Gaurav Gupta

Importing

- **Importing** Syntax

- **Random** Module

- Simulating Dice Roll

- Practice

tuteur.py@gmail.com

Gaurav Gupta

Importing Modules : Import statement

- import \<module name\>   **# import the entire module**
  import cmath
  cmath.sqrt(-1)

- from \<module name\> import *   **# import all components from module**
  *from cmath import ***
  sqrt(-1)

- from \<module name\> import \<class/function\>**# import selected component from module**
  from cmath import sqrt
  sqrt(-1)

tuteur.py@gmail.com

Gaurav Gupta

Random Library

- import random module using:

  import random

- Random Integers :

  randrange(end)   **0 <= N <= end – 1**

  randrange(100)

  randrange(start, end, [step])   **one from start, start+step, start + step*2..**

  randrange(10,20,2)

  randint(start, end)   **start <= N <= end**

  randint(1,10)

  tuteur.py@gmail.com

Gaurav Gupta

Random Library

- Random Floats:

  random()   **Floating number [0.0, 1.0) or 0.0 <= N < 1.0**

  uniform(start, end)   **start <= N <= end**

  uniform(11,44.5)

  tuteur.py@gmail.com

Gaurav Gupta

Practice

- Build a library my_lib.py add a few variables to test.

- Add functions to input data.

- Add the library to the python search path.

tuteur.py@gmail.com

Gaurav Gupta

Some Pythonic Humor

- Will there ever be braces in python (__future__ braces)

- Writing hello word is that simple __hello__

- The Zen of Python (import this)

- antigravity

tuteur.py@gmail.com

Gaurav Gupta

Functions

- Function definition and call

- Arguments

- Returning from function

- Arguments

- Creating a module

tuteur.py@gmail.com

Gaurav Gupta

Function Terminology

- **Parameter:** the variables specified in the bracket of a function definition / signature

- **Return value:** the value or variable written after **return** keyword in a function

- **Definition** the code written along with the def statement.

- **Argument** the value passed to a function at *function call*.

- **Function Call** the name of the function along with the arguments if any.

```
                    Function                      parameters
  def                 name
Keyword

def function_to_sum(value1, value2):
body  ┌  print("First parameter of function: ", value1)    function
 or   ┤  print("Second parameter of function: ", value2)   definition
code  └  print()
                              arguments
x = 20
function_to_sum(10, x)   ┐ function
                         ┘ call
```

Gaurav Gupta

Creating Functions

- Syntax:
    def *<function name>*(**arguments**):
        """   optional doc string   """
        # body/logic/code of function

- **Def** keyword is used to start a function

- Function may or may not **return** a **value**; depends on the use of **return** keyword

- Function gets executed only when it is **called/invoked**

- WAF that **inputs** temperature in Celsius and **Prints** it in Fahrenheit

tuteur.py@gmail.com

Gaurav Gupta

Function Arguments

- Remember the **randrange** function which takes the max value as argument.

    random.randrange(100) # generates number between 0 and 99

- Arguments are a way of passing or giving input values to a function

- WAF (Write a Function) that takes temperature in Celsius as **argument** and **Prints** the temperature in Fahrenheit.

- Update the above method to test the validity of the **type** of argument (it should be **float** or **int** only).

tuteur.py@gmail.com

Gaurav Gupta

Returning values

- The **randrange** method returns or gives us the generated value, instead of printing it on the screen.

    num = random.randrange(100) # the result gets stored in num

- Python uses the **return statement** to returns results/values from function

- The function **terminates** once a return statement executes and control passes to the calling function.

- Multiple values can also be returned in form of tuples, dictionaries...

- WAF (Write a Function) that takes temperature in Celsius as **argument** and **returns** the temperature in Fahrenheit.

tuteur.py@gmail.com

Gaurav Gupta

Default Arguments

- Some arguments may have a default value.

- i.e. If while calling the value for that argument is not given, then the default value specified in function definition is taken automatically.

tuteur.py@gmail.com

Gaurav Gupta

Creating a Module

- Any script created in python is a module and can be imported in other scripts/modules in python.

- Python looks for modules in the current working directory apart from the pythons' default search locations.

- The variable sys.path lists all the locations which are searched.

- Use the environment variable **PYTHONPATH** to add paths to modules other than current working directory.

tuteur.py@gmail.com