CP020001 Computer Programming

Lecture: Basic Python Part I

https://github.com/kaopanboonyuen/CP020001_ComputerProgramming_2023s1

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Reference:

- https://towardsdatascience.com/python-for-beginners-basics-7ac6247bb4f4
- https://realpython.com/tutorials/all/

About Me

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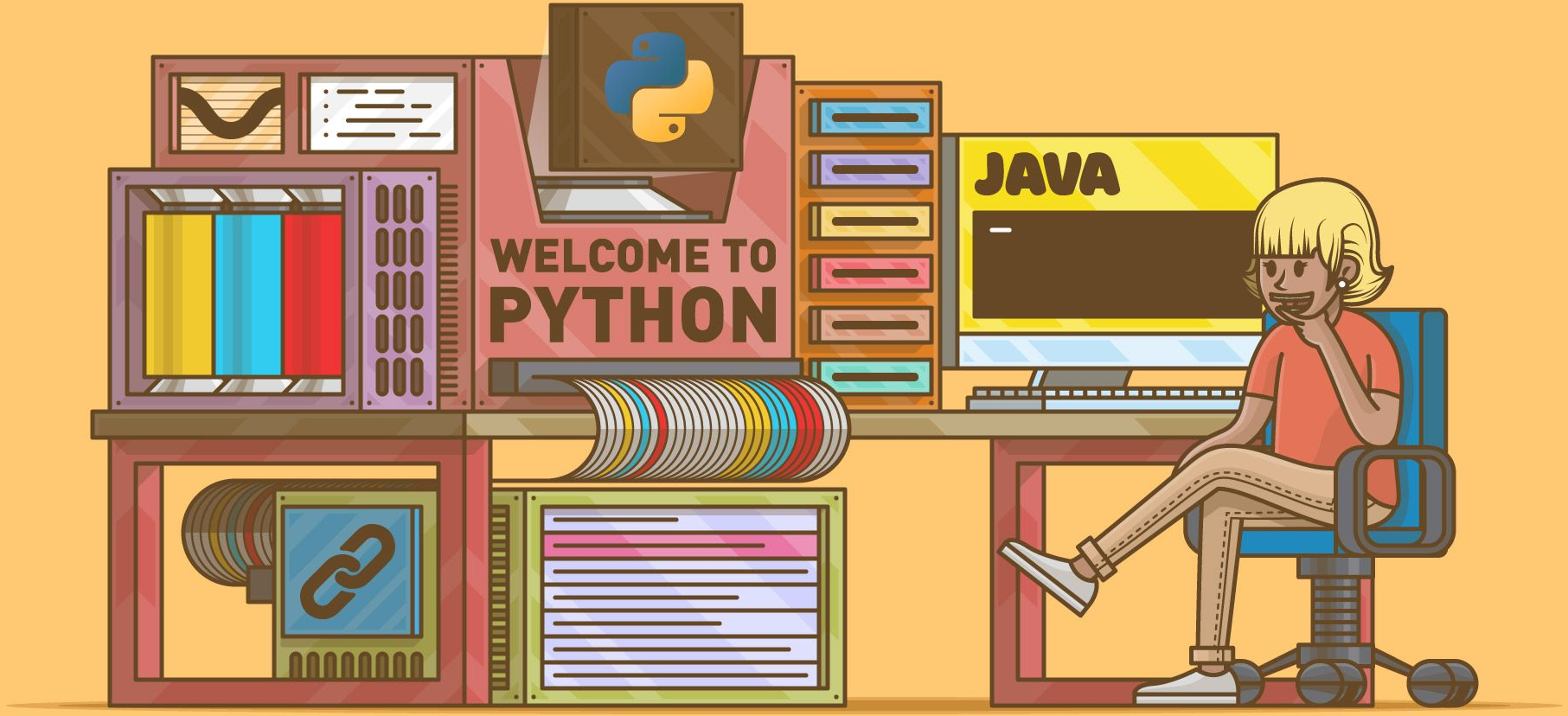
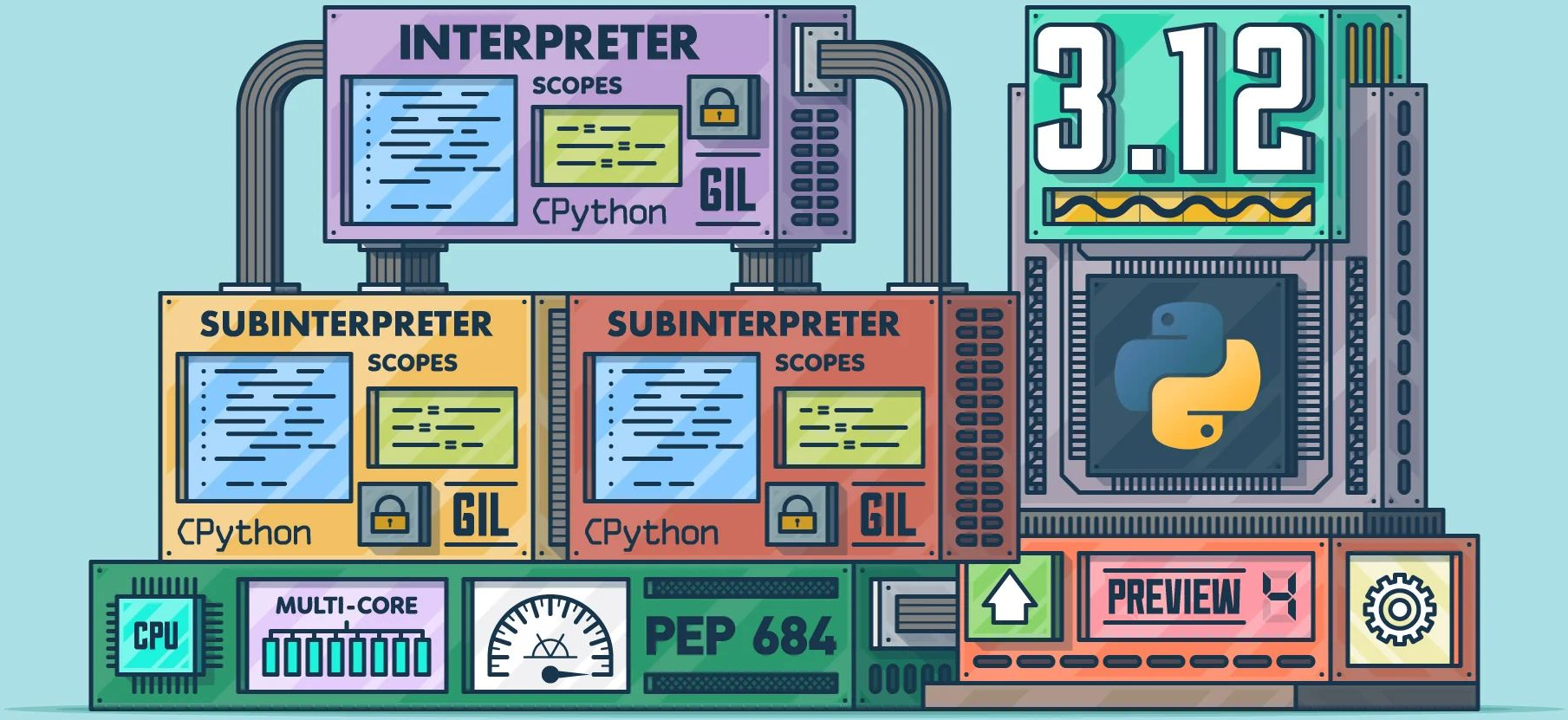


