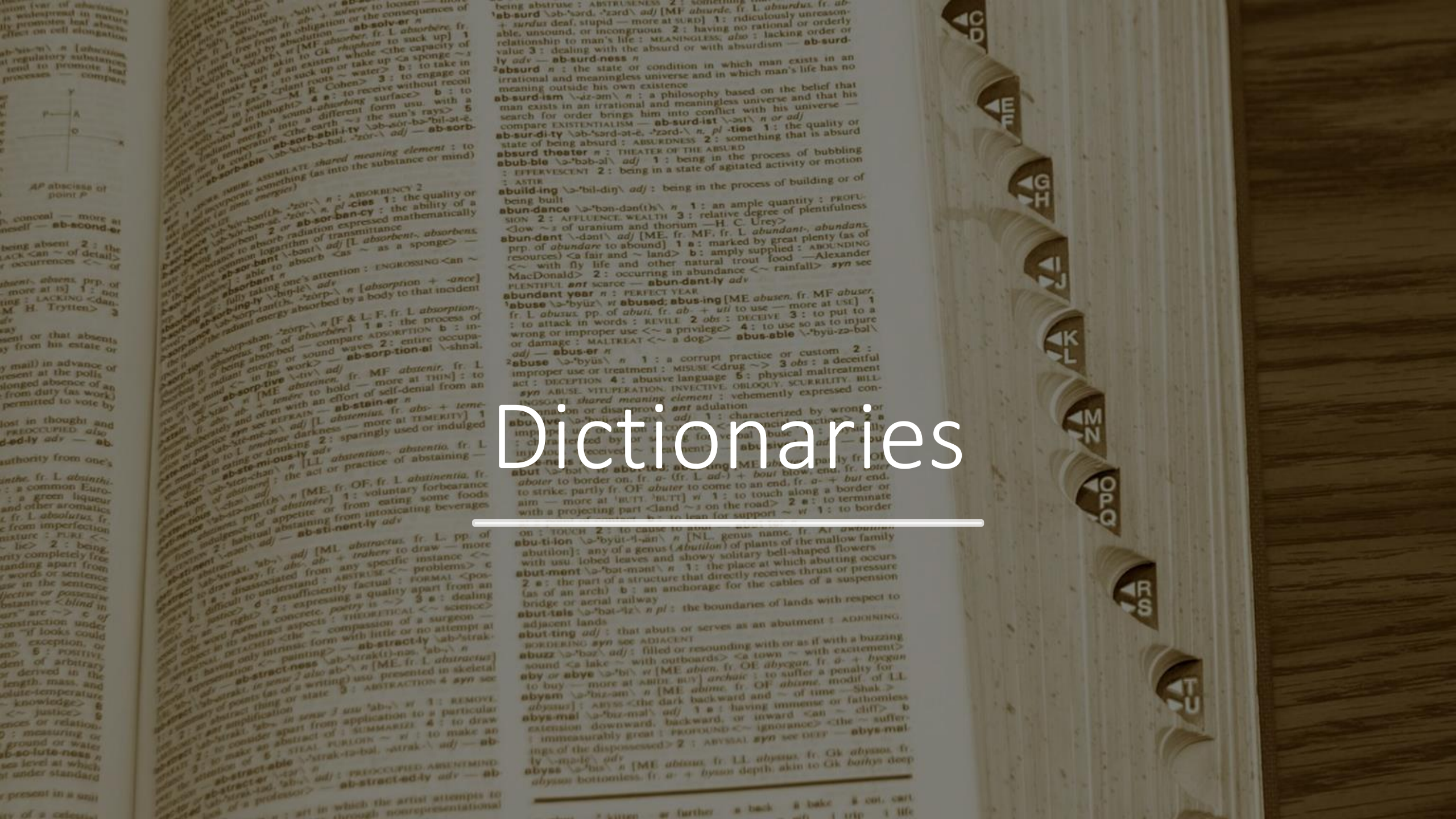
