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or per by absolution ab solver a first absorber fr. L absorber fr. fr. of an obligation or the consequences of of an existent whose the capacity of to suck up or take up <a sponge <a href="to-suck up or take up 4 8: 10 receive without recoil sound achierbing surface> b : to into a different form usu, with a orbe carth -- J the sun's rays> 5 MRIME ASSEMILATE Aboved meaning element : to mind) where exempting (as into the substance or mind) and emergics) ASSISTING A STATE OF THE SUBSTANCE OF THE STATE OF THE SUBSTANCE OF THE SU \*\* ABORBENCY 2

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ag or drinking 2: sparingly used or indulged absternious y advantantion. abstentio. fr. L. abstention of abstaining ... ON RIME fr. OF, fr. 1. abstinentia, fr. of abutnerel 1: voluntary forbearance double of abstiners 1: voluntary forbearance from cating some foods and abstaining from intoxicating beverages and labitation abstinently adv 2: habital and abstinently adv disassociated from any specific instance of motors and appropriate instance of motors and appropriate instance of motors. discussion of the state of the nght a concrete poetry is a gar from an on is concrete. Poerry is -> 3 a : dealing and habital appets THEORITICAL C science off ACMID Cthe compassion of a surgeon or only intrinsac form with little or no attempt at ab-stractly ab-strakabstract roose abstractive abstract abstract roose about the sense 2 also above n [ME. fr. L aburdenur] boursk is seen writing) uso presented in skeletal of pants (see of a writing) uso presented in skeletal address trulk or state 3: Abstraction 4 syn see MARKET HE STREET S MAN "ARRIVE MY 3 : REMOVE accounter apair from application to a purticular accounter abuliact of SUMMARIES to consider an abutanct of a summerical at a particular to make an abutanct of a summerical at a particular to make an abutance of a summerical at a summerica one of STEAL PUBLISH - N | 10 make an abstractable Strak-ta-bal, satrak-1 mil ab

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'ab-surd \ob- sord, 'cord\ adj [MV absurde, fr. L absurdus, fr. ab + surdus deal, stupid - more at sump] 1: ridiculously unreasonable, unsound, or incongruous 2: having no rational or orderly relationship to man's life: MEANINGLESS, ulso: lacking order or value 3: dealing with the absurd or with absurdism - ab-surdabsurd a ; the state or condition in which man exists in an trrational and meaningless universe and in which man's life has no ab-surd-ism \siz-om\ n: a philosophy based on the belief that man exists in an irrational and meaningless universe and that his search for order brings him into conflict with his universe compare 13 is 13 compare EXISTENTIALISM - ab-surd-ist \-set\ n or adj ab-sur-di-ty \ob-sord-ot-e. -zord-\ n. pl -ties 1: the quality of state of being absurd: AUSURDNESS 2: something that is absurd absurd theater # : THEATER OF THE ABSURD abub ble \2-bab-al\ adj 1 : being in the process of bubbling : EFFERVESCENT 2: being in a state of agitated activity or motion abuilding >-bil-din adj; being in the process of building or of abun-dance \o-bon-don(t) | n 1: an ample quantity: PROPL SION 2: AFFLUENCE WEALTH 3: relative degree of plentifulness abun-dent don't adj [ME. fr. MF. fr. L abundant, abundans prp. of abundane to abound] 1 a: marked by great plenty (as of prp. of abundane to abound) 1 a: marked by great plenty (as of prp. of abundant abundant b: amply supplied: ABOUNDING Company of the and other natural trout food Alexander of the property of the abundant property of the abund MacDonald> 2: occurring in abundance <- rainfall> syn see PLENTIFUL and scarce - abun-dant-ly adv abundant year # : PERFECT YEAR abuse to byur w abused; abusing [ME abusen, fr. MF abusen fr. L abusus pp of abust, fr. ab. + us to use - more at LSE ] 1 : to attack in words : REVILE 2 obs : DECEIVE 3 : to put to a wrong or improper use <- a privilege> 4: to use so as to injure or damage : MALTREAT <~ a dog> - abus-able \-byu-za-bal \*abuse \2-byus\ n 1 : a corrupt practice or custom 2 improper use or treatment: MISLSI <drug >> 3 obs: a deceitful act: DECEPTION 4: abusive language 5: physical mattreatment SYN ABUSE VITUPERATION, INVECTIVE OBLOOLY, SCURRILITY, BILL GSGA11 shared meaning element: vehemently expressed con-Dictionaries to strike partly fr. OF abuter to come to an end. fr. o. + but end. aim - more at 'sury bury | w 1: to touch along a border or with a projecting part < land ~ 1 on the road> 2 e : to terminate o lean for support ~ w 1: to border abutilon byur I an n NL genus name it Ar a abutilon): any of a genus (Abutilon) of plants of the mallow family with usu lobed leaves and showy solitary bell-shaped flowers abut-ment \2 bot-mont \ n 1: the place at which abutung occurs Z a: the part of a structure that directly receives thrust or pressure (as of an arch) b; an anchorage for the cables of a suspension abut tals \a-bat-lz\ n pl: the boundaries of lands with respect to abut ting adj : that abuts or serves as an abutment : ADICINING. abuzz \2"baz\ adj: filled or resounding with or as if with a buzzing sound <a lake - with outboards> <a town - with excitement> aby or abye (a bit or [ME abien, fr. OE abjectar, fr. a + bjectar, to buy more at auth nev) archaic ; to suffer a penalty for abyem a biz-am a [MI abime to OF abiame, modif of LL ubyssur] : Anyse che dark backward and - of time - Shak > abys-mal \a-biz-mal \ oil/ 1 a : having immense or fathomies. catention downward, backward, or inward can - diff; b immeasurably great : PROPERING - ignorance - the - sufferings of the disposessed > 2 ; ABYSSAL EYR SECONT BUYS met by made adv pME above fr. LL abyses fr. Gk abyses fr. abyses fr. Gk batter deep aliyases bottomiess. It as a flyases depth, akin to Gk batton deep a of a professor - abstract-addy adv - ab A national on faction is back in bake in cast, cart

