FUNCTIONS

For Junior Knights

By Rachael Sera

TERMINOLOGY

Function

Method

MATH FUNCTIONS

$y = 2x + 5$

$f(x) = 3x + 2$

DEFINING FUNCTIONS

```
def name():
```

def

- Tell the computer it's a function by using the "def" keyword

name

- Give your function a name

( )

- Put parentheses after the name

:

- End the line with a semicolon

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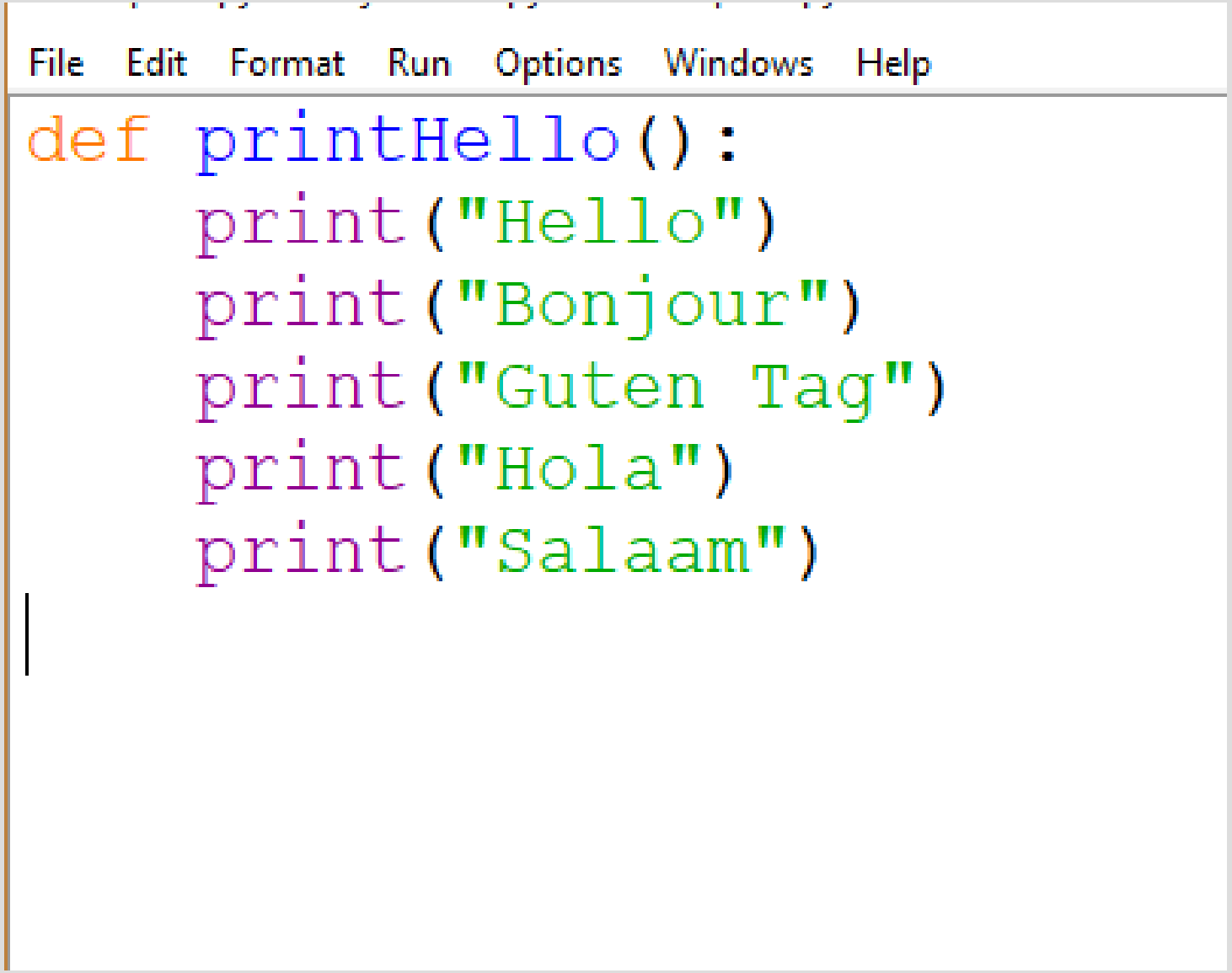
```
def printHello():
    # The definition goes here
    # Everything indented on this level
    # is part of the function

# This is outside of the loop
```

