Table of contents

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

```python
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

```python
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

```python
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

```python
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

```python
#
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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