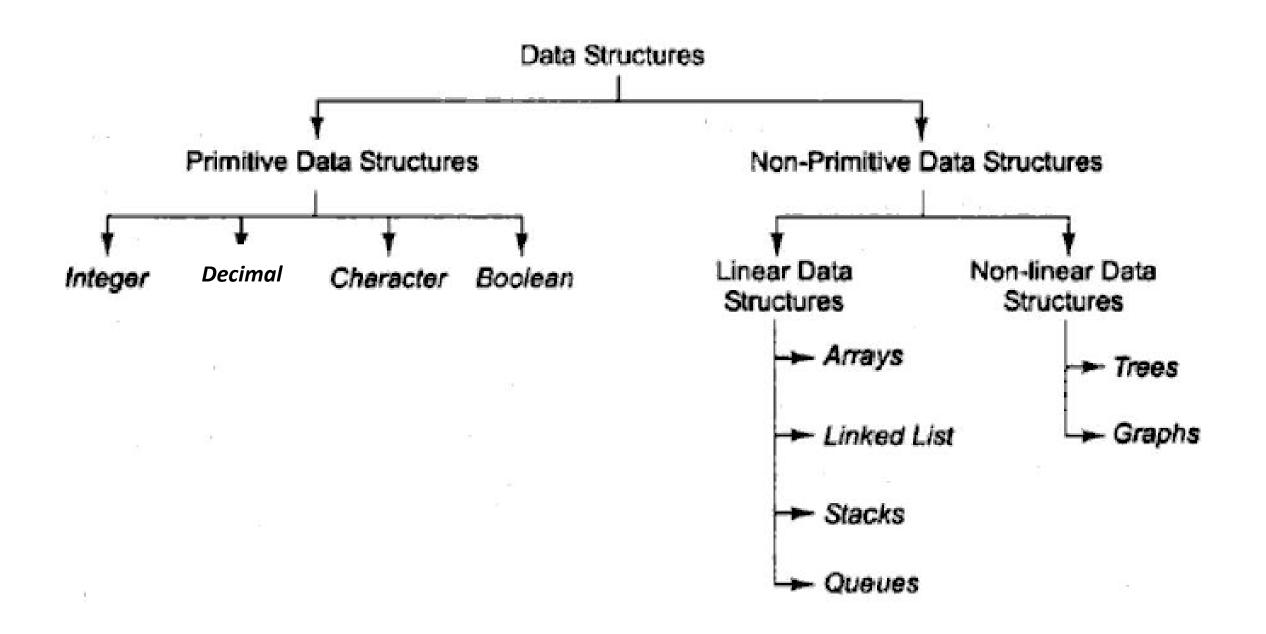




# What makes you to Install an app Or uninstall an app



A data structure is a particular way of organizing data in a computer so that it can be used effectively.





