



# Chapter 03. Interact with Users

Python Programming for Bioinformatics

Robert C. Chi

# Agenda

- **Show on the Screen**
  - print()
- **Get Data from the Keyboard**
  - input()





Show on the Screen

**PRINT()**

# Fundamental Syntax

- `print(Variable or Literals)`

```
>>> print(123)
123
>>> print(1.23)
1.23
>>> print("abc")
abc
>>> print(True)
True
```

```
>>> x = 3
>>> print(x)
3
```

# Print Multiple Items

- `print(item1, item2, item3, ...)`

```
>>> age = 33
>>> print("You are", age, "years old!")
You are 33 years old!
```

# Print Special Characters

- Print an “**Enter**”

“\n” → **N**ew line

```
>>> print("First Line\nSecond Line")
First Line
Second Line
```

- Print a “**Tab**”

“\t” → **T**ab

```
>>> x = 3/4
>>> y = 1/8
>>>
>>> print(x, "\t", y)
0.75      0.125
```

# Print with Templates

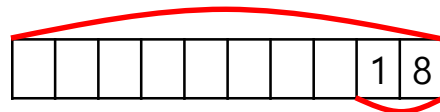
- “**{template}**”.format(**value**)

```
print("{0:10d}".format(18))
```

Parameter 0



Reserve 10 placeholders



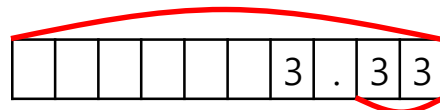
d → decimal

```
print("{0:10.2f}".format(10/3))
```

Parameter 0



Reserve 10 placeholders



f → float

2 decimals

# Print with Templates

- **Format Specifiers**

```
print("{0:10.2f}".format(10/3))
```

Format	Explanation	Format	Explanation
b	Binary Integer	f	Regular Floating Points
o	Octal Integer	e	Scientific Notation Floating Points
d	Decimal Integer	s	String
x	Hexadecimal Integer	%	Percentage



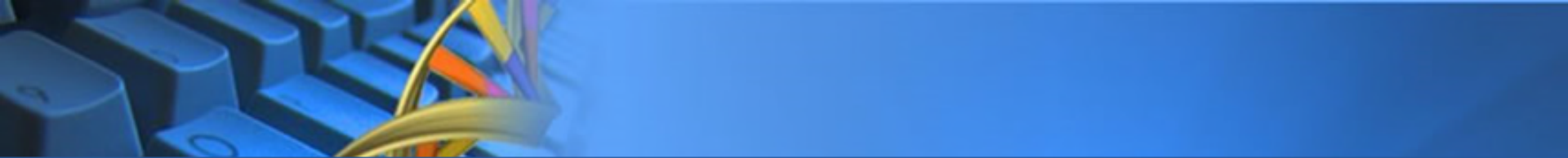
# Print with Templates

- **Example**

```
print("{} divided by {} equal to {}".format(10, 3, 10/3))  
print("{0} divided by {1} equal to {2}".format(10, 3, 10/3))  
print("{0:5d} divided by {1:5d} equal to {2:10.2f}".format(10, 3, 10/3))  
print("{:5d} divided by {:5d} equal to {:10.2f}".format(10, 3, 10/3))
```



```
10 divided by 3 equal to 3.3333333333333335  
10 divided by 3 equal to 3.3333333333333335  
 10 divided by      3 equal to          3.33  
 10 divided by      3 equal to          3.33
```



Get Data from the Keyboard

**INPUT()**

# Fundamental Syntax

- `input("prompt string")` → Return a Text

```
name = input("What's your name:")  
print(name, ", nice to see you!")
```

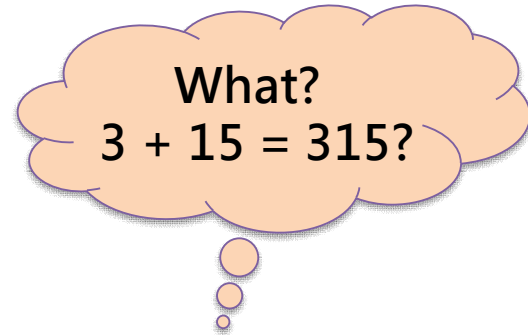
```
What's your name: Robert  
Robert , nice to see you!
```

# input() Always Return a Text

- **Example**

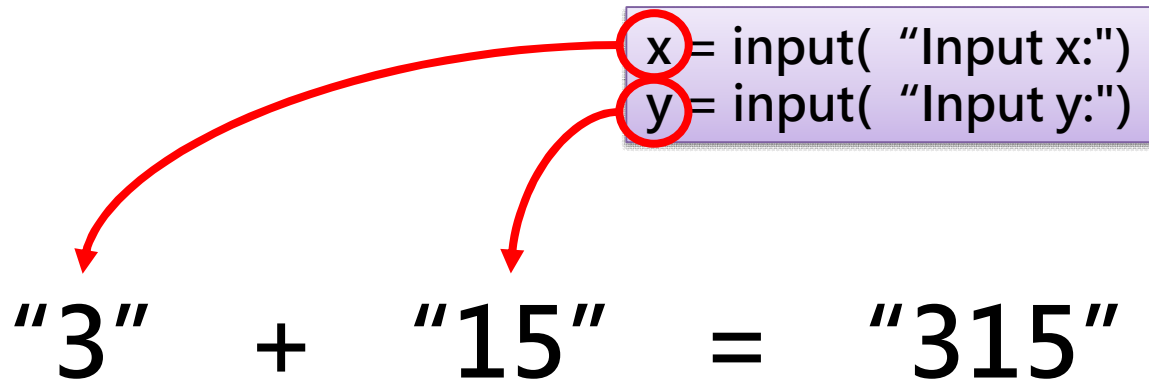
```
x = input("Input x:")  
y = input("Input y:")  
print("x + y =", x+y)
```

```
Input x:3  
Input y:15  
x + y = 315
```



# input() Always Return a Text

- “+” in Text → Concatenation



# input() Always Return a Text

- **Solution: `eval()` → Evaluation**

Usage of `eval()`

```
>>> eval("3")
3
>>> eval("14.5")
14.5
>>> eval("3 + 14.5")
17.5
```





# input() Summary

- Get a **Text**

```
X = input("prompt string")
```

- Get a **Number**

```
X = eval(input("prompt string"))
```



# Brief of Current Status

- **Until now, you have learned...**

