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# 1

## 1.1

- 
- 
- 
- 
- 

## 1.2

```
: - - - - -  
:
```

```
#  
print("=" * 30)  
print("  ")  
print("=" * 30)  
  
print("=" * 30)  
print("  ")  
print("=" * 30)  
  
#  
def print_banner(message):  
    print("=" * 30)  
    print(message)  
    print("=" * 30)  
  
print_banner("  ")  
print_banner("  ")
```

## 2

### 2.1

```
#
def greet():
    """    """
    print(" ")
    print("Python ")

#
greet()
```

Python

### 2.2

```
#
def greet_person(name):
    """    """
    print(f" {name} ")

def greet_with_time(name, time):
    """    """
    print(f"{time} {name} ")

#
greet_person(" ")
greet_with_time(" ", " ")
```

## 2.3

```
#
def add_numbers(a, b):
    """2      """
    result = a + b
    return result

def calculate_area(width, height):
    """      """
    area = width * height
    return area

#
sum_result = add_numbers(5, 3)
print(f"5 + 3 = {sum_result}")

room_area = calculate_area(4, 6)
print(f"    : {room_area}    ")
```

5 + 3 = 8  
: 24

# 3

## 3.1

```
#
def introduce(name, age, hobby=" "):
    """          """
    print(f"    {name} ")
    print(f" {age}    {hobby} ")

#
introduce(" ", 25) #
introduce(" ", 30, " ") #
```

25

30

## 3.2

```
#
def create_profile(name, age, city, profession):
    """          """
    profile = f"{name} {age} {city} {profession} "
    return profile

#
profile1 = create_profile(" ", 28, " ", " ")

#
profile2 = create_profile(
```

```

    profession="  ",
    name="  ",
    city="  ",
    age=32
)

```

```

print(profile1)
print(profile2)

```

```

28
32

```

### 3.3

```

# *args -
def calculate_average(*numbers):
    """    """
    if not numbers:
        return 0
    return sum(numbers) / len(numbers)

print(f" : {calculate_average(10, 20, 30)}")
print(f" : {calculate_average(1, 2, 3, 4, 5)}")

# **kwargs -
def print_info(**info):
    """    """
    for key, value in info.items():
        print(f"{key}: {value}")

print_info( = " ", =25, = " ")

```

```

: 20.0
: 3.0
:
: 25
:

```



# 4

## 4.1

```
#
global_message = "      "

def demo_scope():
    #
    local_message = "      "
    print(f"      : {global_message}")
    print(f"      : {local_message}")

def modify_global():
    global global_message
    global_message = "      "

print(f"      : {global_message}")
demo_scope()

modify_global()
print(f"      : {global_message}")
```

```
:
:
:
:
```

## 4.2

```
#
x = "      "
```

```
def outer_function():
    x = "    "

    def inner_function():
        x = "    "
        print(f"    : {x}")

    inner_function()
    print(f"    : {x}")

outer_function()
print(f"    : {x}")
```

```
:
:
:
```

# 5

## 5.1 docstring

```
def calculate_bmi(weight, height):
    """
    BMI

    Args:
        weight (float):  kg
        height (float):  m

    Returns:
        float: BMI

    Example:
        >>> calculate_bmi(70, 1.75)
        22.857142857142858
    """
    bmi = weight / (height ** 2)
    return bmi

#
print(calculate_bmi.__doc__)

#
result = calculate_bmi(70, 1.75)
print(f"BMI: {result:.2f}")
```

BMI

Args:

weight (float): kg  
height (float): m

Returns:  
float: BMI

Example:  
>>> calculate\_bmi(70, 1.75)  
22.857142857142858

BMI: 22.86

## 5.2

```
def greet_user(name: str, age: int) -> str:
    """

    Args:
        name:
        age:

    Returns:

    """
    return f" {name} {age} "

#
message = greet_user(" ", 25)
print(message)
```

25

# 6

## 6.1

```
def celsius_to_fahrenheit(celsius: float) -> float:
    """
    """
    return (celsius * 9/5) + 32

def fahrenheit_to_celsius(fahrenheit: float) -> float:
    """
    """
    return (fahrenheit - 32) * 5/9

def temperature_converter(temp: float, unit: str) -> dict:
    """
    """
    if unit.lower() == 'c':
        fahrenheit = celsius_to_fahrenheit(temp)
        return {
            'original': f"{temp}°C",
            'converted': f"{fahrenheit:.2f}°F"
        }
    elif unit.lower() == 'f':
        celsius = fahrenheit_to_celsius(temp)
        return {
            'original': f"{temp}°F",
            'converted': f"{celsius:.2f}°C"
        }

#
result = temperature_converter(25, 'C')
print(f"{result['original']} = {result['converted']}")
```

25°C = 77.00°F

## 6.2

```
def check_password_strength(password: str) -> dict:
    """ """
    checks = {
        'length': len(password) >= 8,
        'uppercase': any(c.isupper() for c in password),
        'lowercase': any(c.islower() for c in password),
        'digit': any(c.isdigit() for c in password),
        'special': any(c in "!@#%$%^&*" for c in password)
    }

    score = sum(checks.values())

    if score >= 4:
        strength = " "
    elif score >= 3:
        strength = " "
    else:
        strength = " "

    return {
        'strength': strength,
        'score': score,
        'checks': checks
    }

#
result = check_password_strength("MyPass123!")
print(f"      : {result['strength']}")
print(f"    : {result['score']}/5")

:
: 5/5
```

# 7

## 7.1

```
#
def square(x):
    return x ** 2

#
square_lambda = lambda x: x ** 2

print(f"    : {square(5)}")
print(f"    : {square_lambda(5)}")

#
numbers = [1, 2, 3, 4, 5]

# map()
squared = list(map(lambda x: x ** 2, numbers))
print(f" : {squared}")

# filter()
evens = list(filter(lambda x: x % 2 == 0, numbers))
print(f" : {evens}")
```

```
    : 25
    : 25
: [1, 4, 9, 16, 25]
: [2, 4]
```

# 8

## 8.1 1

```
def calculator(a, b, operation):
    """

    Args:
        a, b:
        operation:    ('+', '-', '*', '/')

    Returns:

    """
    # TODO:
    pass

#
print(calculator(10, 5, '+')) # : 15
print(calculator(10, 5, '*')) # : 50
```

## 8.2 2

```
def process_text(text, action='upper'):
    """

    Args:
        text:
```



```

        action: 'upper', 'lower', 'title', 'reverse'

Returns:

"""
# TODO:
pass

#
print(process_text("hello world", "title")) # : "Hello World"

```

### 8.3 3

```

def calculate_stats(numbers):
    """

    Returns:

    """
    # TODO:
    pass

#
stats = calculate_stats([1, 2, 3, 4, 5])
# : {'average': 3.0, 'max': 5, 'min': 1, 'sum': 15}

```

# 9

## 9.1

: - - - -  
: - - -  
: - 1 - - - -  
: - - -

## 9.2

- - - -

## 9.3

- 1.
- 2.
- 3.
- 4.

---

## 9.4

---

9.5

:

:

|

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