# Today I'll Cover :

1. What are data types?
2. Inbuilt Data Types.
3. Fundamental Data Types.
4. Brief Explanation of Fundamental Data Types


In the name of ALLAH,
the Most Beneficent, the Most Merciful

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# Data Types

1. It represent the type of data present inside a variable.
2. Not required to specify the type explicitly.
3. Based on the value, type allocated automatically.
4. Python is Dynamically typed Language.

# Inbuilt Data Type

- Int
- Complex
- String
- Bytesarray
- List
- Set
- Dict
- Float
- Bool
- Bytes
- Range
- Tupple
- Frozenset
- None

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# Fundamental Data Type

The most basic data types which are used to represent different data during programming are known as fundamental.

5 Fundamental Data Type in Python :-

1. Int
2. Float
3. Complex
4. Boolean
5. String

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# Int

- We can use Int data type to represent integral values.

❖ We can represent Int value in the following way:-

1. Decimal form
2. Binary form
3. Octal Form
4. Hexadecimal Form

# 1. Decimal Form(base-10)

- It is default number system in python
- The allowed digit are: 0 to 9

Eg: a=10

# 2. Binary Form(base-2)

- Literal value should be prefixed with 0b or 0B
- The allowed digit are: 0 & 1

Eg: a=0b1111,  b=0B111

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# 3. Octal Form(base-8)

- Literal value should be prefixed with 0o or 0O
- The allowed digit are: 0 to 7

Eg: a=0o76, b=0O76

# 4. Hexadecimal Form(base-16)

- Literal value should be prefixed with 0x or 0X (uppercase or lowercase)
- The allowed digit are: 0 to 9, a to f

Eg: a=0Xface,  b=0xfAce

NOTE: Being a programmer we can specify value in decimal, binary, octal and hexadecimal forms. But PVM will always provide value only in decimal form.

# Base Conversions

- Python provide the following in-built functions for base conversion.

❑ bin() :- used to convert any base to binary.

❑ oct() :- used to convert any base to octal

❑ hex() :- used to convert any base to hexadecimal

# Float

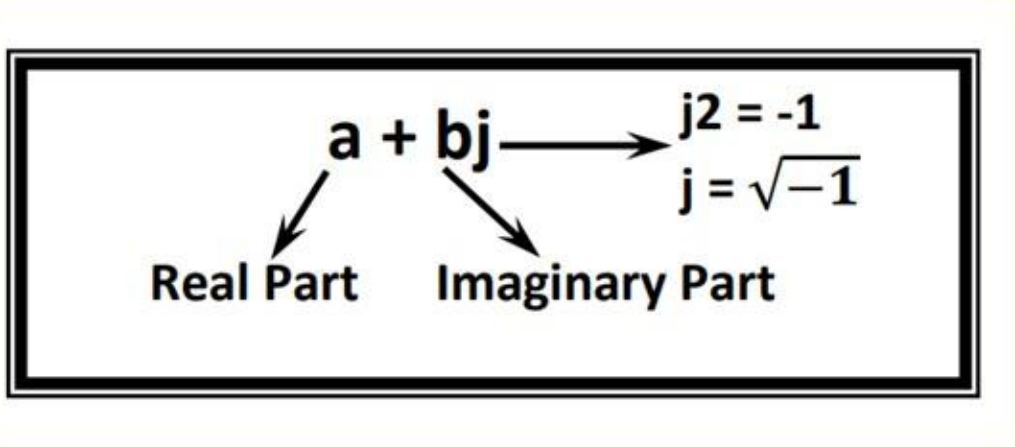
- We can use Float data type to represent floating point values (decimal values) .
- ❖ We can also represent floating point values by using exponential form. We can use letter e or E for that.
- ❖ The main advantage of exponential form is we can represent big values in less memory.

**Note:**

We can represent int values in decimal, octal, binary and hexadecimal forms. But we can represent float values only by using decimal form.

# Complex

A complex number is of the form




a and b contain integer or floating values

- In the real part if we use int value then we can specify that either by decimal, octal, binary, or hexadecimal forms.
- But imaginary part should be specified only by decimal form.
- Complex type generally used in scientific and electrical engineering applications.

Note: Complex data type has some inbuilt attributes to retrieve the real part and imaginary part i.e real, imag.

# Bool

- We can use Bool data type to represent Boolean values.
- True and False are the only allowed values.
- Internally python store True as 1 and False as 0.

# String

- String is a sequence of character enclosed in single, double, triple single and triple double quote.
- We cant represent multi line string with single or double quote, but we can do so with triple single or triple double quote
- We can use single quote inside double quote and vice versa.

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