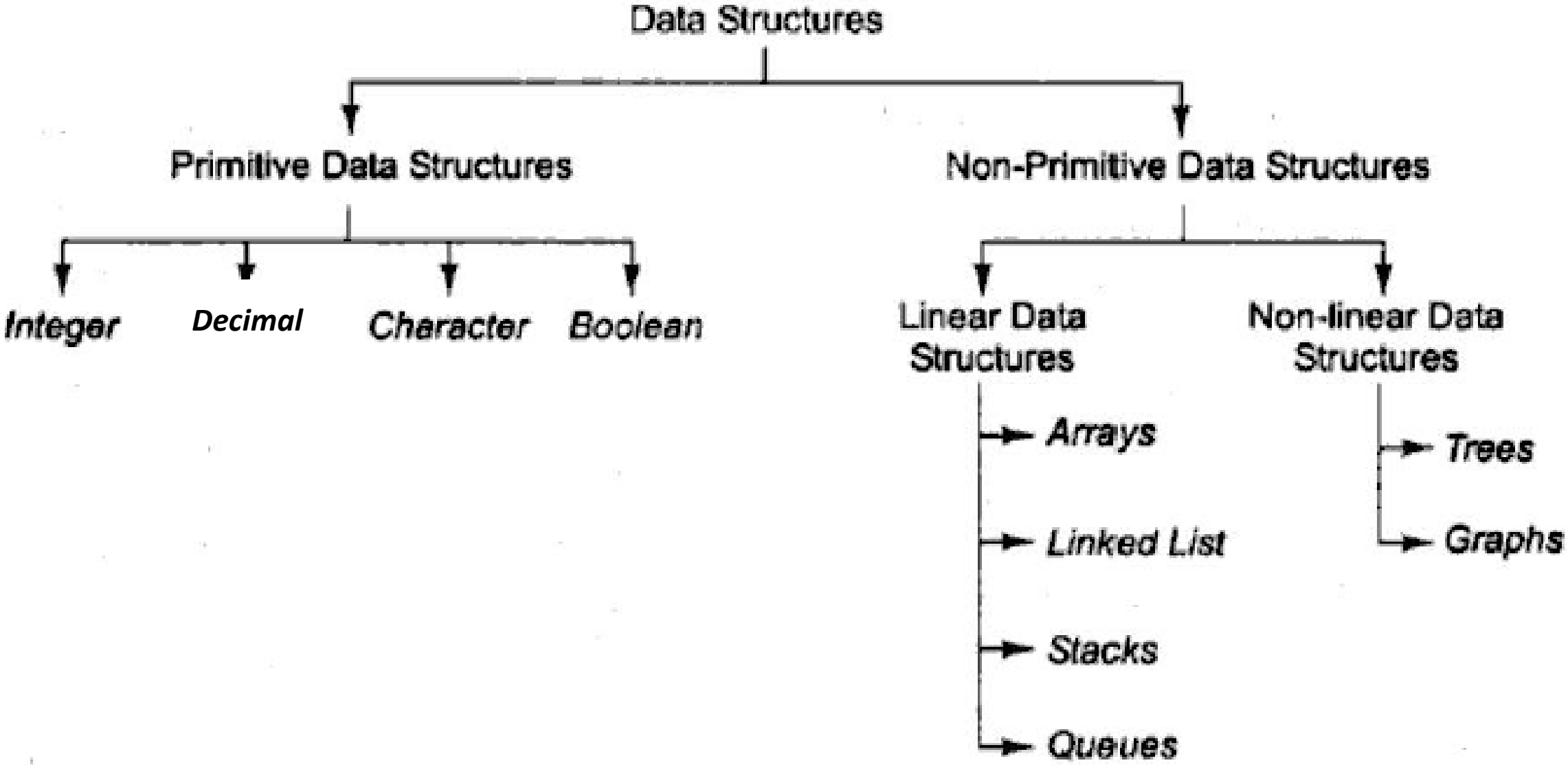