Real Python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SCOPES
CPython
GIL
3.12
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SCOPES
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PREVIEW
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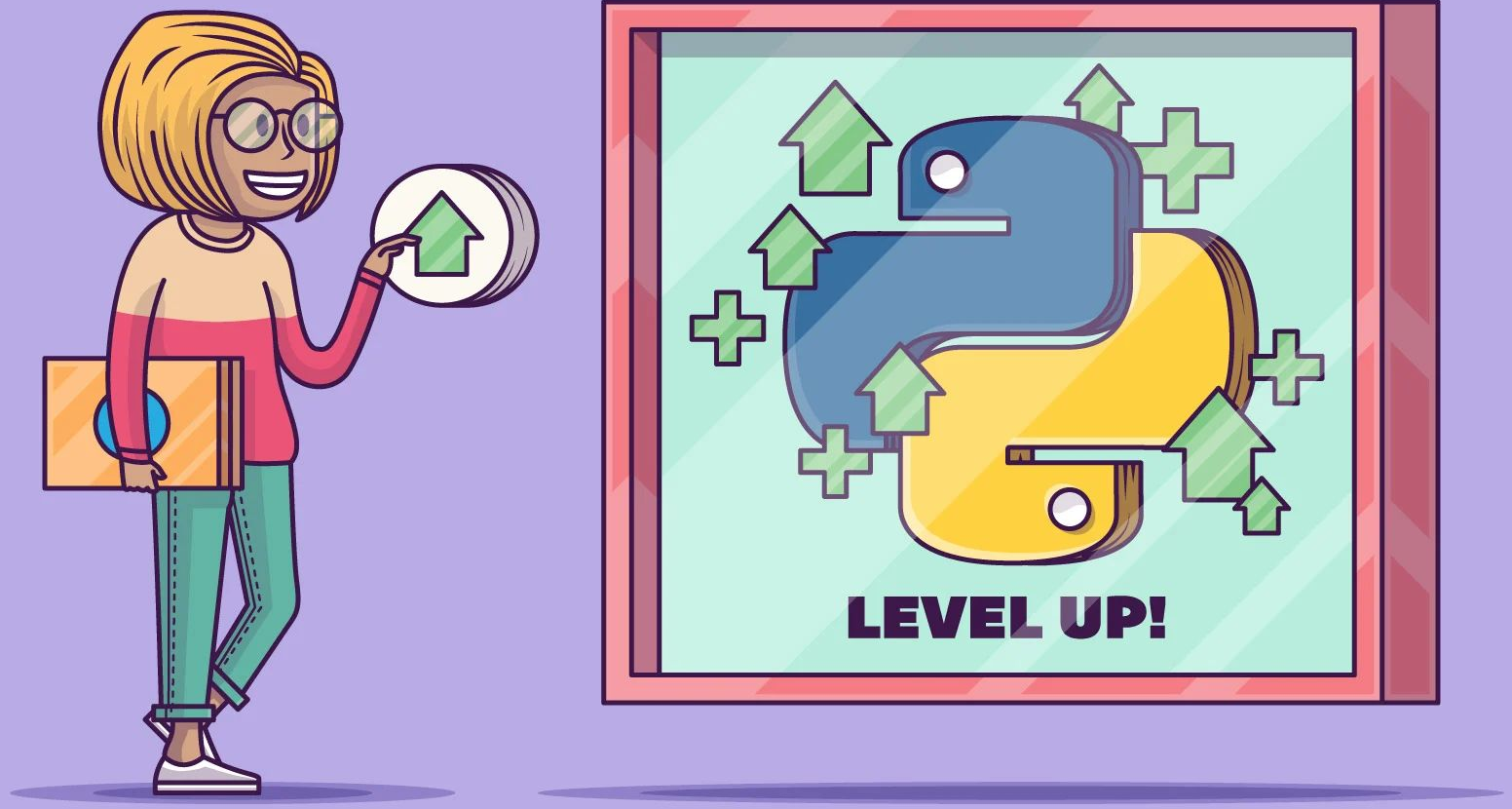
Real Python



