**Core Python Concepts**

1. Understanding Data Types :
2. **Numeric**:

* **int**: Integer values (e.g., 10, -3).
* **float**: Decimal numbers (e.g., 3.14, -1.0).
* **complex**: Numbers with real and imaginary parts (e.g., 1 + 2j).

1. **Text**:

* **str**: Sequence of characters (e.g., "Hello").

1. **Collections**:

* **list**: Mutable, ordered collection (e.g., [1, 2, 3]).
* **tuple**: Immutable, ordered collection (e.g., (1, 2, 3)).
* **dict**: Key-value pairs (e.g., {"name": "Alice", "age": 25}).
* **set**: Unordered collection of unique elements (e.g., {1, 2, 3}).

1. Python variables and memory allocation.

* Variables:
  + - * Variables are names that refer to memory locations where data is stored.
      * Python allows variables to store any type of value without explicitly declaring its type.
* Memory allocation in python :
* **Heap Memory**:
  + Data (objects) is stored in heap memory.
  + Variables are references (pointers) to these objects.
* **Stack Memory**:
  + Stores references to the objects in heap memory.

1. Python operators: arithmetic, comparison, logical, bitwise.

* **Arithmetic Operators**: Perform mathematical operations (+, -, \*, /, //, %, \*\*).
* **Comparison Operators**: Compare values (==, !=, >, <, >=, <=).
* **Logical Operators**: Combine conditions (and, or, not).
* **Bitwise Operators**: Operate on binary numbers (&, |, ^, ~, <<, >>).