FUNCTION DEFINITION SYNTAX



DEFINING THE FUNCTION

This function prints hello in several languages

CALLING FUNCTIONS

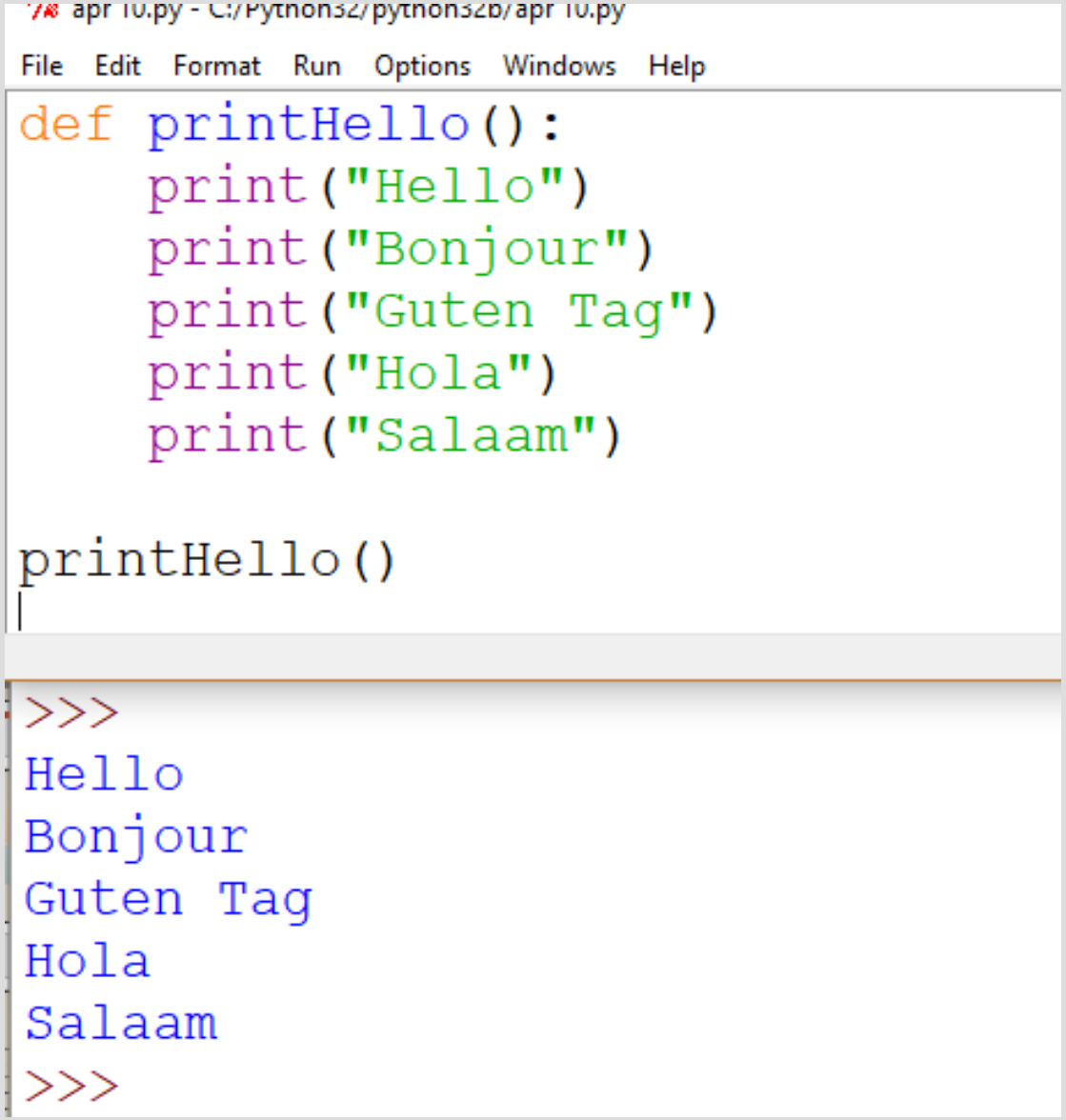
name()

name

- Type the function's name

( )

- Put parentheses after the name



CALLING THE FUNCTION

MOTIVATION FOR FUNCTIONS

- Repeat an action in multiple places
- Update code only once
- Makes code easier to read

RETURN VALUES

Void functions	Don’t return values
Value-returning functions	Return values

RETURNING VALUES

After the function completes, it becomes the return value

Store that value in a variable. "Capture" the value.

```
return var
```

return

- Use the “return” keyword to denote the return value

Literal

- Return a literal value (e.g. 5, “dog”, 3.14)