Real Python

```
[1]  type(1), type(1.0), type('1')
```

```
     (int, float, str)
```

```
[2]  type('1'), type('one')
```

```
     (str, str)
```

```
[3]  type(True), type([]),  type({}), type(())
```

```
     (bool, list, dict, tuple)
```

1. Addition

```
num1 = 10
num2 = 5
result = num1 + num2
print(result)  # Output: 15
```

2. Subtraction

```
a = 15
b = 7
result = a - b
print(result)  # Output: 8
```

3. Multiplication

```
x = 6
y = 4
result = x * y
print(result)  # Output: 24
```

4. Division

```
dividend = 20
divisor = 4
result = dividend / divisor
print(result)  # Output: 5.0
```

5. Modulus

```
num = 17
mod = 4
result = num % mod
print(result)  # Output: 1
```

6. Floor Division

```
numerator = 23
denominator = 5
result = numerator // denominator
print(result)  # Output: 4
```

7. BMI Calculation

```
weight = 68  # in kilograms
height = 1.75  # in meters
bmi = weight / (height ** 2)
print(bmi)  # Output: 22.20408163265306
```

8. Celsius to Fahrenheit Conversion

```
celsius = 32
fahrenheit = (celsius * 9/5) + 32
print(fahrenheit)  # Output: 89.6
```

9. Fahrenheit to Celsius Conversion

```
fahrenheit = 98.6
celsius = (fahrenheit - 32) * 5/9
print(celsius)  # Output: 37.0
```

10. String Concatenation

```
string1 = "Hello, "
string2 = "Python!"
result = string1 + string2
print(result)  # Output: Hello, Python!
```

```
Hello, Python!
```

11. Integer to String Conversion

```
num = 42
string_num = str(num)
print(string_num)  # Output: '42'
```

12. Float to String Conversion

```
float_num = 3.14
string_float = str(float_num)
print(string_float)  # Output: '3.14'
```

13. String Length

```
text = "Python is awesome"
length = len(text)
print(length)  # Output: 17
```

14. String Slicing

```
text = "Python Programming"
sliced_text = text[0:6]
print(sliced_text)  # Output: 'Python'
```

15. Absolute Value

```
num = -15
absolute = abs(num)
print(absolute)  # Output: 15
```

16. Exponential Calculation

```
base = 2
exponent = 5
result = base ** exponent
print(result)  # Output: 32
```

17. Square Root Calculation

```
import math

number = 25
sqrt_value = math.sqrt(number)
print(sqrt_value)  # Output: 5.0
```

18. Power Function

```
base = 3
exponent = 4
result = pow(base, exponent)
print(result)  # Output: 81
```

19. Round Function

```
value = 3.14159
rounded_value = round(value, 2)
print(rounded_value)  # Output: 3.14
```

20. Getting User Input and Calculating

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))
result = num1 + num2
print("The sum is:", result)
```

```
Enter first number: 9
Enter second number: 9
The sum is: 18.0
```