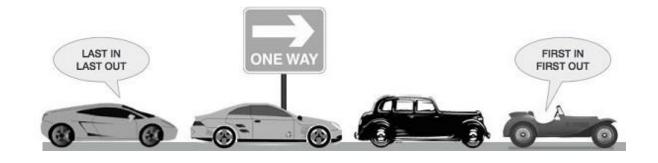






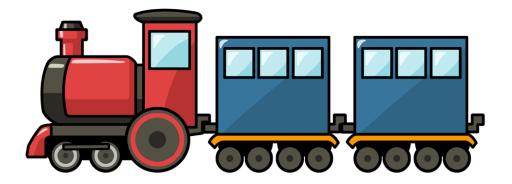


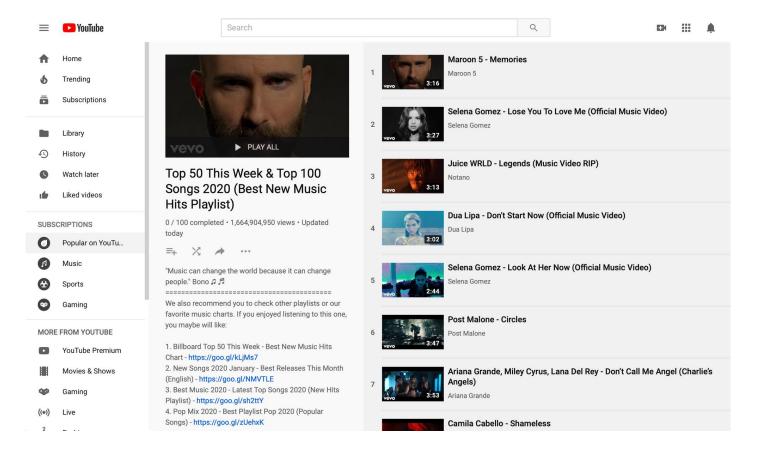




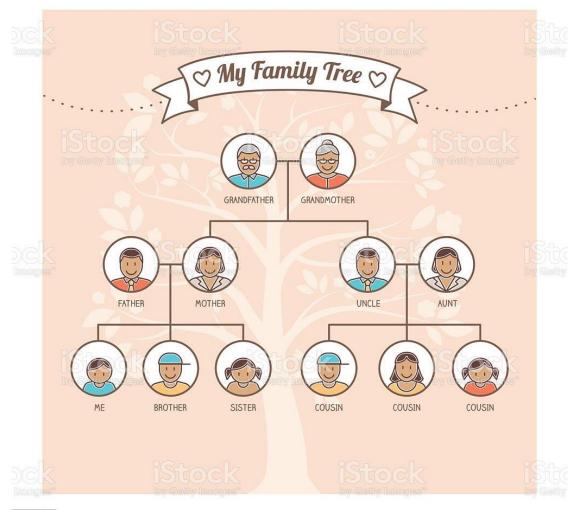


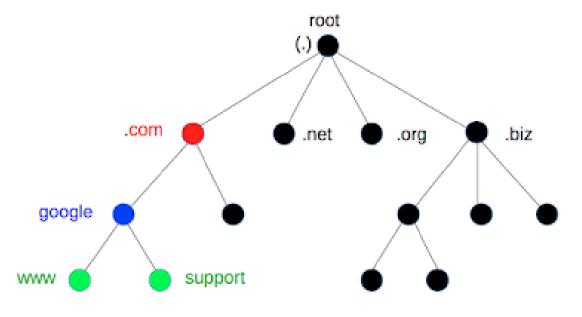






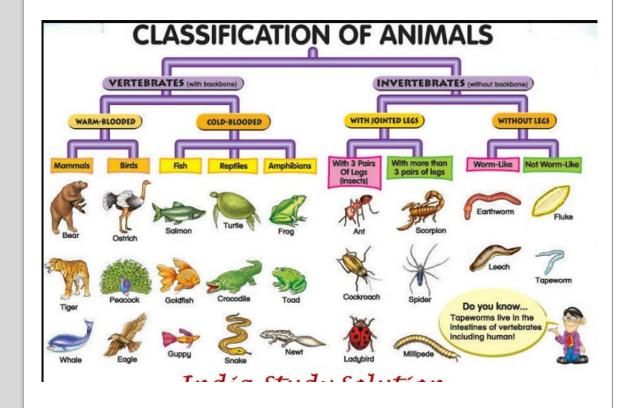


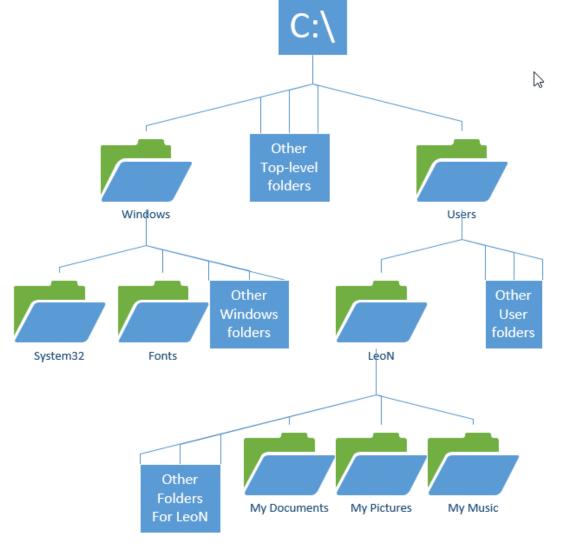


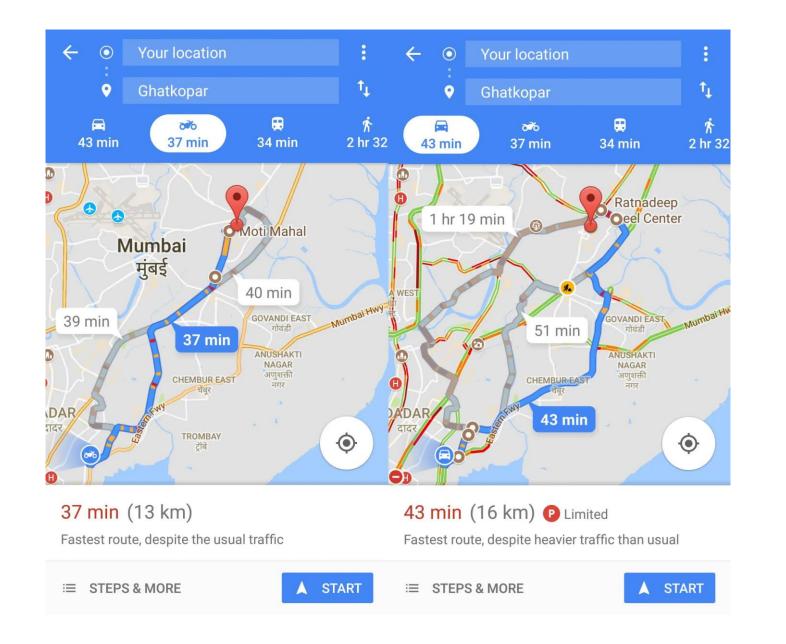


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## Static Data Structure

- In Static data structure the size of the structure is fixed.
- The content of the data structure can be modified but without changing the memory space allocated to it.
- Example: Arrays

# **Dynamic Data Structure**

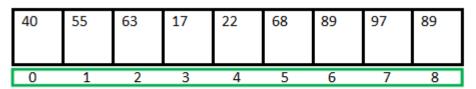
- In Dynamic data structure, the size of the structure is not fixed
- The size can be modified during the operations performed on it.
- The size can be randomly updated during run time which may be considered efficient with respect to memory complexity of the code
- Examples: Linked Lists, Stacks and Queues

Note: We can implement Stack and Queue using LinkedList and Arrays. When we use an array to implement stack and queue, the size will be fixed (static). When we use a linked list to implement stack and queue, it's dynamic in size.