Have you been to Library


Dictionaries

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.

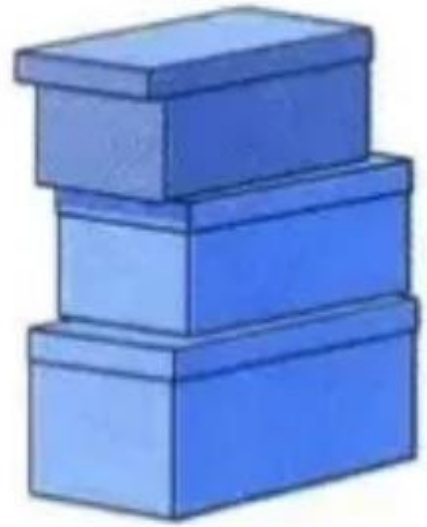

Data Structures
Primitive Data Structures
Non-Primitive Data Structures
Integer
Decimal
Character
Boolean
Linear Data Structures
Non-linear Data Structures
Arrays
Linked List
Stacks
Queues
Trees
Graphs


PARLE
BakeSmith
MARIE
The English Marie
LIGHT & CRISPY
MARIE

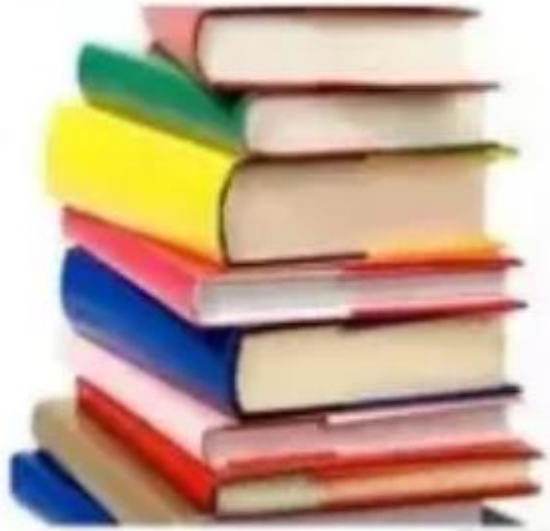
A stack of cafeteria trays

A stack of pennies

A stack of shoe boxes

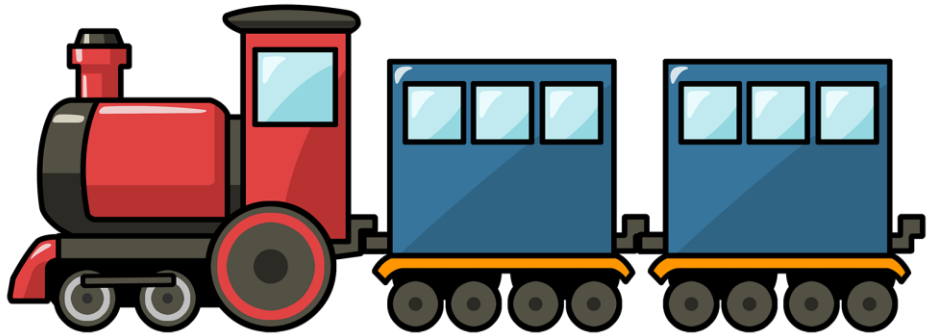


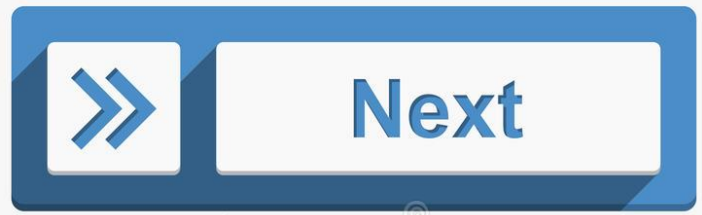
A stack of neatly folded shirts




LAST IN
LAST OUT
ONE WAY
FIRST IN
FIRST OUT


HORRO
TICKETS





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Sports
Gaming

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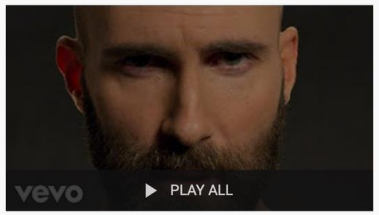
Gaming
Live



Top 50 This Week & Top 100 Songs 2020 (Best New Music Hits Playlist)

0 / 100 completed • 1,664,904,950 views • Updated today

"Music can change the world because it can change people." Bono ♫ ♬
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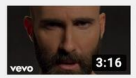
We also recommend you to check other playlists or our favorite music charts. If you enjoyed listening to this one, you maybe will like:

1. Billboard Top 50 This Week - Best New Music Hits Chart - https://goo.gl/kLjMs7
2. New Songs 2020 January - Best Releases This Month (English) - https://goo.gl/NMVTLE
3. Best Music 2020 - Latest Top Songs 2020 (New Hits Playlist) - https://goo.gl/sh2ttY
4. Pop Mix 2020 - Best Playlist Pop 2020 (Popular Songs) - https://goo.gl/zUehxK

