Basic data structures you should know

PYTHON V/S JAVA

| Python	Java
Python is an interpreted language, i.e., it is compiled and executed simultaneously line by line.	Java is both compiled and interpreted language.
Python is dynamically typed and there are no hardcore rules for semi-colon and braces. It works on inundation.	Java is a statically typed programming language. There are hardcore rules for braces and semi-colon.
Python is relatively slower than Java.	Java is faster as compared to Python.
Data science and machine language are made very simple, using Python. Also, it is being used for web development.	It has been in trend for a long time and is vastly used in Android application development, embedded systems, and web applications.
Python developers are less as compared to Java developers that are why are being paid more.	The java pay for beginners is less as compared to python beginners.

@python.advance.projects   ←——————→ Swipe

1 Array

An array is a data structure that contains a group of elements. Typically these elements are all of the same data type, such as an integer or string.
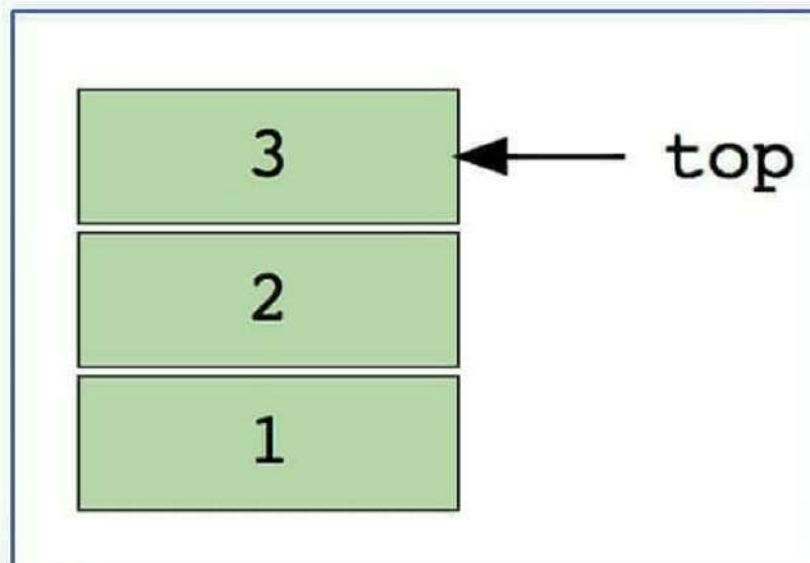
Here's an image of a simple array of size 4, containing elements (1, 2, 3 and 4).

1	2	3	4
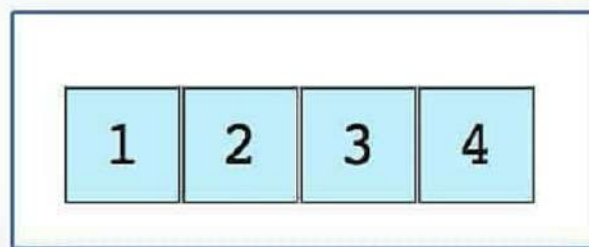
2 Stack

A stack is a data structure used to store a collection of objects. Individual items can be added and stored in a stack using a push operation.

Here's an image of stack containing three data elements (1, 2 and 3), where 3 is at the top and will be removed first:

3 Queues

Queue is another linear data structure that stores the element in a sequential manner.

Here's an image of Queue containing four data elements (1, 2, 3 and 4), where 1 is at the top and will be removed first:

