#### **CSE 503** Introduction to Computer Science for Non-Majors

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# Day 06 Python Exercises

#### Announcements

- Labs meet tomorrow (9/13)
  - Practice Lab and Lab #1 posted to course website
    - Practice lab not worth credit, but will teach you how to submit labs
    - Lab #1 due 9/26, autograder will open next week
- Office hours cancelled today

#### Recap

- Boolean expressions: Expressions that evaluate to True or False
   Operators: or, and, not
- Selection statements allow our programs to make decisions
  - Use boolean expressions to determine whether or not to execute a block of code
  - Keywords: if, elif, else
  - Indentation is now even more important!

#### **Comments and Assertions**

- As our programs become larger (and more complex) we need to be able to understand them (ourselves, and others reading them)
- Comments allow us to document what our program is doing
  - Start with '#' in Python
  - Python ignores everything after the '#'
  - Good comments don't just describe the *what*. The *how* and *why* is more important.

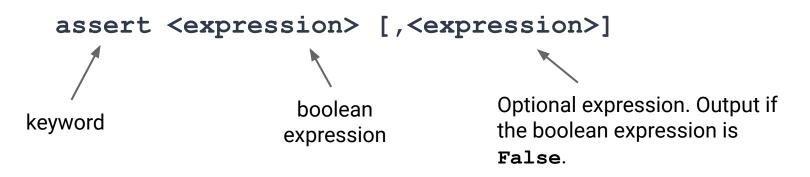
## **Comments and Assertions**

- Assertions allow us to tell Python assumptions we have about how our program should work
- If these assumptions are not true, Python will let us know
- Useful for documentation, and testing
- General form:

```
assert <expression> [,<expression>]
```

## **Comments and Assertions**

- Assertions allow us to tell Python assumptions we have about how our program should work
- If these assumptions are not true, Python will let us know (and halt)
- Useful for documentation, and testing
- General form:



## **Examples**

def read file(file, size):

```
assert size > 0, "Error: file size must be a positive number"
# If size is larger than 64 bytes we need to allocate more
# space first so that we don't overflow memory.
if size > 64:
    allocate space();
```

open(file)

...

## Examples

def read\_file(file, size):

assert size > 0, "Error: file size must be a positive number"

# If size is larger than 64 bytes we need to allocate more

# space first so that we don't overflow memory.

```
if size > 64:
```

```
allocate_space();
```

open(file)

...

The assert statement checks our assumption that the file size is a positive number. If it isn't, then something has gone wrong.

## Examples

def read\_file(file, size):

assert size > 0, "Error: file size must be a positive number"

# If size is larger than 64 bytes we need to allocate more

# space first so that we don't overflow memory.

```
if size > 64:
```

```
allocate_space();
```

open(file)

...

This comment explains to people reading our code why we need this if statement, and what it's purpose is.

Assume we have a standard deck of playing cards.

Write a function named **color** that returns the color of a card based on the suit of the card.

Assume the function takes a single string, and that the string passed in corresponds to the suit of the card: "Clubs", "Diamonds", "Hearts" or "Spades"

For example, color ("Clubs") should return "black".

#### Answers in replit...

Write a function named **name** that takes the numerical value of a card and returns a string corresponding to the name of the card.

For example, **face (12)** would return "Queen".

If the card does not have a special name, the function should just return the number as a string.

For example, face (9) would return "9". Reminder: str(x) converts x to a string...

Write some tests with **assert** to verify your assumptions.

#### Answers in replit...

Time to put it all together!

Define a function named **description**, which takes a numerical value, and a suit, and returns a description of the card.

For example, **description(12**, "Clubs") should return:

"The Queen of Clubs is black!"

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For example, **description(12**, "Clubs") should return:

"The Queen of Clubs is black!"

Hint: Can you use the previous exercises to help?

#### Answers in replit...