



SNS COLLEGE OF TECHNOLOGY

**Coimbatore-35
An Autonomous Institution**



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF INFORMATION TECHNOLOGY

DATASTRUCTURES

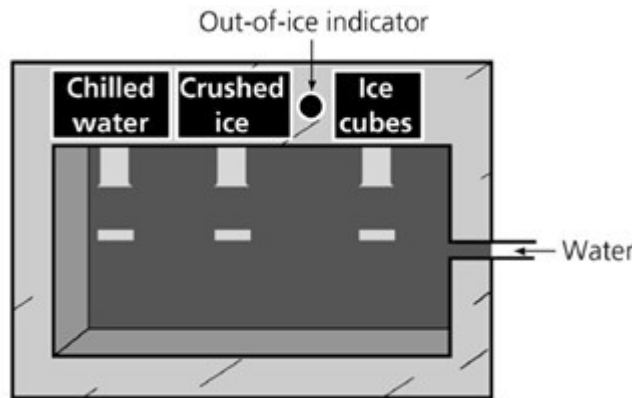
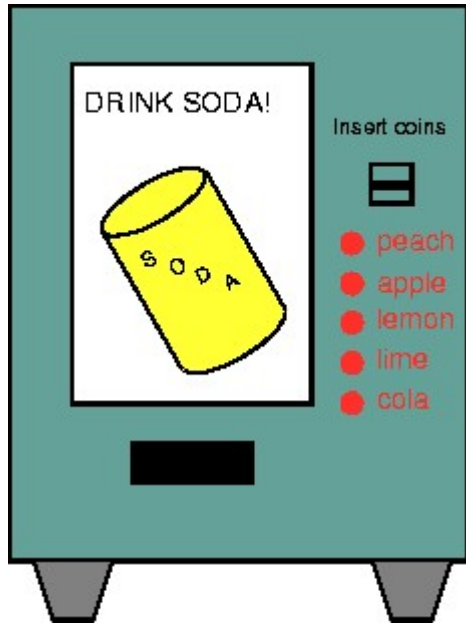
II YEAR III SEM

UNIT 1 –LINEAR STRUCTURES

TOPIC 2 – ADT(Abstract Data Type)



What do you infer from this pictures?



Customer Screen

Customer Code

Customer Name

ADD



Abstract Data Type



Model of a data type

- Properties of the data
- Operations that can be performed on that data

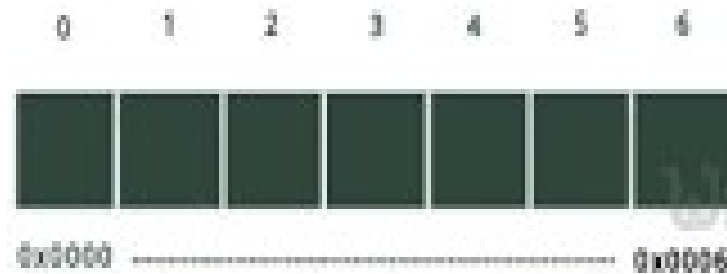
Abstract data type(ADT)

- mathematical model with a collection of operations
- Type defined in terms of its data items and associated operations not its implementation

