The Strength of the String

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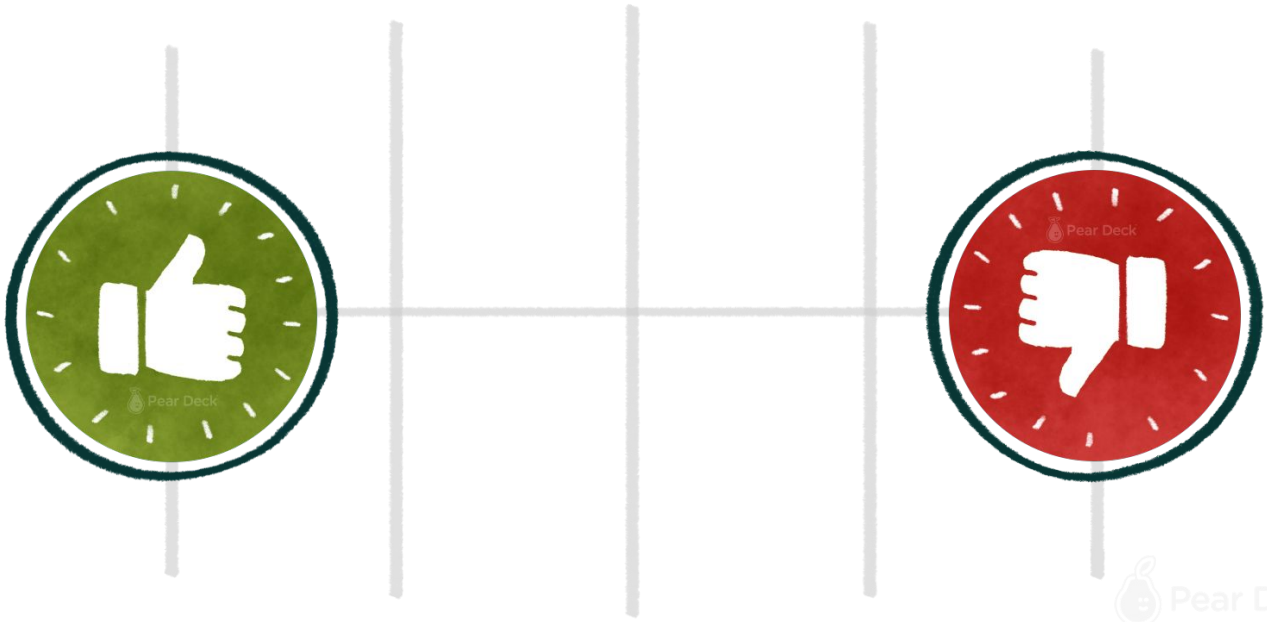
How was the pre-class content? Did you get it?



Pear Deck

Students, drag the icon!

Pear Deck Interactive Slide
Do not remove this bar

```
best ='Clarusway'
```

```
best[2]
```

Indexing & Slicing Strings

```
best[2:]
```

Indexing&Slicing Strings

- Let's elaborate on this example :

```
fruit = 'Orange'

print('Word                  : ' , fruit)
print('First letter          : ' , fruit[0])
print('Second letter         : ' , fruit[1])
print("3rd to 5th letters    : " , fruit[2:5])
print("Letter all after 3rd  : " , fruit[2:])

```

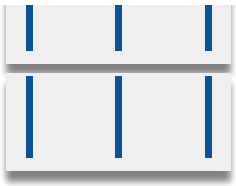

Indexing&Slicing Strings

- Let's elaborate on this example :

```
fruit = 'Orange'

print('Word                  : ' , fruit)
print('First letter          : ' , fruit[0])
print('Second letter         : ' , fruit[1])
print("3rd to 5th letters    : " , fruit[2:5])
print("Letter all after 3rd  : " , fruit[2:])

```

```
Word                  :  Orange
First letter          :  O
Second letter         :  r
3rd to 5th letters    :  ang
Letter all after 3rd  :  ange

```

Indexing&Slicing Strings



- Let's elaborate on this example :

```
[start:stop:step]
```

```
fruit = 'Orange'

print('Word                  : ' , fruit)
print('First letter          : ' , fruit[0])
print('Second letter         : ' , fruit[1])
print("3rd to 5th letters    : " , fruit[2:5])
print("Letter all after 3rd  : " , fruit[2:])

