The Strength of the String

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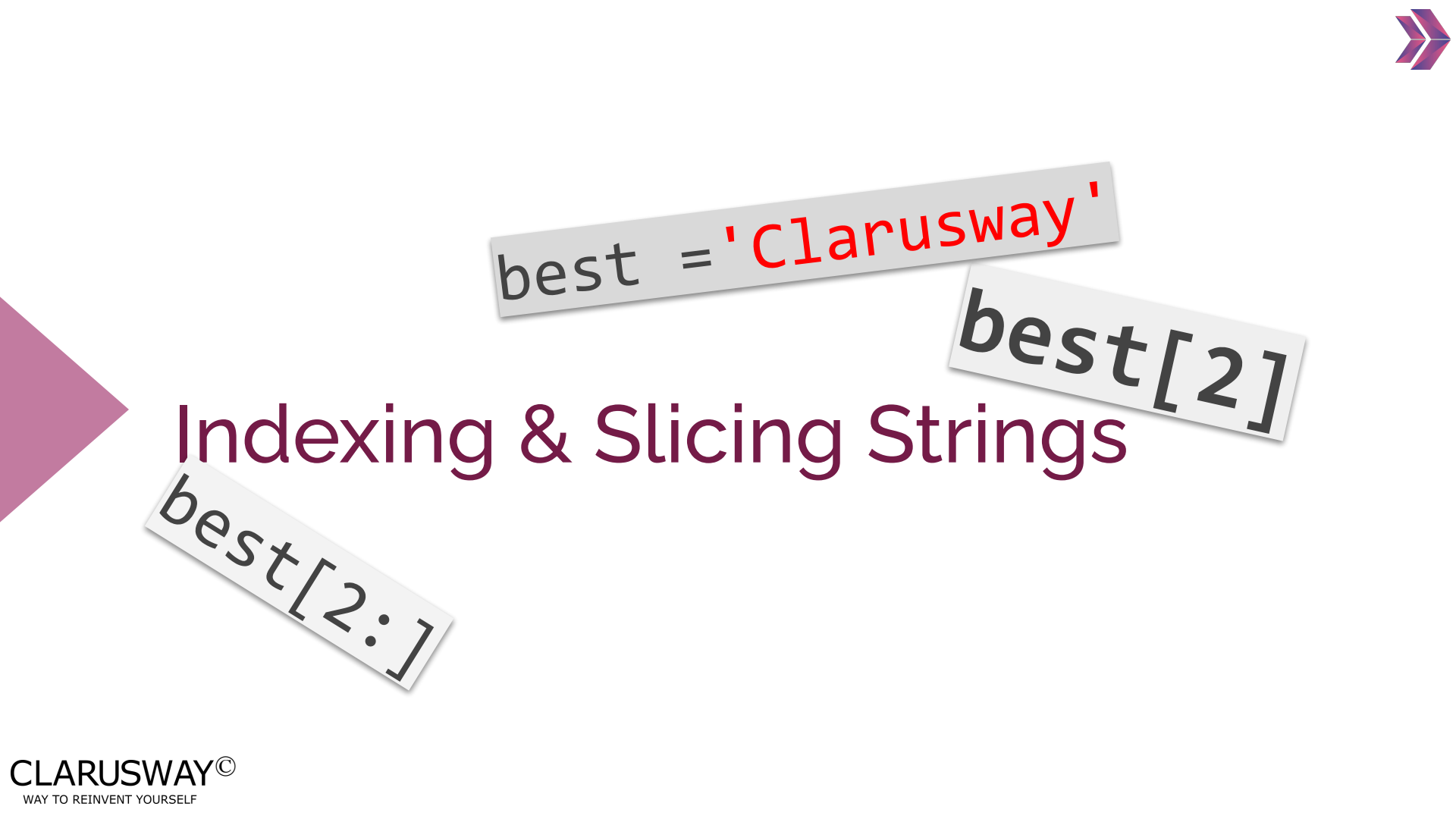
How was the pre-class content? Did you get it?