- **Data types** are used to define or classify the type of values a variable can store in it.
- Moreover, it also describes the possible operations allowed on those values.
- For example, the integer data type can store an integer value. Possible operations on an integer include addition, subtraction, multiplication, modulo
- The system provides the implementations for primitive data types.
- For user-defined data types we also need to define operations.
- The implementation for these operations can be done when we want to use them.
- That means, in general, user defined data types are defined along with their operations.
- To simplify the process of solving problems, we combine the data structures with their operations, and we call this **Abstract Data Types (ADTs).**
- An ADT consists of two parts:
  - Declaration of data
  - Declaration of operations
- An ADT specifies what each operation does, but not how it does it.
- Commonly used ADTs include Lists, Stacks, Queues, Priority Queues, Binary Trees, Dictionaries, Disjoint Sets (Union and Find), Hash Tables, Graphs, and many others.

### List ADT

- A list is an ordered collection of the data.
  - For example Arrays, ArrayList and LinkedList.
- Common operations of List ADT are:
  - Creating a list
  - Checking if a list is empty or not
  - Inserting an element
    - at the Beginning
    - at the End
    - at the given i<sup>th</sup> position
  - deleting an element
    - at the Beginning
    - at the End
    - at the given i<sup>th</sup> position
  - Traversing through the whole list
  - Searching for an element in the list, etc

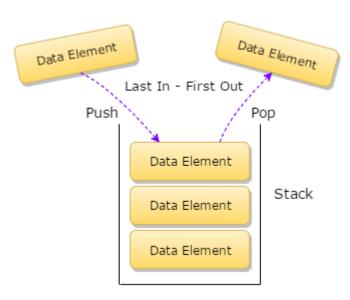


<- Array Indices

Array Length = 9
First Index = 0
Last Index = 8

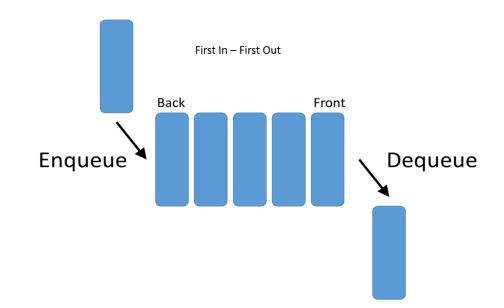
# Stack ADT

- Stack follows the principle of LIFO (Last-in, First-out)
- A stack has two core operations: Push and Pop.
  - Push operation inserts an element to the top of the stack.
  - Pop operation removes the element from the top of the stack.
- Common operations of Stack ADT are:
  - Creating a stack
  - Checking if stack is empty or not
  - Pushing an element onto the stack
  - popping an element from stack,
  - finding the current top of the stack,
  - finding number of elements in the stack, etc



# **Queue ADT**

- Queue follows the principle of FIFO (first-in, first-out)
- A queue has two core operations: Enqueue and Dequeue.
  - Enqueue operation inserts an element to the rear of the queue.
  - **Dequeue** operation deletes an element from the front of the queue.
- Common operations of Queue ADT are
  - Creating a queue
  - Checking if queue is empty or not
  - Enqueue an element to the queue
  - Dequeue an element from the queue,
  - finding number of elements in the queue, etc.



### Advantages of Data Structure:

The following are the advantages of a data structure:

- **1. Efficiency:** If the choice of a data structure for implementing a particular ADT is proper, it makes the program very efficient in terms of time and space.
- **2. Reusability:** The data structure provides reusability means that multiple client programs can use the data structure.
- **3. Abstraction:** The data structure specified by an ADT also provides the level of abstraction. The client cannot see the internal working of the data structure, so it does not have to worry about the implementation part. The client can only see the interface