```

```
Word                  :  Orange
First letter          :  O
Second letter         :  r
3rd to 5th letters    :  ang
Letter all after 3rd  :  ange

```


Indexing&Slicing Strings

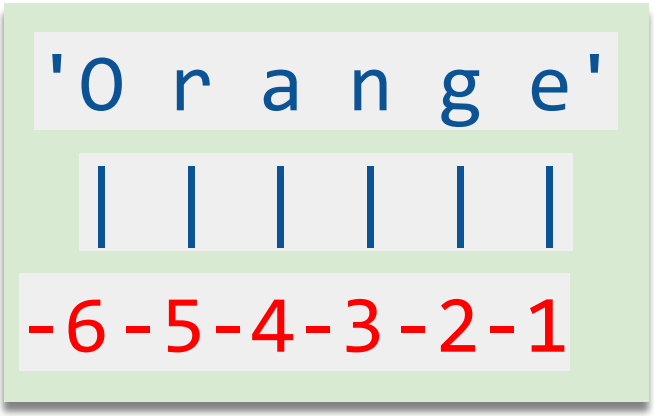
Here is an example of *Pre-Class* content:

```
city = 'Phoenix'

print(city[1:])  # starts from index 1 to the end
print(city[:6])  # starts from zero to 5th index
print(city[::2])  # starts from zero to end by 2 step
print(city[1::2])  # starts from index 1 to the end by 2 step
print(city[-3:])  # starts from index -3 to the end
print(city[::-1])  # negative step starts from the end to zero

```

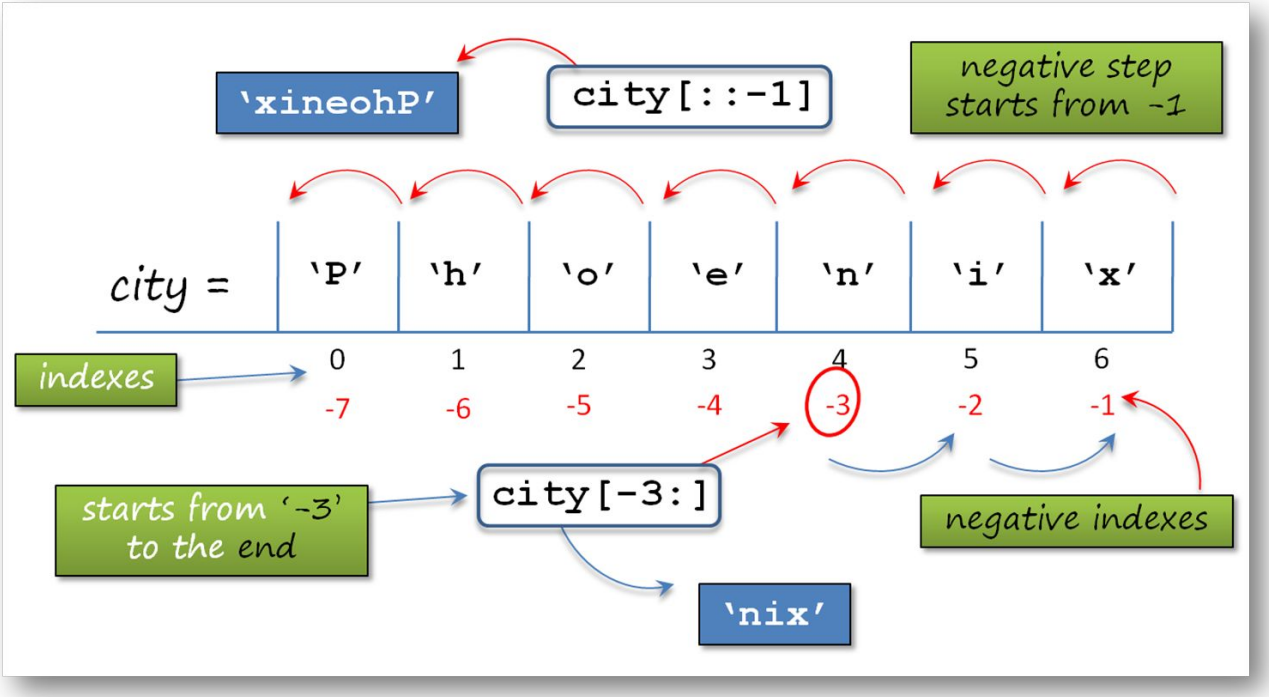
```
hoenix
Phoeni
Ponx
hei
nix
xineohP

```

Negative Indexing Strings

- Negative indexing works as the same :