Students, drag the icon!


best ='Clarusway'
best[2]
Indexing & Slicing Strings
best[2:]

Indexing&Slicing Strings

- Let's elaborate on this example :

```
1  fruit = 'Orange'
2
3  print('Word                 : ' , fruit)
4  print('First letter         : ' , fruit[0])
5  print('Second letter        : ' , fruit[1])
6  print("3rd to 5th letters   : " , fruit[2:5])
7  print("Letter all after 3rd : " , fruit[2:])
8
```

Indexing&Slicing Strings

- Let's elaborate on this example :

```
1  fruit = 'Orange'
2
3  print('Word                 : ' , fruit)
4  print('First letter         : ' , fruit[0])
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8
```

```
1  Word                 :  Orange
2  First letter         :  O
3  Second letter        :  r
4  3rd to 5th letters   :  ang
5  Letter all after 3rd :  ange
6
```

Indexing&Slicing Strings

- Let's elaborate on this example :

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

```
1  fruit = 'Orange'
2
3  print('Word                 : ' , fruit)
4  print('First letter         : ' , fruit[0])
5  print('Second letter        : ' , fruit[1])
6  print("3rd to 5th letters   : " , fruit[2:5])
7  print("Letter all after 3rd : " , fruit[2:])
8
```

```
1  Word                 :  Orange
2  First letter         :  O
3  Second letter        :  r
4  3rd to 5th letters   :  ang
5  Letter all after 3rd :  ange
6
```

```
'O r a n g e'
 | | | | | |
 0 1 2 3 4 5
```

Indexing&Slicing Strings

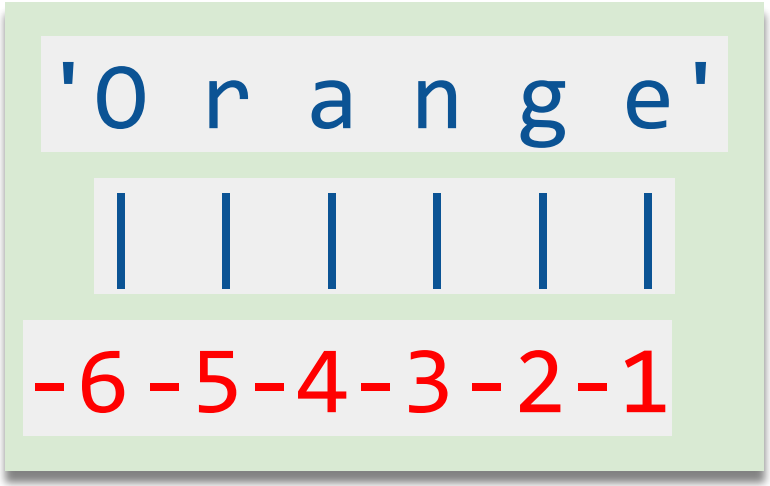
Here is an example of *Pre-Class* content:

```
1  city = 'Phoenix'
2
3  print(city[1:])  # starts from index 1 to the end
4  print(city[:6])  # starts from zero to 5th index
5  print(city[::2])  # starts from zero to end by 2 step
6  print(city[1::2])  # starts from index 1 to the end by 2 step
7  print(city[-3:])  # starts from index -3 to the end
8  print(city[::-1])  # negative step starts from the end to zero
9
```

