

2 Functions

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1. Function structure

The first function: `print()`

1.1 Function

1.2 Arguments (in `print()`)

Arguments

- `print()` arguments: the python documentation at <https://docs.python.org/3/library/functions.html#print>.

Default arguments

2. Comments and Pseudocode

Comments

Pseudocode

Multi-line comment

3. Create our own function by `def`

First function without arguments

Function with Arguments

Function with default value

4. Return values

5. Variables and parameters are local

6. Stack diagrams and debugging

Call a function in another function

Stack diagram

Debugging

7. Organizing our code by using `main()`

8. Practice questions

1. Write a program to create a function `show_employee()` using the following conditions.

- It should accept the employee's name and salary, and print both.
- If the salary is missing in the function call, then assign default value 9000 to salary.

Given

```
showEmployee("Ben", 12000)  
showEmployee("Jack")
```

Expected output:

```
Name: Ben, salary: 12000  
Name: Jack, salary: 9000
```

2. What is the output of the following program?

```
def outer_fun(a, b):  
    square = a ** 2  
  
    # inner function  
    def addition(a, b):  
        return a + b  
  
    add = addition(a, b)  
  
    return add + 5  
  
result = outer_fun(5, 10)  
print(result)
```

3. Calculate the area of a circle. The mathematical formula is πr^2 , where r denotes the radius, and π is the mathematical constant, 3.14.

- i. create a function named `square`, which returns the squared value given a number.
- ii. create a function named `area`, which returns the area of a circle given a radius. In this function, you need to call the `square` function defined above.
- iii. Create a main function to organize the program. In the main function, print a sentence like
 - "The area of a circle with radius 1 is 3.14." if you put $r = 1$, or
 - "The area of a circle with radius 2 is 12.56." if you put $r = 2$.

Summing up

- `print()` function
- Arguments in `print()`
- Comments and pseudocode
- Create function using `def`
- Arguments, default value
- Local variables
- `main()` function

End