1 

Maroon 5 - Memories
Maroon 5

2 

Selena Gomez - Lose You To Love Me (Official Music Video)
Selena Gomez

3 

Juice WRLD - Legends (Music Video RIP)
Notano

4 

Dua Lipa - Don't Start Now (Official Music Video)
Dua Lipa

5 

Selena Gomez - Look At Her Now (Official Music Video)
Selena Gomez

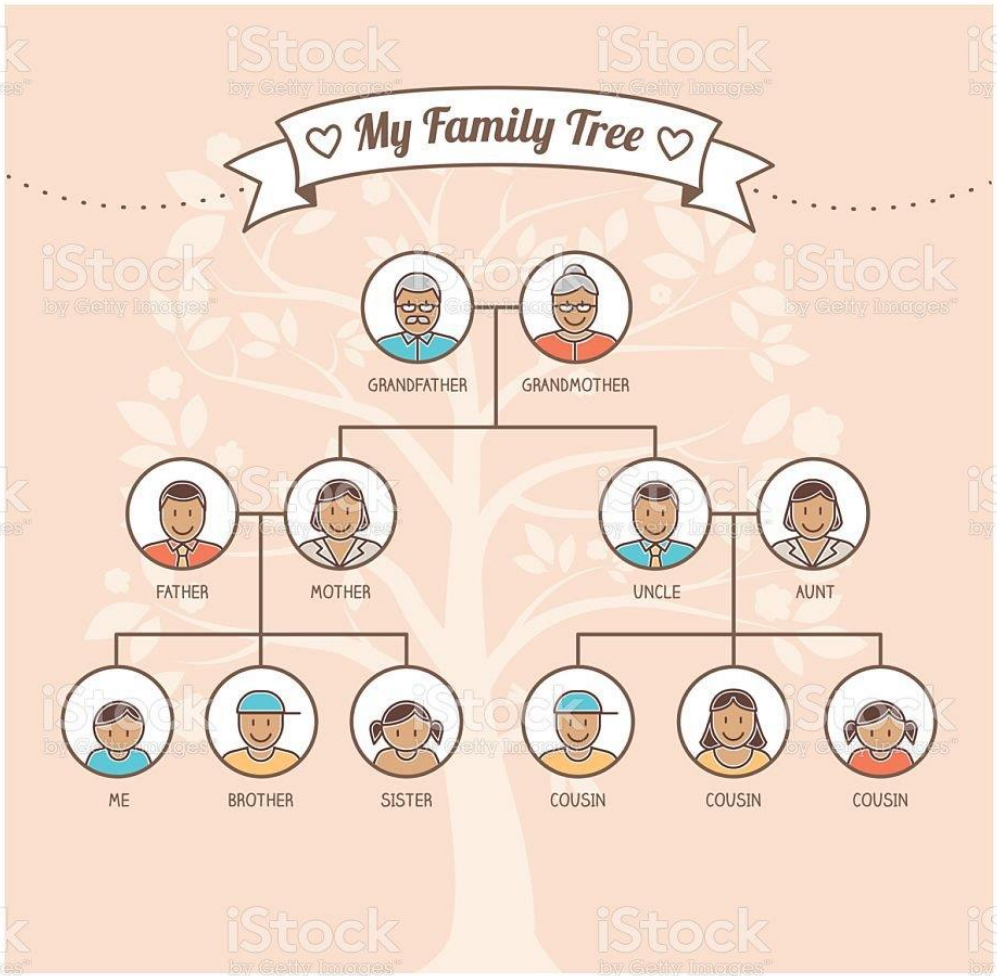
6 

Post Malone - Circles
Post Malone

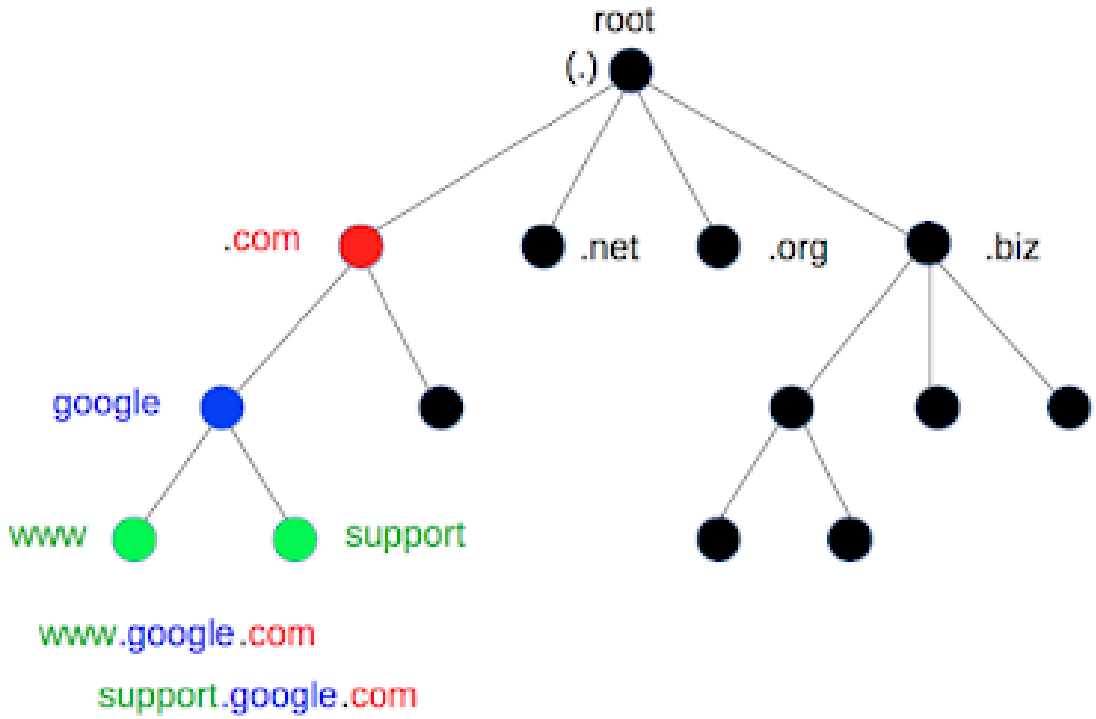
7 

Ariana Grande, Miley Cyrus, Lana Del Rey - Don't Call Me Angel (Charlie's Angels)
Ariana Grande

