

Ch3: Print and Input

305172 Computer Programming
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How to print output to the terminal

- Keyword “print”
- Require a string as an input
- A string is covered by “ ” or ‘ ’

```
print ("What \'s up 305172")
```

```
print ('What \'s up 305172')
```

The string is the sentence
What's up 305172

Only the string
above the red line
can be changed.

Print Patterns

```
print ("What \ 's up 305172")
```

string

```
print ("%s" % "What \ 's up 305172")
```

String display String value

```
print ("%s %s" % ("What \ 's up 305172", 1.3))
```

String display String value

```
print ("%s %f" % ("What \ 's up 305172", 1.3))
```

String display String value

%s placeholder
for string value

%f placeholder for
floating number

Print with variables

```
name = "Jiraporn Pooksook"
```

Variable
declaration

```
print ("My name is %s" % name)
```

```
print ("My name is", name)
```

Will not change value

Value depends on
the variable's value

Print with variables

```
name = "Jiraporn Pooksook"  
nickname = "Mod"
```

```
print("My name is %s and nickname is %s" % (name,nickname))  
print("My name is",name,"and nickname is",nickname)
```

Two strings value

Value depends on
the variable's value

Value depends on
the variable's value

Print in Python vs C

```
print ("What \'s up 305172")
print ("%s" % "What \'s up 305172")
print ("%s %s" % ("What \'s up 305172", 1.3))
print ("%s %f" % ("What \'s up 305172", 1.3))
```

```
int main()
{
    printf ("What \'s up 305172\n");
    printf ("%s\n", "What \'s up 305172");
    printf ("%s %s\n", "What \'s up 305172", 1.3);
    printf ("%s %f\n", "What \'s up 305172", 1.3);
    return 0;
}
```

Error type
mismatch

Print in Python vs C

```
name = "Jiraporn Pooksook"  
nickname = "mod"
```

```
print ("My name is %s and nick name is %s" % (name,nickname))  
print ("My name is",name,"and nick name is",nickname)
```

```
int main()  
{  
    char name[] = "Jiraporn Pooksook";  
    char nickname[] = "mod";  
  
    printf ("My name is %s and nick name is %s \n",name,nickname);  
    printf ("My name is %s",name,"and nick name is %s",nickname,"\n");  
  
    return 0;  
}
```

Error syntax error

Fancier Output Formatting

```
name = "Jiraporn Pooksook"
```

```
print("Hello", "My name is %s" % name, sep="----")  
print(f'My name is {name}')
```

```
gpa = 3.1839
```

```
print("My GPA is {:.2f}".format(gpa))
```

Add
separator
format

Use format string literal
by beginning a string
with 'f' or 'F' and refer a
variable with { }

Use a method
str.format()

Further Details:

Print function : <https://docs.python.org/3/library/functions.html#print>

Input and Output: <https://docs.python.org/3/tutorial/inputoutput.html>

Exercise

- Using several ways of print in Python to show your basic information:
 - Name
 - Nickname
 - Age
 - Gender
 - Name of your hometown

How to get input from keyboard

- Keyword “input”
- By default an input will be stored in a form of string.

Input value
is stored in
variable
'name'

```
name = input()
```

```
name = input('Enter your name ')
```

Show a message
before getting an
input

Input Patterns

```
print("Enter your name")  
name = input()  
print(name)
```

Get an input without showing any message

```
name = input('Enter your name ')  
print(name)
```

```
name = input("Enter your name ")  
print(name)
```

Show a message before receiving an input

Get a Number as an Input

```
print("Enter your name")
name = input()
print(name)

age = input('Enter your age ')
print(age)

print("your age in next 10 years = ",age+10)
```

```
Enter your name
mod
mod
Enter your age 12
12
```

```
Traceback (most recent call last):
```

```
File "C:\Users\Mod\AppData\Local\Programs\Python\Python36-32\mod.py", line 8,
in <module>
```

```
print("your age in next 10 years = ",age+10)
```

```
TypeError: must be str, not int
```

The variable 'age' is typed 'string'.
Hence it cannot do the addition with
integer number.

Get a Number as an Input

```
print("Enter your name ")  
name = input()  
print(name)
```

By default, input function will keep the input value as string.

```
age = input('Enter your age ')  
print(age)  
print("Your age in next 10 years = ", int(age)+10)
```

Type conversion from string to int before addition

```
gpa = float(input('Enter your gpa '))  
print(gpa)  
print("Your gpa minus 1 = ", gpa-1.0)
```

Type conversion from string to float when getting an input

Basic Data Types in Python

Type	Detail	Sample
int	Integer numbers	print(10)
float	Floating point numbers	print(4.2) print(4.2e-4)
complex	Complex numbers <real part>+<imaginary part>j	print() type(2+3j)
str	Strings	print("hello")
bool	Boolean (True or False)	type(True)

Basic Data Types : Python vs C

Basic Data Types	Python	C
Integer numbers	int	int
Floating point numbers	float	float , double
Complex numbers	complex	-
Strings	str	char[]
Character	-	char
Boolean	bool	_Bool

Get Input in Python vs C

```
print("Enter your name")
name = input()
print(name)

age = input('Enter your age ')
print(age)
```

```
int main()
{
    printf("Enter your name ");
    char name[100];
    scanf("%s",&name);
    printf("%s\n",name);

    int age;
    printf("Enter your age ");
    scanf("%d",&age);
    printf("%d\n",age);

    return 0;
}
```


Python: Dynamic Type Checking

```
print("Enter your name")
name = input()
print(name)

age = input('Enter your age ')
print(age)

print("age in integer ",int(age))

num_age = int(age)
print("integer var ",num_age)
```

Integer value from variable 'age' is assigned to variable 'num_age'. In this case variable 'num_age' is typed int.

```
Enter your name
mod
mod
Enter your age 123
123
age in integer 123
integer var 123
>>> type(age)
<class 'str'>
>>> type(num_age)
<class 'int'>
```

Type casting only return value integer out. It does not change the data type of variable 'age'.

Exercise

- Write a code to calculate total price if your input is in a form of : product name, price per unit , number of units.

Input: Mama 5.50 3

output: Total price of Mama is 16.50

Input: Shampoo 28 2

output: Total price of Shampoo is 56

- Write a code to find an average scores of 5 students.

Input: 30 44 50 19 11

output: Average scores = 30.8