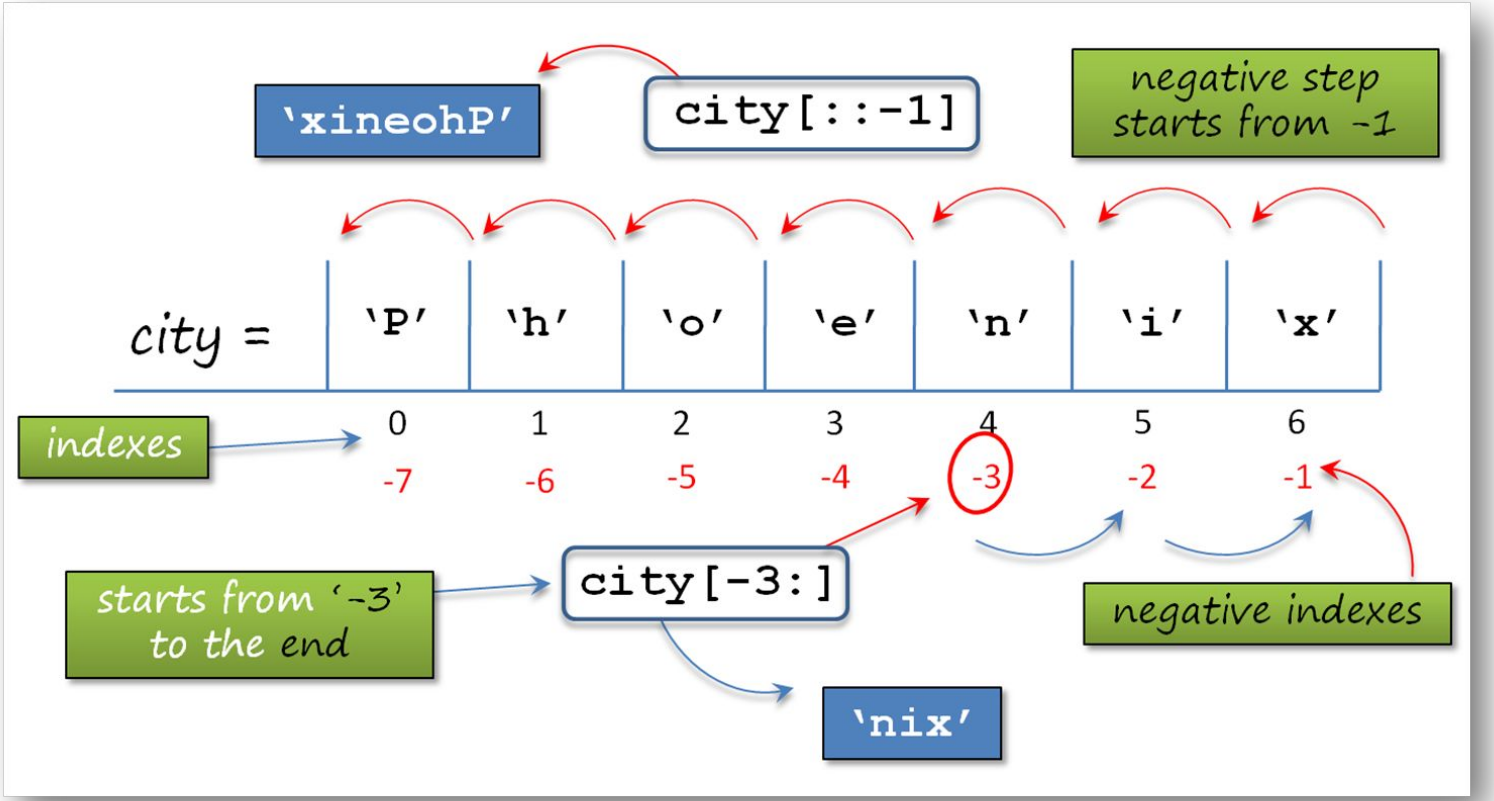
```
1  hoenix
2  Phoeni
3  Ponx
4  hei
5  nix
6  xineohP
7
```

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...

Students, write your response!

```
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
```

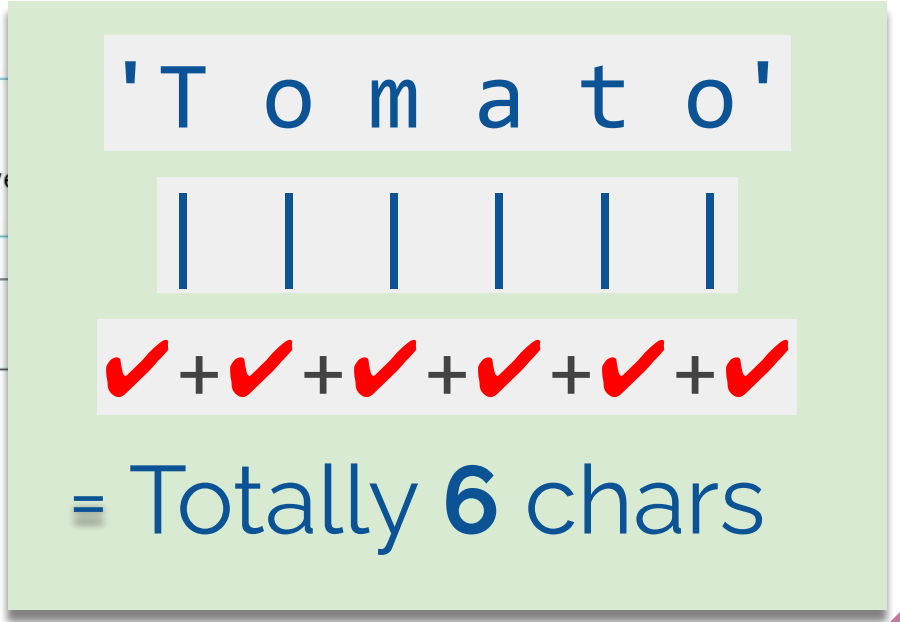
What is the output? Try to guess in your mind...