Camila Cabello - Shameless


My Family Tree
GRANDFATHER
GRANDMOTHER
FATHER
MOTHER
UNCLE
AUNT
ME
BROTHER
SISTER
COUSIN
COUSIN
COUSIN

487617806


root
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.com
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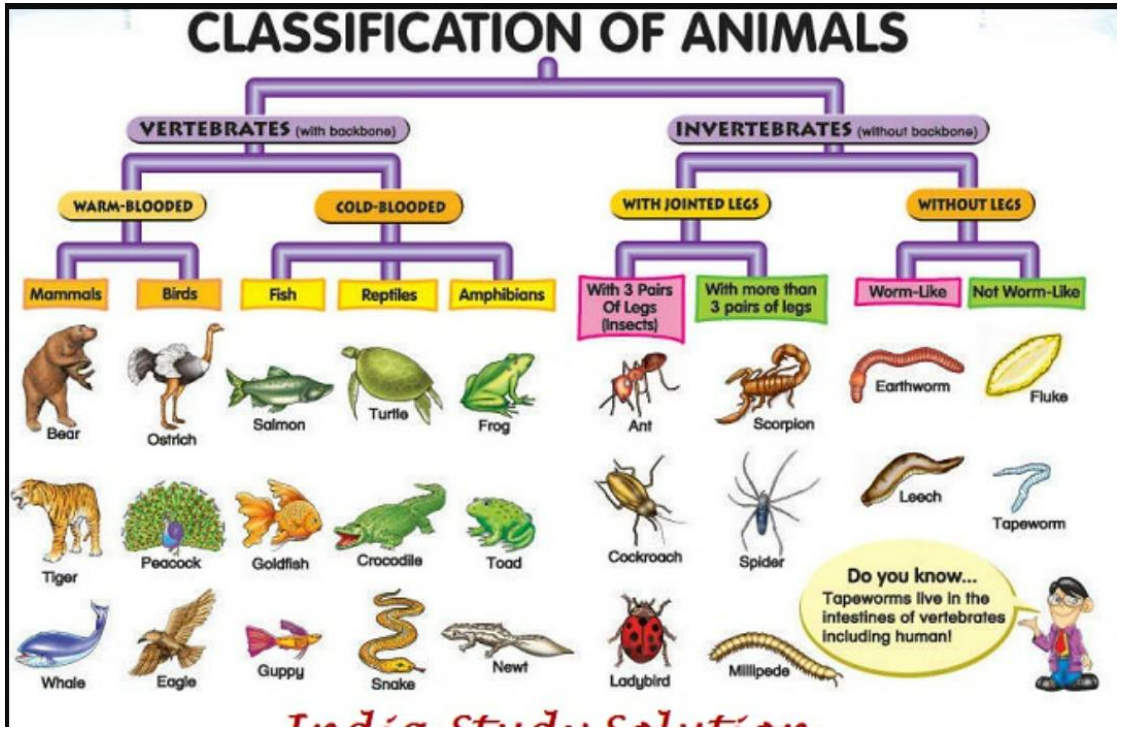
