

Nitty-gritty of Data and Exploratory Analysis with Python 3

Dev Skill Class 2

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Introduction to Advanced Python3:

Input

We can take inputs by using `input()` function in python 3. In python everything we take input is string. We have to change their types as per our need.

Control Flow (If/Else)

```
if condition :  
    Indented Statement Block for True Condition  
else:  
    Indented Statement Block for False Condition
```

List Comprehensions:

List comprehensions is a pythonic way of writing a 'For Loop' that appends to a list in a single line of code. It is Python's way of implementing a well-known notation for sets as used by mathematicians.

Basic syntax for python list comprehensions is –

[<expression (i)> for i in collection]

[<expression (i)> for i in collection if <condition>]

In mathematics the square numbers of the natural numbers are, for example, created by $\{x^2 \mid x \in \mathbb{N}\}$.
Where $\mathbb{N} = [1,2,3,4,5]$.

Python list comprehension for above expression will be - $[x*x \text{ for } x \text{ in } [1,2,3,4,5]]$.

Exercise:

Conversion of Celsius to Fahrenheit:

Mathematical Formula: $T(^{\circ}\text{F}) = T(^{\circ}\text{C}) \times 9/5 + 32$.

Cartesian product:

Mathematical Formula:

If $A = \{1, 2\}$ and $B = \{\text{'aam', 'kathal'}\}$ then,

$A \times B = \{(x, y) \mid x \in A, y \in B\}$.

Pythagorean Law:

Mathematical Formula:

Right Triangle consists of three positive integers a, b, and c, such that

$$a^2 + b^2 = c^2$$

Working with files

There are mainly 2 kinds of files –

➤ **Text Files**

- ✓ Plain text
- ✓ XML
- ✓ JSON
- ✓ Source Code

➤ **Binary Files**

- ✓ Compiled Code
- ✓ App Data
- ✓ *Media Files*
 - ❖ Images
 - ❖ Audio
 - ❖ Video

For reading and writing files we will use the `open()` function. You can see the parameters by using “***help(open)***” command.

```
open(file, mode='r')
```

We will mainly use 3 modes – r for read, w for write, a for append.