Python

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1

1.1

：

```
#
age = 25
year = 2024

#
height = 175.5
price = 99.99

#
complex_num = 3 + 4j
```

：

```
#
name = "   "
message = '    '

#
poem = """



"""
```

1.2 None

```
#
is_valid = True
is_empty = False

# None
result = None

#
print(f"is_valid  : {type(is_valid)}")
print(f"result  : {type(result)}")

#
print(f"True and False = {True and False}")
print(f"True or False = {True or False}")
print(f"not True = {not True}")
```

```
is_valid  : <class 'bool'>
result  : <class 'NoneType'>
True and False = False
True or False = True
not True = False
```

2

2.1

```
#
fruits = ["  ", "  ", "   "]
numbers = [1, 2, 3, 4, 5]
mixed = ["   ", 42, True, None]

print(f" : {fruits}")
print(f" : {numbers}")
print(f" : {mixed}")

#
print(f"   : {len(fruits)}")
```

```
 : ['  ', '  ', '   ']
 : [1, 2, 3, 4, 5]
 : ['   ', 42, True, None]
  : 3
```

2.2

```
#
shopping_list = [" ", " ", " "]

# .append() -
shopping_list.append("  ")
print(f"  : {shopping_list}")

# .insert() -
```

```
shopping_list.insert(1, "  ")  #     1
print(f"  : {shopping_list}")

# .remove() -
shopping_list.remove(" ")
print(f"  : {shopping_list}")

#
print(f"   : {shopping_list[0]}")   #     0
print(f"   : {shopping_list[-1]}")  # -1   1
```

```
  : [' ', ' ', ' ', '  ']
  : [' ', '  ', ' ', ' ', '  ']
  : [' ', '  ', ' ', '  ']
   :
   :
```

: Python 0

2.3

 : [: :]

```
#
numbers = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]

print(f" : {numbers}")
print(f"  3 : {numbers[:3]}")      #    =0   =3
print(f"  3 : {numbers[-3:]}")     #  =-3   3    =
print(f"   : {numbers[3:7]}")      #    3 6  7
print(f"     : {numbers[::2]}")  #   2
print(f" : {numbers[::-1]}")         #   -1
```

```
 : [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
 3 : [0, 1, 2]
 3 : [7, 8, 9]
  : [3, 4, 5, 6]
    : [0, 2, 4, 6, 8]
 : [9, 8, 7, 6, 5, 4, 3, 2, 1, 0]
```

: - [:n] → n - [n:] → n
- [::2] → 1 - [::-1] →

3

3.1

```
#
person = {
    " ": "  ",
    " ": 30,
    " ": "   ",
    " ": [" ", " ", "    "]
}

print(f"  : {person}")
print(f" : {person[' ']}")
print(f" : {person[' ']}")
```

```
  : {' ': '  ', ' ': 30, ' ': '   ', ' ': [' ', ' ', '    ']}
 :
 : 30
```

3.2

```
#
student_grades = {" ": 85, " ": 92, " ": 78}

#
student_grades[" "] = 88
print(f"   : {student_grades}")

#
student_grades[" "] = 90
print(f"  : {student_grades}")
```

```
#
print(f"      {' ' in student_grades}")
print(f"      {' ' in student_grades}")

#
print(f" : {list(student_grades.keys())}")
print(f" : {list(student_grades.values())}")
```

```
   : {' ': 85, ' ': 92, ' ': 78, ' ': 88}
  : {' ': 90, ' ': 92, ' ': 78, ' ': 88}
      True
      False
 : [' ', ' ', ' ', ' ']
 : [90, 92, 78, 88]
```

4

4.1

```
#
coordinates = (10, 20)
rgb_color = (255, 128, 0)
person_info = ("  ", 25, "   ")

print(f" : {coordinates}")
print(f"RGB : {rgb_color}")
print(f"  : {person_info}")

#
x, y = coordinates
name, age, job = person_info

print(f"X : {x}, Y : {y}")
print(f" : {name},  : {age},  : {job}")
```

```
 : (10, 20)
RGB : (255, 128, 0)
  : ('  ', 25, '   ')
X : 10, Y : 20
 :   ,  : 25,  :
```

4.2

```
#
unique_numbers = {1, 2, 3, 4, 5}
colors = {" ", " ", " ", " ", " "}  #
```

```
print(f"    : {unique_numbers}")
print(f"  : {colors}")

#
set1 = {1, 2, 3, 4}
set2 = {3, 4, 5, 6}

print(f"  : {set1 | set2}")
print(f"  : {set1 & set2}")
print(f"  : {set1 - set2}")
```

```
    : {1, 2, 3, 4, 5}
  : {' ', ' ', ' ', ' '}
  : {1, 2, 3, 4, 5, 6}
  : {3, 4}
  : {1, 2}
```

5

5.1

```
#
students = [
    {" ": "  ", " ": [85, 92, 78, 88]},
    {" ": "  ", " ": [90, 87, 95, 92]},
    {" ": "  ", " ": [75, 82, 79, 85]}
]

#
for student in students:
    name = student[" "]
    grades = student[" "]
    average = sum(grades) / len(grades)
    print(f"{name}  : {average:.1f}")
```

```
    : 85.8
    : 91.0
    : 80.2
```

5.2

```
#
inventory = {
    "  ": {" ": 50, " ": 120},
    "  ": {" ": 30, " ": 80},
    "  ": {" ": 25, " ": 100}
}

#
```

```python
print("===    ===")
for item, details in inventory.items():
    quantity = details[" "]
    price = details[" "]
    total_value = quantity * price
    print(f"{item}: {quantity} ,  {price} ,  {total_value} ")

#
total_inventory_value = sum(
    details[" "] * details[" "]
    for details in inventory.values()
)
print(f"\n   : {total_inventory_value} ")
```

```
===    ===
  : 50 ,  120 ,  6000
  : 30 ,  80 ,  2400
   : 25 ,  100 ,  2500

   : 10900
```

6

6.1 1

```
#
shopping_list = []

# TODO:
# 1.
# 2.
# 3.
# 4.

#   : append(), remove(), len()
```

    :

   : [' ', ' ', ' ', ' ']
   : 4

6.2 2

```
#
grades = {
    " ": [85, 90, 78, 92],
    " ": [88, 85, 91, 87],
    " ": [92, 89, 85, 94]
}

# TODO:
#   : sum()   len()
```

6.3 3

```
text = "hello world"

# TODO:
#     : {'h': 1, 'e': 1, 'l': 3, 'o': 2, ' ': 1, 'w': 1, 'r': 1, 'd': 1}
```

7

7.1

: - int, float - str - bool - None

: - list - - tuple -

: - dict - - set -

: - - -

7.2

- - if, elif, else - for, while - break, continue

7.3

1. 2. 3. 4.

7.4

7.5

:

:

|

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