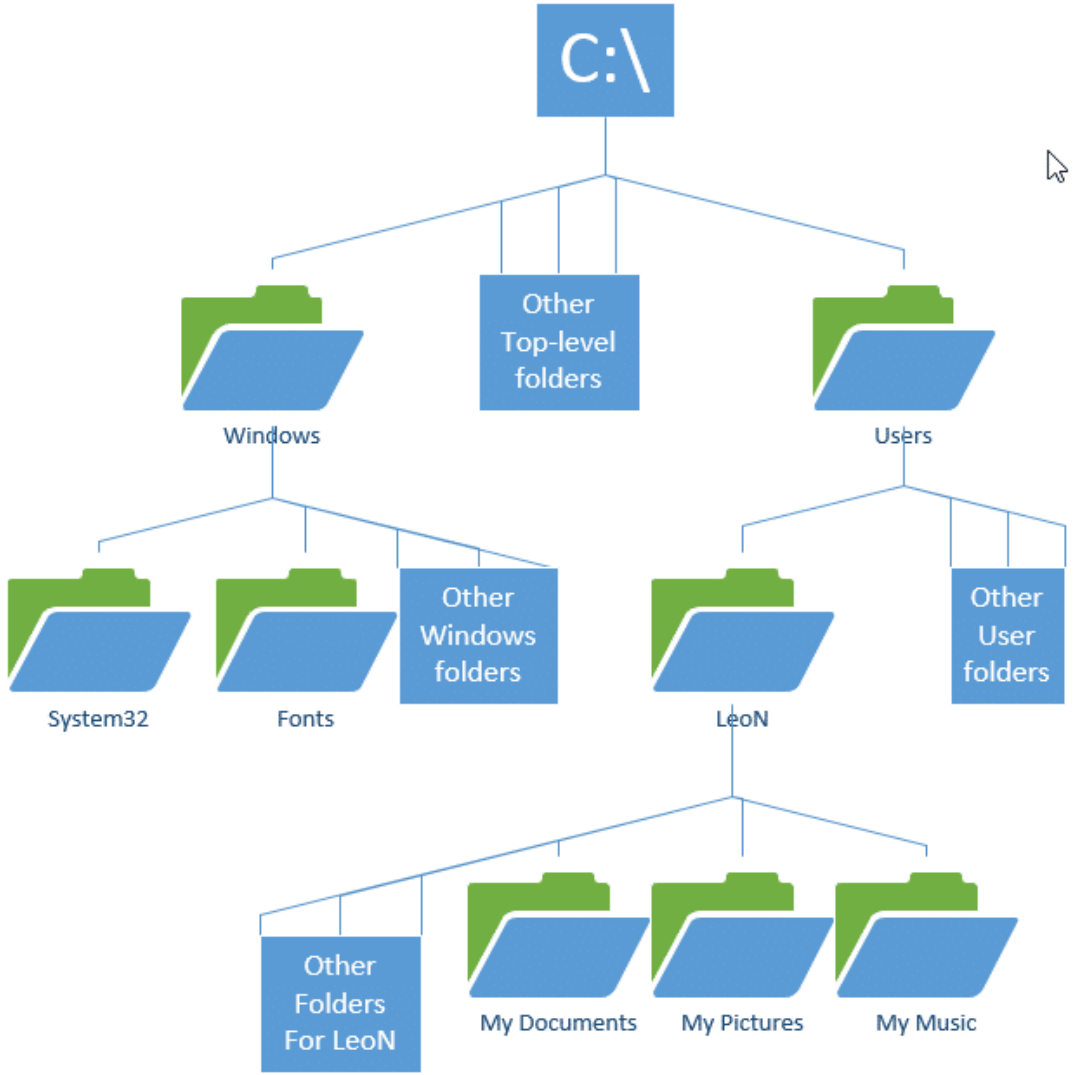
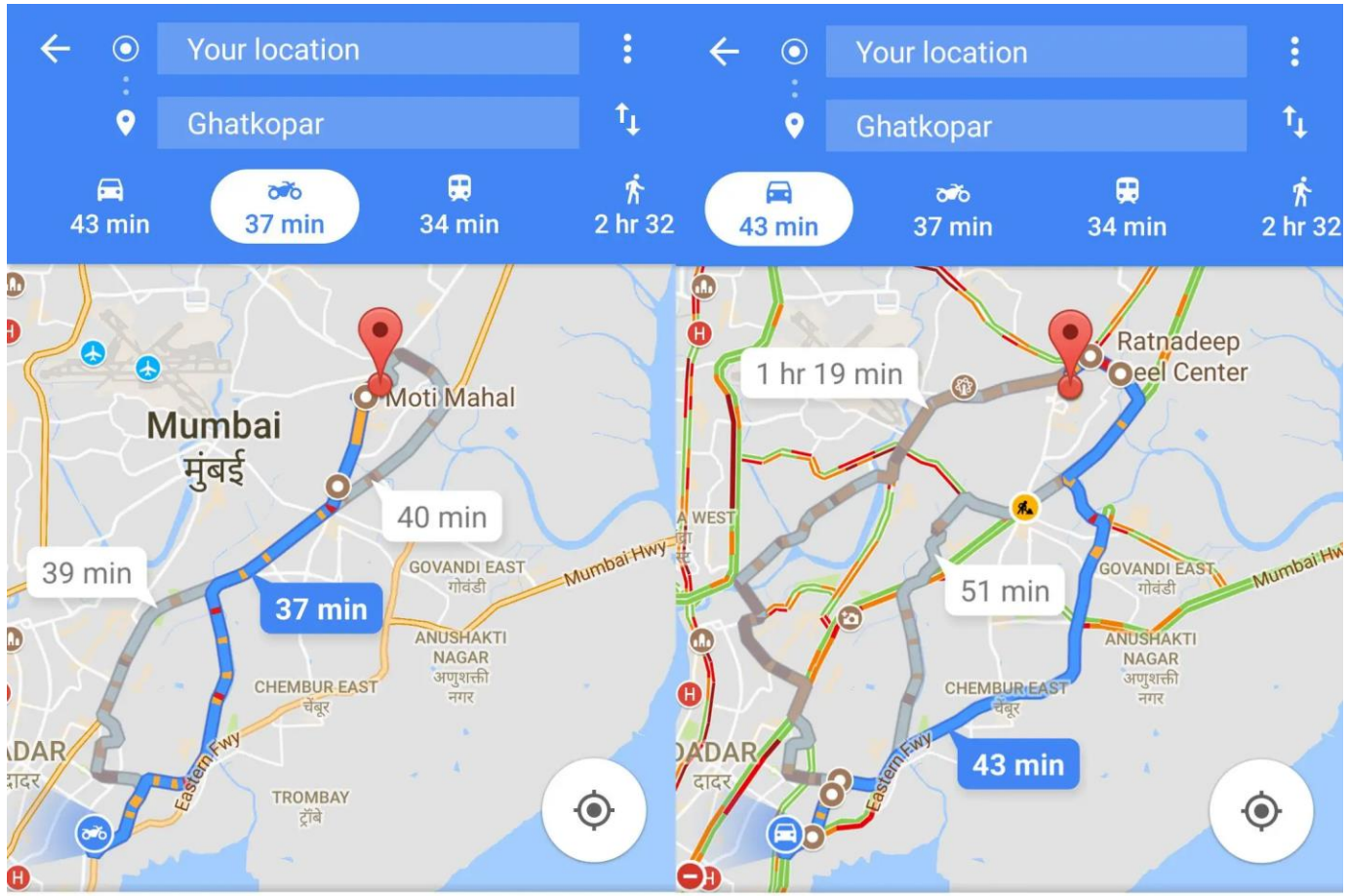
.org
.biz
google
www
support
www.google.com
support.google.com