Indexing&Slicing Strings

- The output :

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

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



String Formatting

String Formatting with Arithmetic Syntax

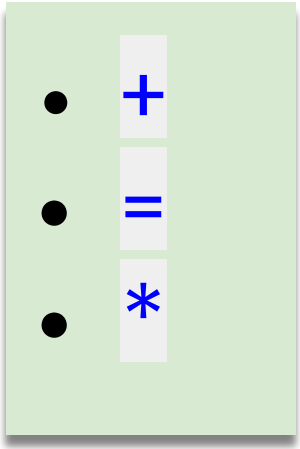
Stretch Break!

Let's take 1 minute to stretch our necks

Students, follow the instructions on the slide

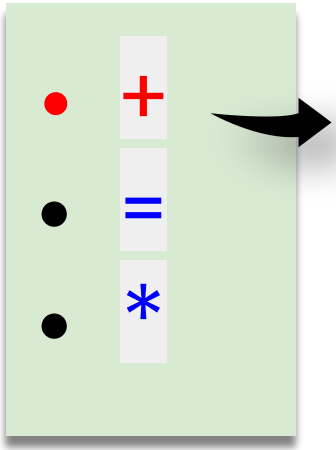
String Formatting with Arithmetic Syntax

- Here are basic operators :



String Formatting with Arithmetic Syntax

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

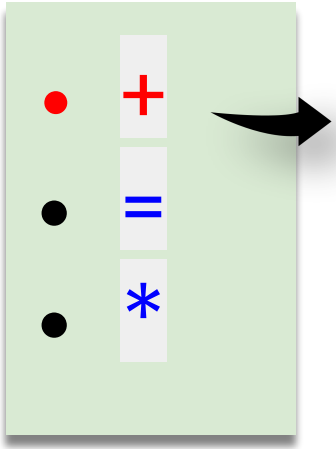



```
str_one = 'upper'
str_two = 'case'
str_comb = str_one + str_two
print('upper' + 'case')
print(str_one + str_two)
print(str_comb)
```

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 :

- +
- =
- *

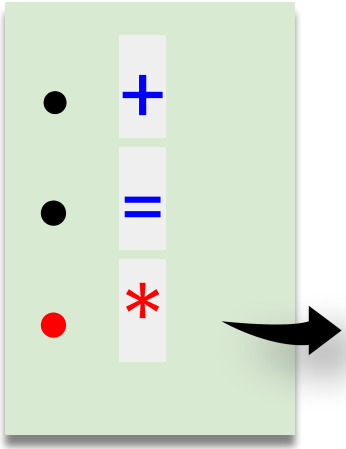
```
str_one = 'upper'
str_two = 3 * 'upper'
str_comb = str_one * 3
print(str_two)
print(str_comb)
print(* str_one)
```

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

Students, write your response!

String Formatting with Arithmetic Syntax

- Another example :

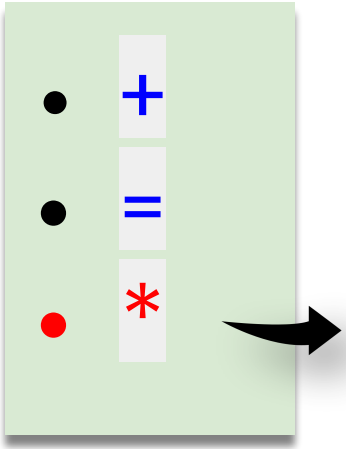



```
str_one = 'upper'
str_two = 3 * 'upper'
str_comb = str_one * 3
print(str_two)
print(str_comb)
print(* str_one)
```

```
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

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

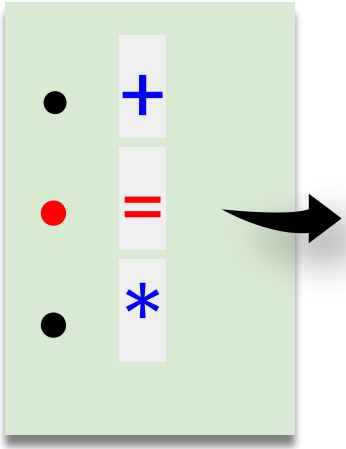
How many *space* chars here?

```
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
```

Students, write your response!

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

- Usage of `string.format` method.

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

```
1  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

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 :

```
1  my_name = 'MARIAM'
2  output = f"My name is {my_name.capitalize()}"
3
4  print(output)
5
6
7
```

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
```

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.