Variable

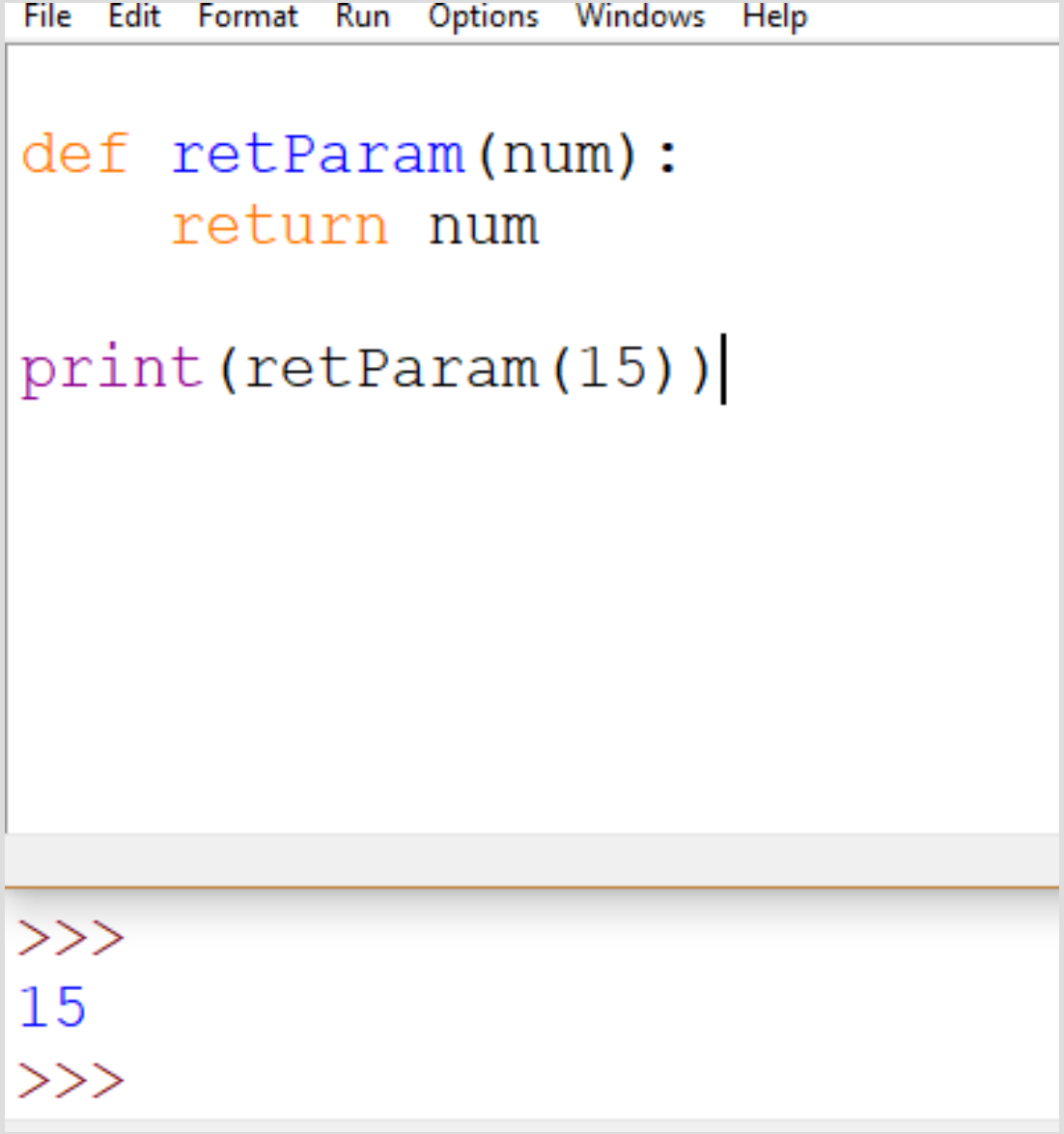
- Or return a variable that stores the data to be returned

PARAMETERS

PARAMETERS

Parameters

Arguments



DEFINING PARAMETERS

MATH FUNCTIONS

$$y = 2x + 5$$

$$f(x) = 3x + 2$$

```
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def fn(x):
    ans = 3*x+2
    return ans

retVal = fn(4)
print(retVal)

14
>>>
```

$$F(X)=3*X+2$$

- We can write the previous mathematical function as a Python function.
- We define the function called "fn"
- It takes an argument of "x", which will be the number we multiply by 3
- We "return" the output, which is the answer after calculating the math
- Last, we call the function and capture the return value
- Then print the value to see our work

FUNCTION SIGNATURE

SIGNATURE

Function name

Parentheses

Parameters in parentheses

LIBRARIES

LIBRARIES

Provide additional functions

- Random
- Math
- Pygame

RANDOM

RANDOM

import random

- Top of program file

random.randint(a, b)

- Returns a value between [a, b] (inclusive)

RANDOM

```
di = random.randint(1,6)
print(di)
```

```
 RESTART: C:/Users/racha/D
6
>>>
```