Sunday, December 8, 2024 6:15 PM

Discuss how different data Structures are used in real wold application.
Provide specific example and explain why certain data structures are preferred in particular senario.

- DATROY -> An array is Stored a list of item that are same type.

 * list of Student's marks in a class.

 > in school management system, an array can store the marks of each student for quic access and calculation, such as finding the average of marks of his marks.
- Stack -> Stack is structure of store a data Where can add and remove top element in the stack, like a Stack of plate.
- *The back button in web browser. > User visited each page of web browser is push to the stack. If click back buton of web browser poped most resent web page a load next most recent Visited web page.
- Queue -> Queue is a data structure of store a data that can insert data in rear of queue and remove of data in front. * Customer service call center.
 - =>Incomming calls are placed in a queue. That incomming calls placed in order of received and ensuring fair service to the all customers.
- 1 Linked list -> linked list is a way to store a data that foint to next node in another location.
- * Playlist of Song
 - > In move to the next song in another location and easy to add and remove songs.
- 5) Tree -> Tree is type of data structure that store data hierachically. There have root and multiple child node.
 - # A file derectory structure in computer.
 - => file and folders stored in tree structure.
- 7) Graph -> Graph is Show Connection between ilems.

 * Social network Where people are connected.
 - => Graph is help to show best way to connection.
- (2) What are advantages and disadvantages of Using doubly linked list over singly linked list

- Advantages

 D We can travers in both direction.
- 2) Eeny to Tevers linked list.
- 3) We can posible to move previous node.

- 1) Required large memory spase than singly linked list.
 2) Insersion and deletion are complex than singly linked list.
- (3) import java. util. Arrys; Public class Main { Public Static void main (String [] arg) { int[] arry = new int[100]; int target = 24; for (int i=0; i< arry.length; i++) { arty[i] = ijint index = binary Search (array, target); if (index = -1) { System.out.print (target + "Not found"); System.out.println("target found at" + index); privat static int Binary Search (int[] array, int target){ int 100 = 0: elseil (Value > target) high = middle - 1
 - Selection Sort(A) ne size of A for i=0 to n

section Sort(A) he size of A for i = 0 to n $\{min = 1$ for j = itn ton (if A(min) > A(j) SWAP (A[i], A[min])