INPUT AND OUTPUT (I/0) OPERATIONS IN PYTHON

DATA TYPES

Integer (int):

- Description: Represents whole numbers (positive or negative) without any decimal points.
- Usage: Commonly used for counting and indexing.
- Example:

```
num_one = 10
num_two = -5
```

Float (float):

- Description: Represents numbers with decimal points or in exponential form.
- Usage: Used for representing real numbers in mathematical calculations.
- Example:

```
pi = 3.14
radius = 2.5
```

String (str):

- Description: Represents sequences of characters (text) enclosed in single or double quotes.
- Usage: Used for handling textual data, such as names, messages, and any other characters.
- Example:

```
name = "Alf the Cloud Guru"
dream = 'My dream is to be the greatest cloud architect in the world and provide everyone a solution using the cloud!'
```

Boolean (bool):

- Description: Represents logical values of True or False.
- Usage: Used for making logical decisions and comparisons.

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- Example:

```python
is_valid = True
is_open = False
is_true = 0 # 0 is considered False
is_false = 1 # Non-zero value is considered True
```

List:

- Description: Represents an ordered and mutable collection of elements. Lists are one of the most commonly used data structures in Python due to their versatility and ease of use.
- Usage: Useful for managing sequences of items where the order matters and items can be modified.
- Example:

```python
even_numbers = [2, 4, 6, 8, 10]
odd_numbers = [1, 3, 5, 7, 9]
names = ["Alf", "AWS", "Cloud Computing"]
```

Tuple:

- Description: Represents an ordered and immutable collection of elements. Tuples are similar to lists, but the key difference is that once a tuple is created, it cannot be modified – elements cannot be added, removed, or changed. Tuples are defined using parentheses '( )'.
- Usage: Suitable for situations where the data should remain constant.
- Example:

```python
coordinates = (3, 4)
rgb_colors = ('red', 'green', 'blue')
```

Dictionary (dict):

- Description: Represents an unordered collection of key-value pairs. Dictionaries are also known as associative arrays or hash maps in other programming languages. They are defined using curly braces '{ }' and consist of key-value pairs separated by colons ':'.

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- Usage: Ideal for storing and retrieving data based on unique keys. Representing JSON-like structures.
- Example:

```python
person_one = {'name': 'Alf', 'age': 0.5, 'gender': 'male'}
person_two = {'name': 'Alfina', 'age': 0.25, 'gender': 'female'}
```