**Data Structures**

Array

1. Contiguous
2. Instantly accessible
3. Linear insertion and deletion
4. Unchangeable size after initializing
5. random access data structure

ArrayList

1. Adjustable size

1. Unable to store primitive types
2. Is a class so needs more resources to create and upkeep

Stake

1. sequential data structure
2. LIFO
3. insertion , extraction O(1)

Queue

1. FIFO
2. insertion - O(1)

Linked list

1. Nodes as elements
2. Nodes contain pointers
3. insertion and removal are carried out by changing pointers

Doubly Linked list

1. A node has pointers to the next and previous node

Dictionary, Map

1. hashfunction
2. hash collision
3. accessing - O(1) , O(n) worst case scenario (total collision)
4. key/value pair (entry)

Tree

1. binary tree
2. tries (a),(b)
3. heaps (Min,Max)
4. graphs (directed ,indirected, cyclic, acyclic, weighted )
5. nodes, edges,leaves
6. rules and restrictions
7. Height of a tree, depth of a node