CLASSIFICATION OF ANIMALS
VERTEBRATES (with backbone)
INVERTEBRATES (without backbone)
WARM-BLOODED
COLD-BLOODED
WITH JOINTED LEGS
WITHOUT LEGS
Mammals
Birds
Fish
Reptiles
Amphibians
With 3 Pairs Of Legs (Insects)
With more than 3 pairs of legs
Worm-Like
Not Worm-Like
Bear
Ostrich
Salmon
Turtle
Frog
Ant
Scorpion
Earthworm
Fluke
Tiger
Peacock
Goldfish
Crocodile
Toad
Cockroach
Spider
Leech
Tapeworm
Whale
Eagle
Guppy
Snake
Newt
Ladybird
Millipede
Do you know...
Tapeworms live in the intestines of vertebrates including human!


C:\
Windows
Other Top-level folders
Users
System32
Fonts
Other Windows folders
LeoN
Other User folders
Other Folders For LeoN
My Documents
My Pictures
My Music



37 min (13 km)

Fastest route, despite the usual traffic

STEPS & MORE START

43 min (16 km) P Limited

Fastest route, despite heavier traffic than usual

STEPS & MORE START

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).***

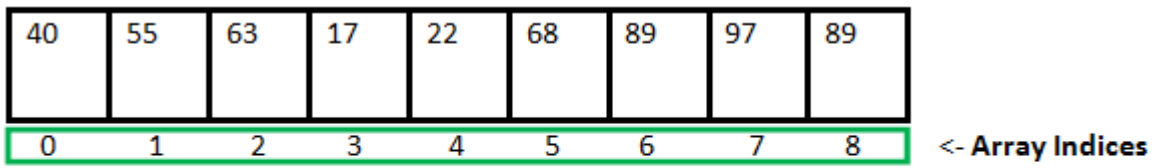
- *An ADT consists of two parts:*
  - *Declaration of data*
  - *Declaration of operations*
- *An ADT specifies what each operation does, but not how it does it.*

- *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^{th} position*
  - *deleting an element*
    - *at the Beginning*
    - *at the End*
    - *at the given i^{th} position*
  - *Traversing through the whole list*
  - *Searching for an element in the list, etc*



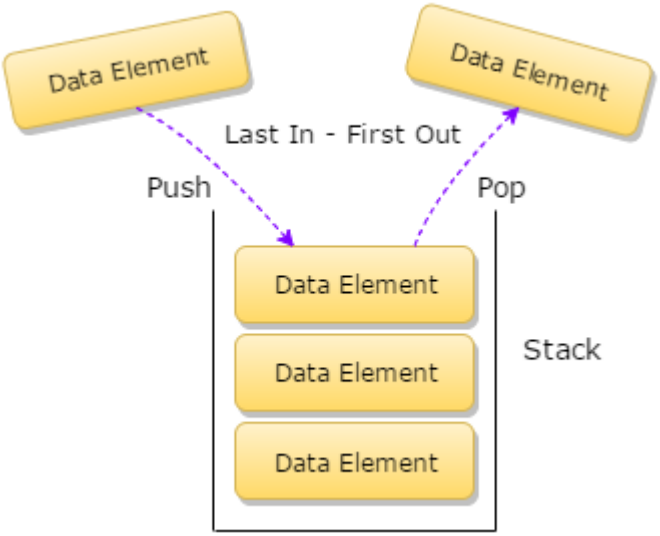
Array Length = 9
First Index = 0
Last Index = 8

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*

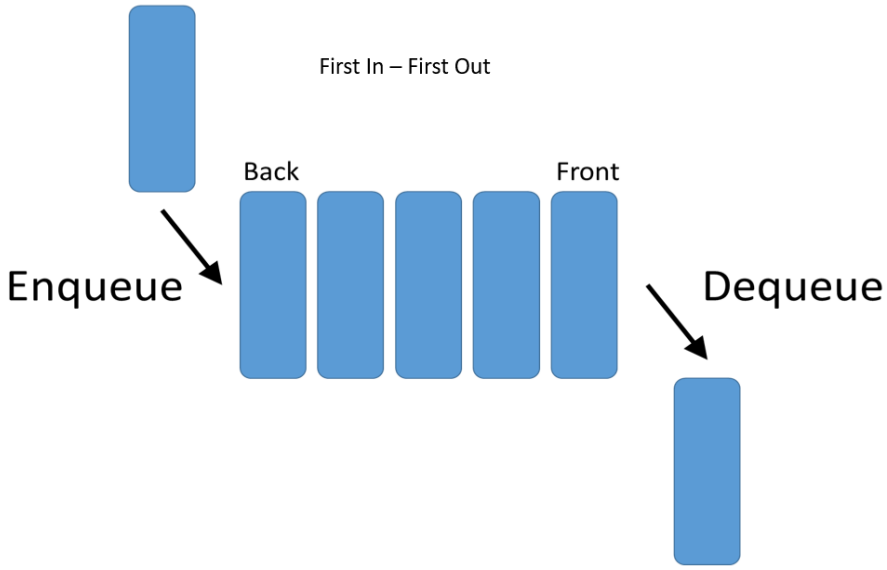


Queue ADT

- *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*