Indexing&Slicing Strings



Indexing&Slicing Strings

Here is another example :

```
animal = "hippopotamus"

print(animal[1:])
print(animal[:6])
print(animal[::2])
print(animal[1:7:2])
print(animal[-3:])
print(animal[::-1])
```

What is the output? Try to guess in your mind...


```
animal = "hippopotamus"

print(animal[1:])
print(animal[:6])
print(animal[::2])
print(animal[1:7:2])
print(animal[-3:])
print(animal[::-1])
```


Output

```
ippopotamus
hippop
hpooau
ipp
mus
sumatopoppih
```

Indexing&Slicing Strings

- `len()` function measure the length of any iterable :

```
1  vegetable = 'Tomato'
2
3  print('length of the word', vegetable, 'is :', len(vegetable))
4
```

What is the output? Try to guess in your mind...

Indexing&Slicing Strings

- The output :

```
1  vegetable = 'Tomato'
2
3  print('length of the word', vegetable, 'is :', len(vegetable))
4
```

```
1  length of the word Tomato is : 6
2
```

=

'T o m a t o'

String Formatting

String Formatting with Arithmetic Syntax

CLARUSWAY©
WAY TO REINVENT YOURSELF

Stretch Break!

Let's take 1 minute to stretch our necks

Students, follow the instructions on the slide

String Formatting with Arithmetic Syntax

- Here are basic operators :

- +
- =
- *

String Formatting with Arithmetic Syntax

- We can use arithmetic operator syntaxes in string formatting operations
- Here are basic operators :

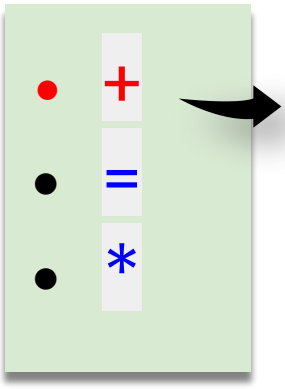
- +
- =
- *

```
str_one = 'upper'
str_two = 'case'
str_comb = str_one + str_two
print('upper' + 'case')
print(str_one + str_two)
print(str_comb)
```

What is the output? Try to guess in your mind...

String Formatting with Arithmetic Syntax

- We can use arithmetic operator syntaxes in string formatting operations
- Here are basic operators :

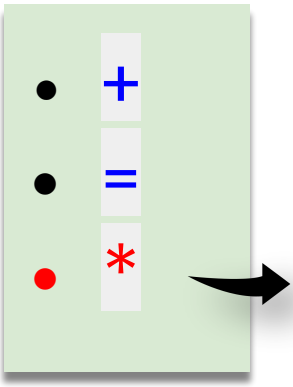



```
str_one = 'upper'
str_two = 'case'
str_comb = str_one + str_two
print('upper' + 'case')
print(str_one + str_two)
print(str_comb)
```

```
uppercase
uppercase
uppercase
```


String Formatting with Arithmetic Syntax

- Another example :

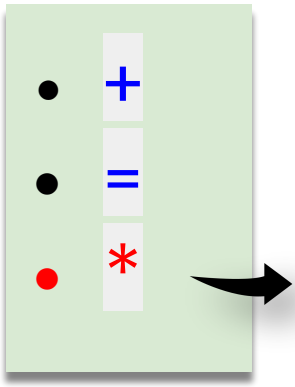



```
str_one = 'upper'
str_two = 3 * 'upper'
str_comb = str_one * 3
print(str_two)
print(str_comb)
print(* str_one)
```

What is the output? Try to guess in your mind...

