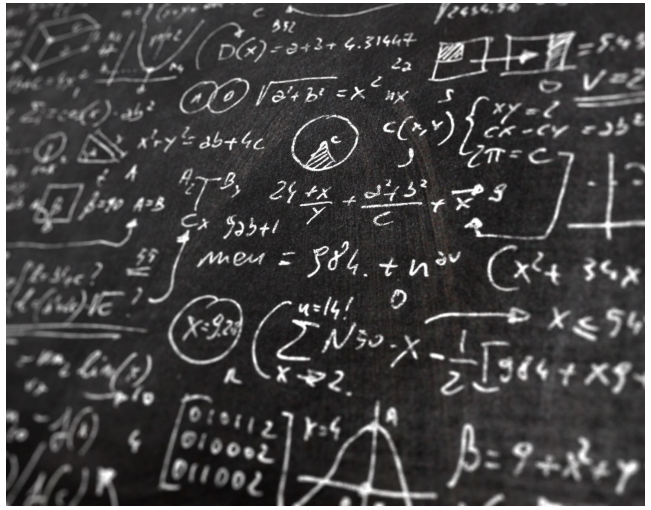


UCL

COMP0015: Introduction to Programming

T2 22-23

Week 5

Strings


```
greeting = "H3llo World!"

if '3' in greeting:
    print("The '3' appears in ", greeting)
```

```
name = "John Smith"
uppercaseName = name.upper()
```

Note: None of the method calls change the content of the string on which they are invoked.

A complete list of string methods can be found in the Python documentation

Lists

- Find, use the `in` operator:

```
if "Cindy" in friends :
   print("She's a friend")
```

- Append

```
friends = []

friends.append("Harry")
friends.append("Emily")
friends.append("Bob")
friends.append("Cari")
```

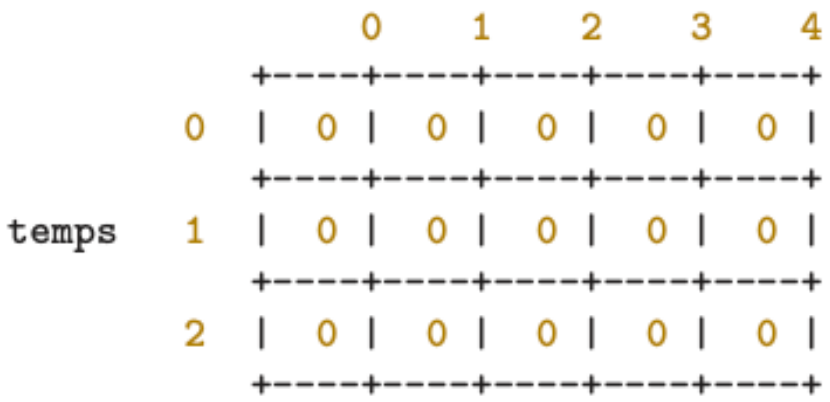
- Insert

```
friends = ["Harry", "Emily", "Bob", "Cari"]
friends.insert(1, "Cindy") # add an element in the 1st position
friends.insert(5, "Bill")  # Same as append
```

```
# A doctor has 10 patients
patientAgeList = [2, 5, 92, 27, 73, 14, 58, 44, 67, 10]

# Remember, count elements from 0

# Print the first 4 elements in the list
print("First 4 patients: ", patient[0:4])

# print the last 4 elements in the list
print("Last 4 patients: ", patient[-4:])
```

Lists

```
>>> # create list of the squares of 1-5 using list comprehension
>>> nums1 = [1, 2, 3, 4, 5]
>>> nums2 = [n * n for n in nums1]
>>> nums2
[1, 4, 9, 16, 25]

>>> # create a multi-dimensional list (first syntax)
>>> temps = [[0, 0, 0, 0, 0],
             [0, 0, 0, 0, 0],
             [0, 0, 0, 0, 0]]
>>>
>>> # create a multi-dimensional list (second syntax)
>>> temps = [[0] * 5, [0] * 5, [0] * 5]
```



In a jagged list, the number of columns varies from row to row.

Tuples

A tuple is special type of list that you can't change. It's immutable. Tuples are often used to provide multiple return values from a function.

```
myTuple = (5, 10, 15)

# If you prefer, you can omit the parentheses:

anotherTuple = 5, 10, 15
```

```
# Use square brackets for accessing elements
element = myTuple[1]

# Find the number of elements with the len function.
lengthOfTuple = len(myTuple)

# Iterate over the elements of a tuple using for loops.
for thing in myTuple:
    print(thing)

# Test for members using the in and not in operators
if myNumber not in myTuple:
    print("Not found.")
```

Quiz 4

Write a function combine that accepts two one-dimensional lists of integers as parameter and returns another one-dimensional list whose element at ith position is the sum of the ith elements of the two input lists.

If one of the lists is shorter than the others, then your function should consider the "missing" elements to be 0.

Here are some example calls to the function and expected return results:

Function call	Value returned
`combine([2, 8, 9], [-12, 3, 19])`	`[-10, 11, 28]`
`combine([], [-12, 3, 19])`	`[-12, 3, 19]`
`combine([3, 8, 9, 24], [-12, 3, 19])`	`[-9, 11, 28, 24]`
`combine([2, 8, 9], [-10, 13, 9, 57, -74, 0])`	`[-8, 21, 18, 57, -74, 0]`

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Questions