Remove previous elements

1	← Front
2	
3	
4	← Back

**Insert new elements**
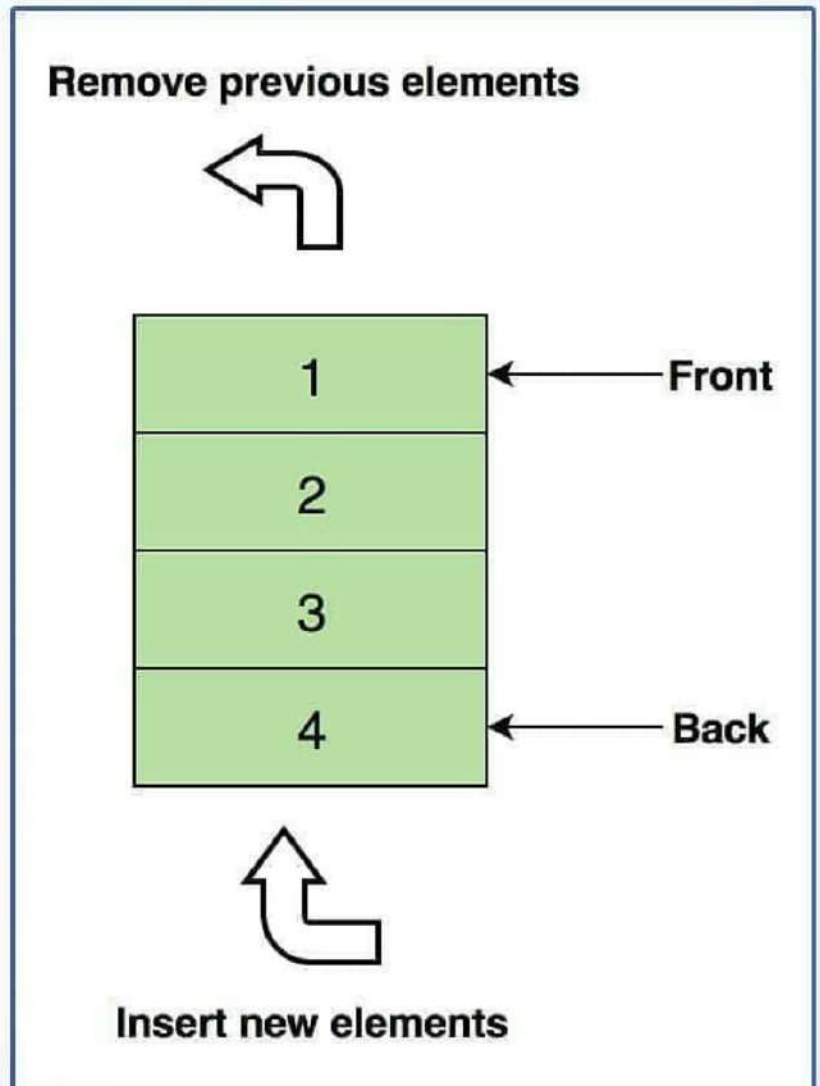
4 Linked List

A linked list is like a chain of nodes, where each node contains information like data and a pointer to the succeeding node in the chain.

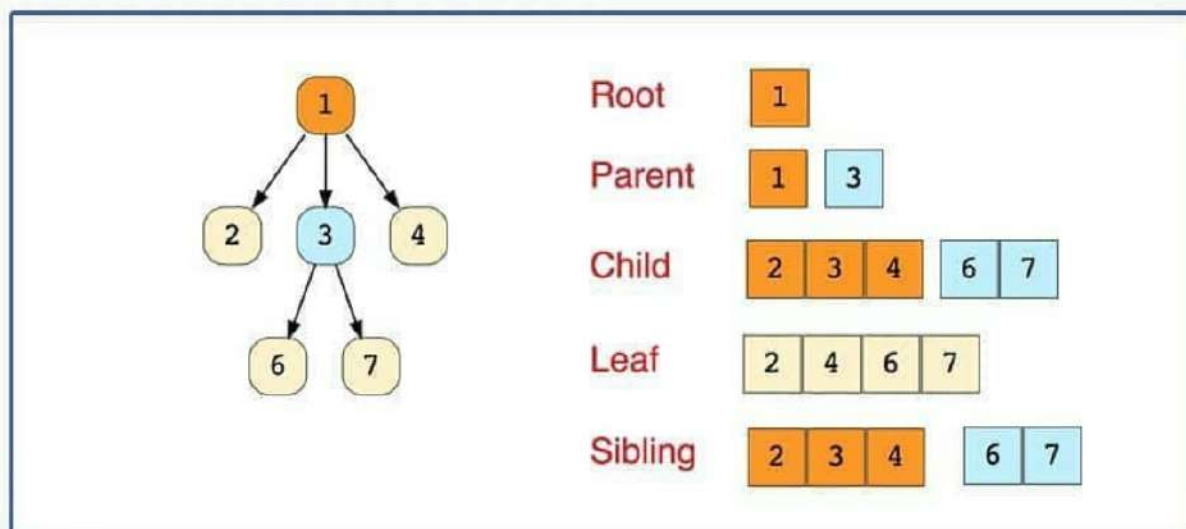Here's a visual representation of the internal structure of a linked list:
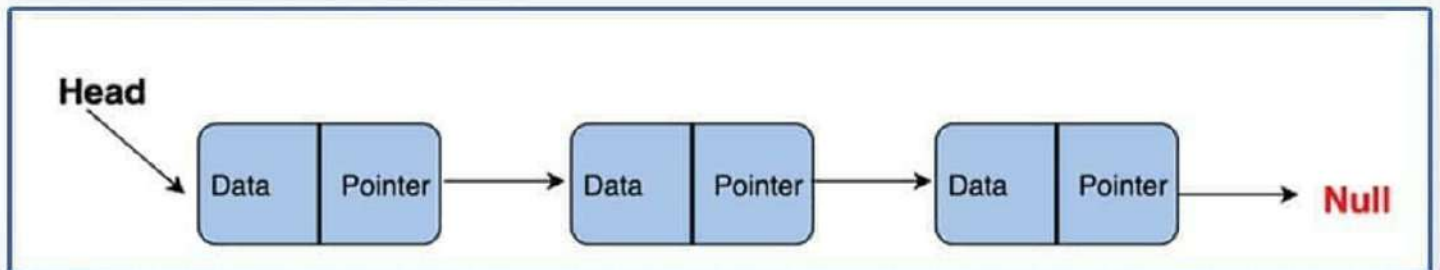
5 Graph