String Formatting with Arithmetic Syntax

- Another example :

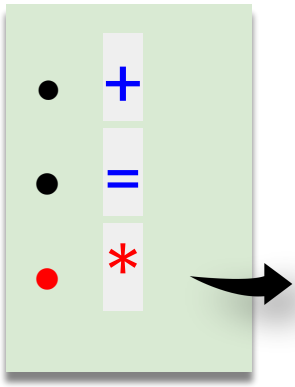



```
str_one = 'upper'
str_two = 3 * 'upper'
str_comb = str_one * 3
print(str_two)
print(str_comb)
print(* str_one)
```

```
upperupperupper
upperupperupper
u p p e r
```


String Formatting with Arithmetic Syntax

- Another example :




```
str_one = 'upper'
str_two = 3 * 'upper'
str_comb = str_one * 3
print(str_two)
print(str_comb)
print(* str_one)
```

Separates the string into its elements

```
upperupperupper
upperupperupper
u p p e r
```

String Formatting with Arithmetic Syntax

- Separate these strings into its characters using👉 `*` :

```
string_1 = 'I am angry...'

string_2 = '1453'

'joseph@clarusway.com'  # Do not use variable
```


String Formatting with Arithmetic Syntax

- The output :

```
string_1 = 'I am angry...'
print(* string_1)
string_2 = '1453'
print(* string_2)
'joseph@clarusway.com'  # Do not use variable
print(* 'joseph@clarusway.com')
```

```
I   a m   a n g r y . . .
1 4 5 3
j o s e p h @ c l a r u s w a y . c o m
```

String Formatting with Arithmetic Syntax

- The output :

```
string_1 = 'I am angry...'
str1     = 1453

'jos  h@clarusway.com'  # Do not use variable
```

How many *space* chars here?

```
I   a m   a n g r y . . .
1 4 5 3
j o s e p h @ c l a r u s w a y . c o m
```


String Formatting with Arithmetic Syntax

- Another example :

- +
- =
- *

```
str_one = 'upper'
str_one += 'case'
print(str_one)
str_one += 'letter'
print(str_one)
str_one += 'end'
print(str_one)
```

What is the output? Try to guess in your mind...

String Formatting with Arithmetic Syntax

- Another example :

- +
- =
- *

```
str_one = 'upper'
str_one += 'case'
print(str_one)
str_one += 'letter'
print(str_one)
str_one += 'end'
print(str_one)
```

```
uppercase
uppercaseletter
uppercaseletterend
```

```
str1 = str1 + str
str1 += str
```

```
str1 = str1 * 2
str1 *= 2
```


String Formatting

String Formatting with `string.format()` Method

String Formatting with `string.format()` Method

- The formula syntax 👇

```
'string {} string {} string'.format(data1, data2)
```


String Formatting with `string.format()` Method

- Take a look at the example 👇

```
1  fruit = 'Orange'
2  vegetable = 'Tomato'
3  amount = 4
4  print('The amount of {} we bought is {} pounds'.format(fruit, amount))
5
```

What is the output? Try to guess in your mind...

String Formatting with `string.format()` Method

- Take a look at the example 👇

```
1  fruit = 'Orange'
2  vegetable = 'Tomato'
3  amount = 4
4  print('The amount of {} we bought is {} pounds'.format(fruit, amount))
5
```

```
1  The amount of Orange we bought is 4 pounds
2
```


String Formatting with `string.format()` Method

- Consider this example. 👇

```
1  print('{state} is the most {adjective} state of the {country}'.format(state='California',
       country='USA', adjective='crowded'))
2
```

String Formatting with `string.format()` Method

- Using keywords in 👉 `{}` makes string more readable.

👇

```
print('{state} is the most {adjective} state of the {country}'.format(state='California',
    country='USA', adjective='crowded'))
```

```
California is the most crowded state of the USA
```


String Formatting with `string.format()` Method

Tips:

- If you have noticed, we do not have to write the keywords in `.format()` method in order.

- Mix Use of String Arguments

```
print('{0} is the most {adjective} state of the {country}'.format('California', country
    ='USA', adjective='crowded'))
```

keyword | positional

String Formatting with `string.format()` Method

Tips:

- If you have noticed, we do not have to write the keywords in `.format()` method in order.

