

1.Describe python's built-in data structure?

ANS:

# Inbuilt Data Structures in Python

Python has four basic inbuilt data structures namely Lists, Dictionary, Tuple and Set. These almost cover 80% of the our real world data structures. This article will cover the above mentioned topics.

Above mentioned topics are divided into four sections below.

**Lists:** Lists in Python are one of the most versatile collection object types available. The other two types are dictionaries and tuples, but they are really more like variations of lists.

- Python lists do the work of most of the

collection data structures found in other languages and since they are built-in, you don't have to worry about manually creating them.

- Lists can be used for any type of object, from numbers and strings to more lists.
- They are accessed just like strings (e.g. slicing and concatenation) so they are simple to use and they're variable length, i.e. they grow and shrink automatically as they're used.
- In reality, Python lists are C arrays inside the Python interpreter and act just like an array of pointers.

2. Describe the Python user data structure?

ANS:

A data structure **allows data to be added, removed, stored and maintained in a structured manner**. Python supports two types of data structures: Non-primitive data types: Python has list, set, and dictionary as its non-primitive data types which can also be considered its in-built data structures.

3. Describe the stages involved in writing an algorithm?

ANS:

Three main stages are involved in creating an algorithm: **data input, data processing, and results output**. The order is specific and cannot be changed.

# An Algorithm Development Process

- Step 1: Obtain a description of the problem. This step is much more difficult than it appears. ...
- Step 2: Analyze the problem. ...
- Step 3: Develop a high-level algorithm. ...
- Step 4: Refine the algorithm by adding more detail. ...
- Step 5: Review the algorithm.

4. Outline the components of a good algorithm?

ANS:

## Algorithm Components

- Delay. This is used to buffer a signal so you can time align it to some other operation.
- Attenuate.
- Sliding Window Average.
- Rectify.
- Compression.
- FIR Filter.

5. Describe the tree traversal method?

ANS:

In computer science, tree traversal (also known as tree search and walking the tree) is a form of graph traversal and refers to the process of visiting (e.g. retrieving, updating, or deleting) each node

**in a tree data structure, exactly once.** Such traversals are classified by the order in which the nodes are visited.

6.Explain the difference between inorder and postorder tree traversal?

ANS:

For Inorder, you traverse from the left subtree to the root then to the right subtree. For Preorder, you traverse from the root to the left subtree then to the right subtree. For Post order, you traverse from the left subtree to the right subtree then to the root.