A graph is a set of nodes that are connected to each other in the form of a network. Nodes are also called vertices.
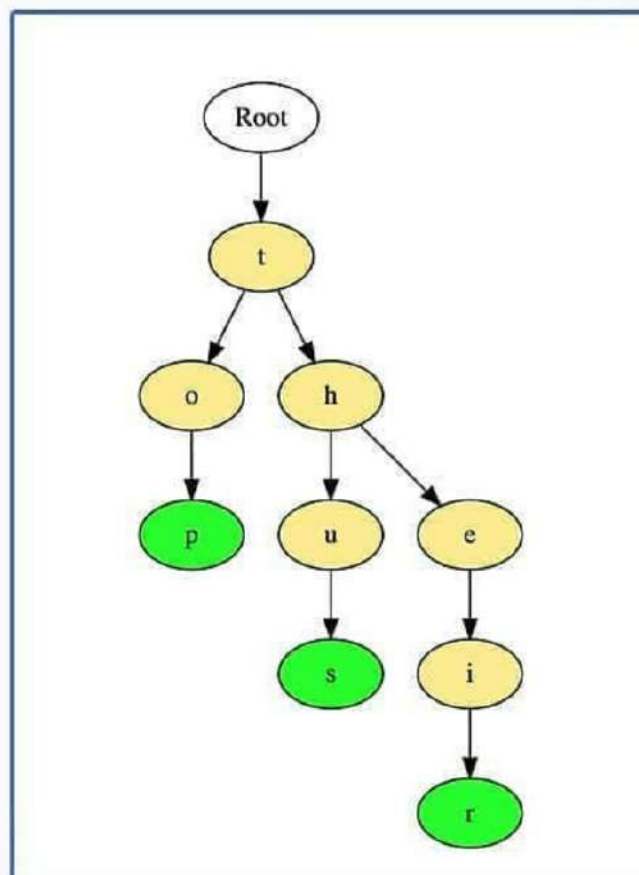

Vertex
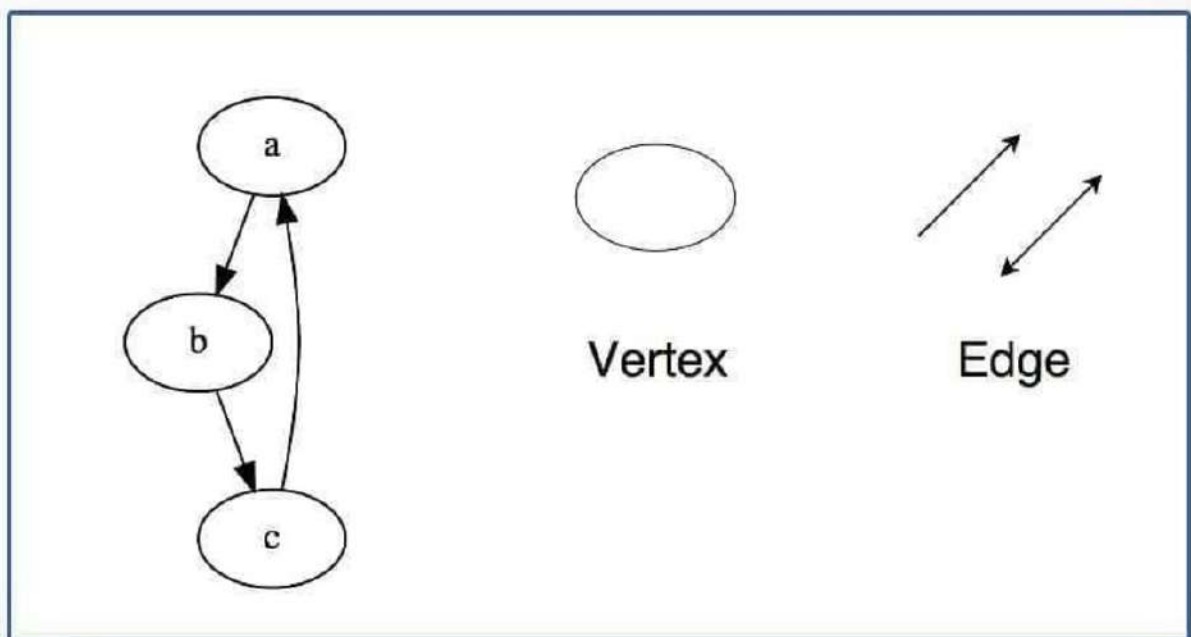
Edge

6 Trees

A tree is a hierarchical data structure consisting of vertices (nodes) and edges that connect them.

7 Trie

It provides fast retrieval, and is mostly used for searching words in a dictionary, providing auto suggestions in a search engine, and even for IP routing.

8 Hash

Hashing is a process used to uniquely identify objects and store each object at some pre-calculated unique index called its "key."

3	<key>	<data>
⋮		
16	<key>	<data>
17	<key>	<data>