- You can combine both the positional and the keyword arguments in the same **`.format()`** method.

```
print('{0} is the most {adjective} state of the {country}'.format('California', country
    ='USA', adjective='crowded'))

```

```
California is the most crowded state of the USA

```


String Formatting with `string.format()` Method

- Usage of `string.format` method.

```
print("{}-{}-{}".format("12", "Feb", "Feb"))
print("{no}-{month}-{month}".format(no="12", month="Feb"))

```

```
print("{6} {5} {0} {1} {3} {4} {2}".format("a new", "job", "months", "in", 6, "have started", "I
    will"))
```

String Formatting with `string.format()` Method

- Usage of `string.format` method.

```
1 print("{}-{}-{}".format("12", "Feb", "Feb"))
2 print("{no}-{month}-{month}".format(no="12", month="Feb"))
3
```

Output

```
12-Feb-Feb
12-Feb-Feb
```

```
1 print("{6} {5} {0} {1} {3} {4} {2}".format("a new", "job", "months", "in", 6, "have started", "I
    will"))
```

Output

```
I will have started a new job in 6 months
```


String Formatting with `string.format()` Method

- **Task :**
  - To print the statement of "`generosity wins in all circumstances`", arrange the following code.

```
phrase = '{2} {} {} {}'.format('circumstances', 'in all', 'generosity', 'wins')
print(phrase)
```

String Formatting with `string.format()` Method

- The code should be like that :

```
phrase = '{2} {3} {1} {0}'.format('circumstances', 'in all', 'generosity', 'wins')
print(phrase)
```


String Formatting with `string.format()` Method

- **Task :**
  - To print the statement of "**`generosity wins in all circumstances`**", arrange the following code using both positional and keyword arguments.

```
condition = 'circumstances'
morality = 'generosity'

phrase = '{} {} {} {}'.format('in all', 'wins')
print(phrase)
```

String Formatting with `string.format()` Method

- The code should be like these:

```
phrase = '{morality} {1} {0} {condition}'.format('in all', 'wins', condition =
'circumstances', morality = 'generosity')

print(phrase)
```

or

```
phrase = '{morality} {} {} {condition}'.format('wins', 'in all', condition =
'circumstances', morality = 'generosity')

print(phrase)
```

Try it on Playground...

String Formatting with `string.format()` Method

- **Task :**
  - Let's print the text below using **`.format()`** method **only for numerical** text. Create variables for **numerical values** each. Take the numerical values from variables.

  - **Text** : **"If we had bought $2000 crypto coins at the weekend, we would have had $4,152.32 with a profit share of 11% after 5 days."**

String Formatting with `string.format()` Method

- One of the solutions of the code might be like this:

```
1  main = 2000
2  total = '4,152.32'
3  profit = 11
4  duration = 5
5
6  print('If we had bought ${} crypto coins at the weekend, we would have had ${} with a profit share of {}% after
       {} days.'.format(main, total, profit, duration))
7
```


String Formatting

String Formatting with `f-string`

String Formatting with `f-string`

- The formula syntax 👇

```
f'string {variable1} string {variable2} string'
```


String Formatting with `f-string`

- Take a look at the example 👇

```
1  fruit = 'Orange'
2  vegetable = 'Tomato'
3  amount = 6
4  output = f"The amount of {fruit} and {vegetable} we bought are totally {amount} pounds"
5
6  print(output)
7
```

What is the output? Try to guess in your mind...

String Formatting with `f-string`

- Take a look at the example 👇

```
1  fruit = 'Orange'
2  vegetable = 'Tomato'
3  amount = 6
4  output = f"The amount of {fruit} and {vegetable} we bought are totally {amount} pounds"
5
6  print(output)
7
```

```
1  The amount of Orange and Tomato we bought are totally 6 pounds
2
```


String Formatting with `f-string`

- You can use all valid expressions, variables, and even methods in curly braces. 👇

```
1  sample = f"{2 ** 3}"
2
3  print(sample)
4
5
6
```

What is the output? Try to guess in your mind...

