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L5 / Differen... / Understan...

Computer programming is all about processing data. In computer programming, the data is always represented in the binary form (`0's` and `1's`), i.e. groups of **Bits** called as **Bytes**.

In the real world, we come across different types of data like age of a person(**integer**), number of rooms in a house (**integer**), price(**floating-point number**), height (**floating-point number**), Names of people, places and things (**strings**), inventory list (**list**) etc.

Data types categorize data for efficient processing in **Python** and all programming languages. They assign specific characteristics to data, enhancing accuracy and control in operations.

The data type of the data determines :

- [x] In **Python**, we need not specify the data type of the variable.
- [ ] The return type of **type()** function is string.
- [ ] In **Python** we have '**varchar**' data type.
- [x] **type()** function in **Python** is used to know which datatype of value the variable holds.

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L5 / Numbers / Numbers

Numbers

We have three different categories of numbers in **Python**. They are :

1. int
2. float
3. complex

1.**int**:

- It stands for integer. This **Python** data type stores signed integers.
- In **Python** an integer can be of any length, with the only limitation being the available memory.

Example 1:

Number1.py

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```
1  a = 365
2  print(type(a))
3  #Print type of a
4
5  a = 345.65
6  print(type(a))
7  #Print type of a
8
9
10 a = 45 + 5j
11 print(type(a))
12 #Print type of a
13
```

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L5 / Strings / String dat...

In **Python,** a **string** is a sequence of characters enclosed inside a pair of single quotes(') or double quotes("). Even triple quotes (''') are used to represent multi-line strings.

The computer doesn't see letters at all. Every letter you use is represented by a number in memory.

For example, the letter A is actually the number 65. This is called **encoding**. There are two types of encoding for characters – ASCII and Unicode.

ASCII uses 8 bits for **encoding** whereas **Unicode** uses 32 bits. **Python** uses **Unicode** for character representation.

An individual character within a string is accessed using an **index**

- [ ] a = 'A' is a valid character in **Python**.
- [ ] str = 'Welcome to python's world' is a valid string creation.
- [x] Encoding means converting strings of characters into numbers.
- [ ] Triple quotes are used for only multi-line strings.

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