

- A. It does not explicitly say what it returns.
- B. Return description is not detailed enough.
- C. The specification claims it is fruitful.
- D. The precondition allows n to be empty.
- E. Nothing is wrong with it.

Reading Specifications

`def isdate(s):`

"""Returns: True if s represents a month & day;
False otherwise

Example: `isdate('06/05')` returns True

Example: `isdate('13/10')` returns False

Parameter s: a string to check

Precondition: s a string in format month/day
where month and day are both numbers."""

What is Wrong with `isdate`?

- A. It does not specify whether the format is day/month or month/day
- B. It does not specify if leading zeroes are required (e.g. '6/5' vs '06/05').
- C. It does not specify how to handle 'May/5'
- D. All of the above is true.
- E. Nothing is wrong with it.

Reading Specifications

```
def inside_parens(s):
```

```
    """Returns: The substring of s that is inside a  
    pair of parentheses.
```

```
    Example: inside_parens('A (B) C') returns 'B'
```

```
    Parameter s: a string to check
```

```
    Precondition: s is a string
```

```
    """
```

What is Wrong with `inside_parens`?

- A. It does not specify what to do if there are no parentheses.
- B. It does not specify what to do if there is more than one pair of parentheses.
- C. It does not specify what to do if a pair of parentheses is nested inside of another.
- D. All of the above are true.
- E. Nothing is wrong with it.

Designing Tests

`def disemvowel (s):`

"""Returns a copy of s with vowels removed

Vowels are a, e, i, o, and u. y is not a vowel

Example: `disemvowel('boat')` returns 'bt'

Parameter s: a string to disemvowel

Precondition: s is a nonempty string of lowercase letters"""

How Many Valid, Different Tests?

| Input | Output |
|----------|--------------|
| 'aeiou' | '' |
| 'heat' | 'ht' |
| 'bather' | 'bthr' |
| 'sky' | 'sk' |
| 'Ashen' | 'shn' |
| 'a12' | '12' |
| 15.0 | ERROR |

A: 2

B: 3

C: 4

D: 5

E: 6

Questions?