String Formatting with `f-string`

- You can use all valid expressions, variables, and even methods in curly braces. 👇

```
1  sample = f"{2 ** 3}"
2
3  print(sample)
4
5
6
```

Output

```
8
```


String Formatting with `f-string`

- **Task :**
  - Type a Python code to get the output of "`My name is Mariam`", using `.capitalize()` and `f-string` methods with the `name` variable below.

```
name = "MARIAM"
```

You're familiar with `.capitalize()` method from **pre-class** materials

String Formatting with `f-string`

- The code should be like :

```
my_name = 'MARIAM'
output = f"My name is {my_name.capitalize()}"

print(output)

```


String Formatting with `f-string`

- There is also a multiline `f-string` formatting style. 👇

```
name = "Joseph"
job = "teachers"
domain = "Data Science"
message = (
    f"Hi {name}. "
    f"You are one of the {job} "
    f"in the {domain} section."
)
print(message)

```

String Formatting with `f-string`

- There is also a multiline `f-string` formatting style. 👇

```
1  name = "Joseph"
2  job = "teachers"
3  domain = "Data Science"
4  message = (
5        f"Hi {name}. "
6        f"You are one of the {job} "
7        f"in the {domain} section."
8  )
9  print(message)
10
```

⚠️ Pay attention to parentheses

```
1  Hi Joseph. You are one of the teachers in the Data Science section.
2
```


String Formatting with `f-string`

- You can use backslash 👉 `\` between lines. 👇

```
1  name = "Joseph"
2  job = "teachers"
3  domain = "Data Science"
4  message = f"Hi {name}. " \
5        f"You are one of the {job} " \
6        f"in the {domain} section."
7
8  print(message)
9
```

String Formatting with `f-string`

- The output :

```
name = "Joseph"
job = "teachers"
domain = "Data Science"
message = f"Hi {name}. " \
      f"You are one of the {job} " \
      f"in the {domain} section."

print(message)
```

```
Hi Joseph. You are one of the teachers in the Data Science section.
```


String Formatting with `f-string`

- **Task :**
  - Type a Python code to get the output of "`Susan is a young lady and she is a student at the CLRWY IT university.`", using `f-string` in *multiline* with the `variables` below.

```
name = "Susan"
age = "young"
gender = "lady"
school = "CLRWY IT university"
```

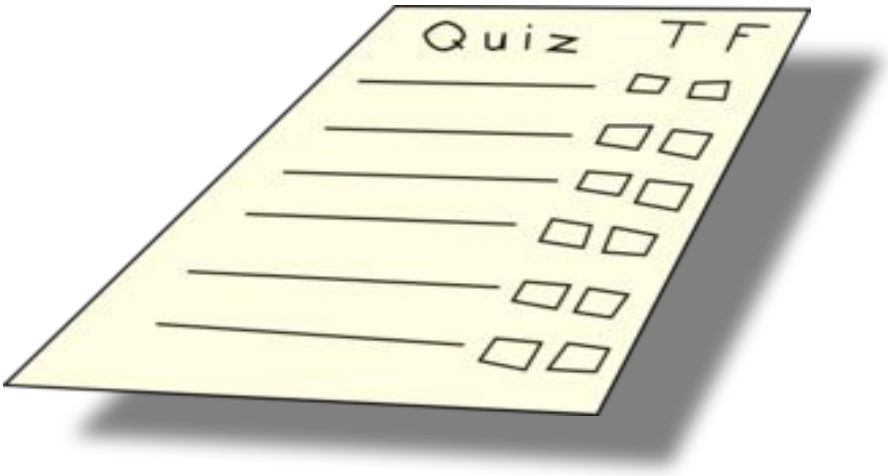
String Formatting with `f-string`

- The code should be like :

```
1  name = "Susan"
2  age = "young"
3  gender = 'lady'
4  school = "CLRWY IT university"
5
6
7  output = (
8      f"{name} is a {age} "
9      f"{gender} and she is a student "
10     f"at the {school}."
11     )
12
13 print(output)
14
```


Indexing&Slicing Strings

- **Task**
  - First, Login to your LMS,
  - Then, click **here** to complete and submit the task.



String Formatting with `string.format()` Method

- **Task**
  - First, Login to your LMS,
  - Then, click **here** to complete and submit the task.

String Formatting with `f-string()` Method

- **Task**
  - First, Login to your LMS,
  - Then, click **here** to complete and submit the task.