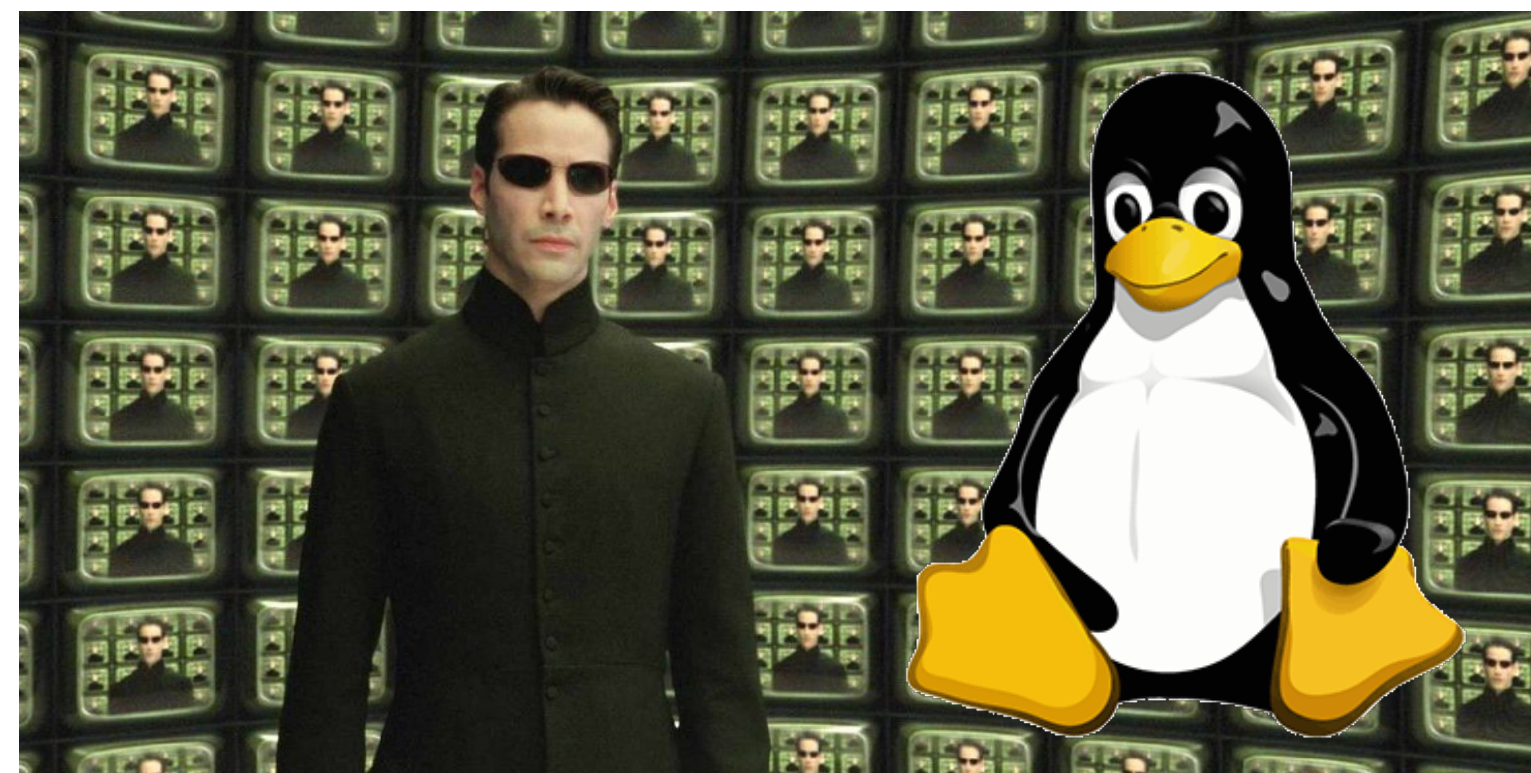




CSCI 120

Introduction to Computer Science and Programming I

Lecture 3: Functions II



Jetic Gū

Overview

- Focus: Basic Python Syntax
- Core Ideas:
 1. Default Parameters
 2. Function Calls with Parameter Names

Default Parameters

Or optional parameters, whatever

Python Function Parameters

- `input(...)`
 - Parameters (optional): `prompt`, a `str` to be printed before taking in input
 - e.g. `input("Hello world:")`
Will print "Hello world:" before taking in input from `stdin`
- `print(objects, ...)`
 - Parameters (optional): `end`, `sep`

Functions Declarations

```
def welcome(name):  
    print("Hello", name, ", I welcome you!")  
  
welcome("Jetic")
```

- Mandatory parameters
- Parameters are **mandatory** if they **don't have default values**
- During function calls, you must enter a value for these parameters

Functions Declarations

```
def welcome(name="stranger"):  
    print("Hello", name, ", I welcome you!")
```

```
welcome("Jetic") # Prints greeting for Jetic  
welcome() # Prints greeting for stranger
```

- Optional parameters
- Parameters are **optional** if they **have a default value** (in this case "stranger")
- During function calls, you can choose to give a value or not

Functions Declarations

```
def welcome(name="stranger", loc="Canada"):  
    print("Hello ",name, ", I welcome you to", loc, "!")
```

```
welcome() # Prints greeting for stranger to Canada  
welcome("Jetic") # Prints greeting for Jetic  
welcome("Jetic", "Germany")  
# Prints greeting for Jetic to Germany
```

- Optional parameters
- You can have multiple optional parameters in functions

Functions Declarations

```
# The following works
def welcome(name, loc="Canada"):
    print("Hello ",name, ", I welcome you to", loc, "!")
```

```
# The following doesn't work
def greeting(name="stranger", loc):
    print("Hello ",name, ", I welcome you to", loc, "!")
```

- Optional parameters must follow mandatory parameters

Function calls

Call me by my name!

Function calls

```
# The following works
def welcome(name, loc="Canada"):
    print("Hello", name, ", I welcome you to", loc, "!")

welcome("Jetic", "Canada")
```

- Positional: the alignment between the values and parameters names is by position
 - First value goes to the first parameter
 - 2nd goes to 2nd
 - etc. (applies to optional arguments as well)

Function calls

```
# The following works
def welcome(name, loc="Canada"):
    print("Hello", name, ", I welcome you to", loc, "!")

welcome(name="Jetic", loc="Canada")
welcome(loc="Canada", name="Jetic")
```

- Keyword: the alignment between the values and parameters names is **by naming**
 - For each parameter you want to give a value to, put the name first, then equal, then value (no space)
 - Position doesn't matter for keyword values

Function calls

```
# The following works
def welcome(name, loc="Canada"):
    print("Hello", name, ", I welcome you to", loc, "!")

welcome(name="Jetic", loc="Canada")
welcome(loc="Canada", name="Jetic")
```

- tips:
 - Use either positional, or keyword in most cases
 - Use positional for mandatory, and keyword for optionals
 - **Important: when mixing, keyword must follow positional!**