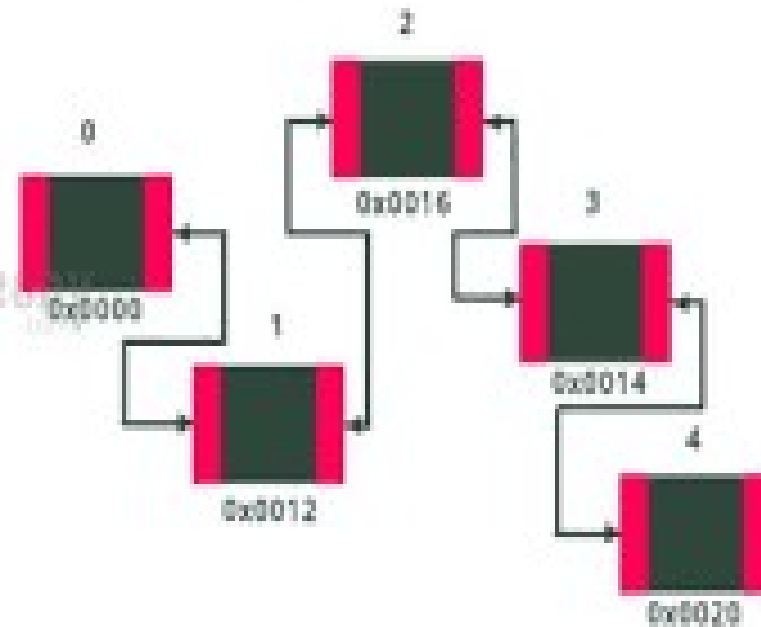


Way of Implementation

ArrayList



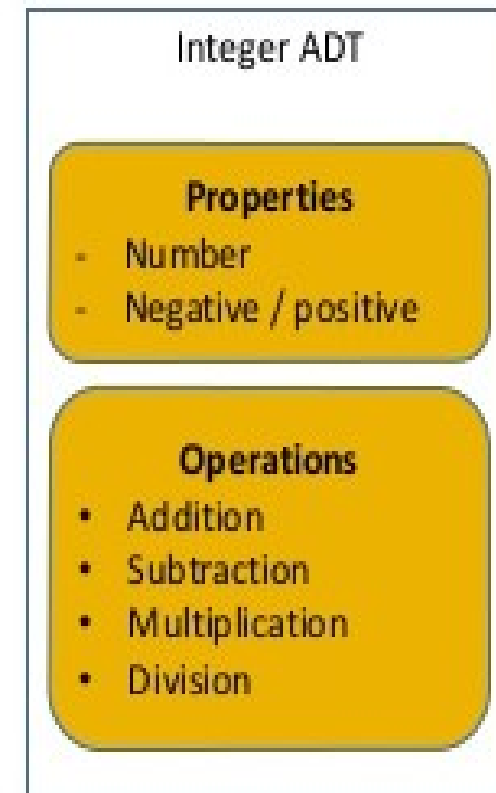
LinkedList





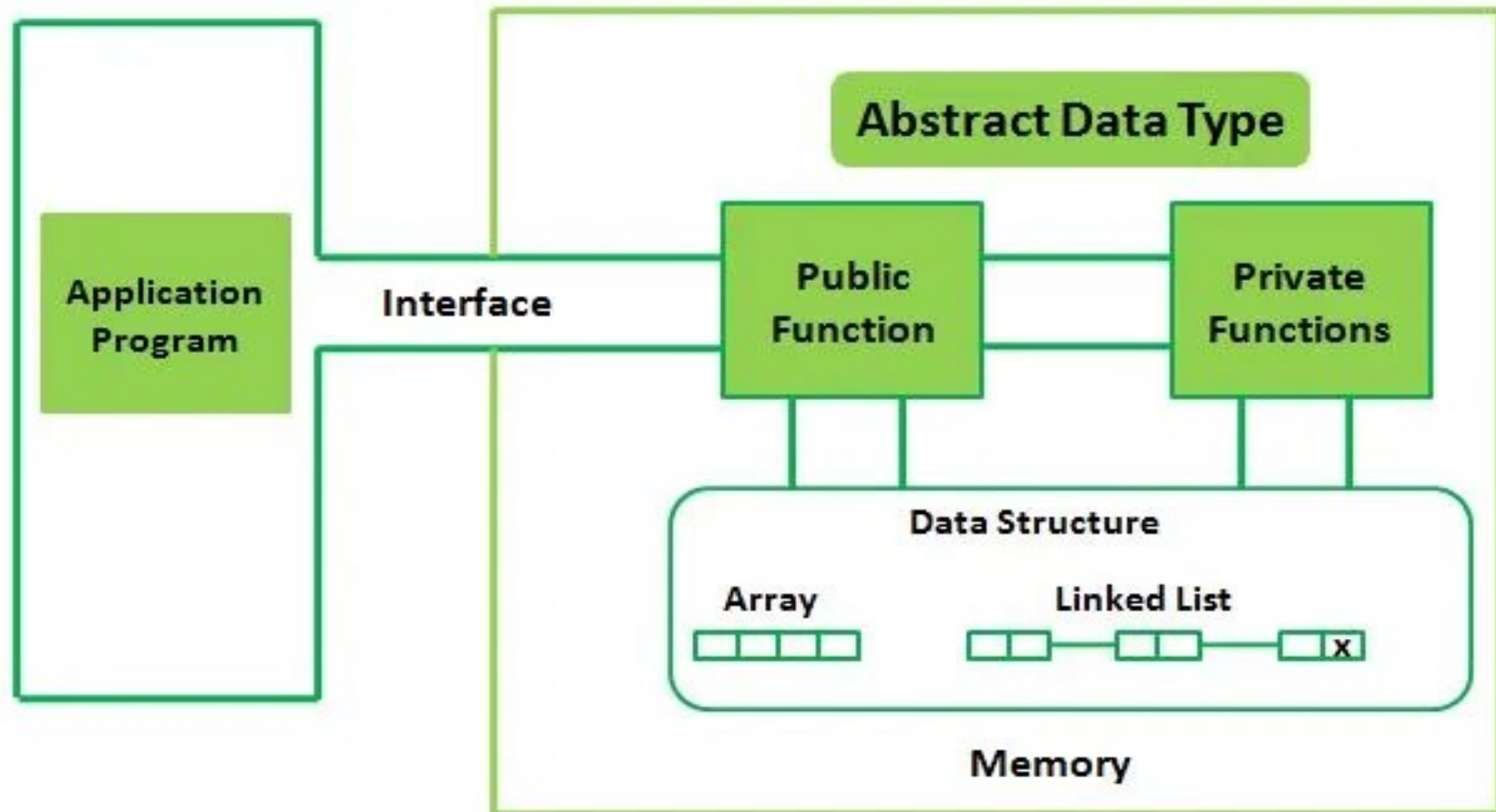
Abstract Data Type

- Integer
 -, -4, -3, -2, -1, 0, 1, 2, 3, 4 ...



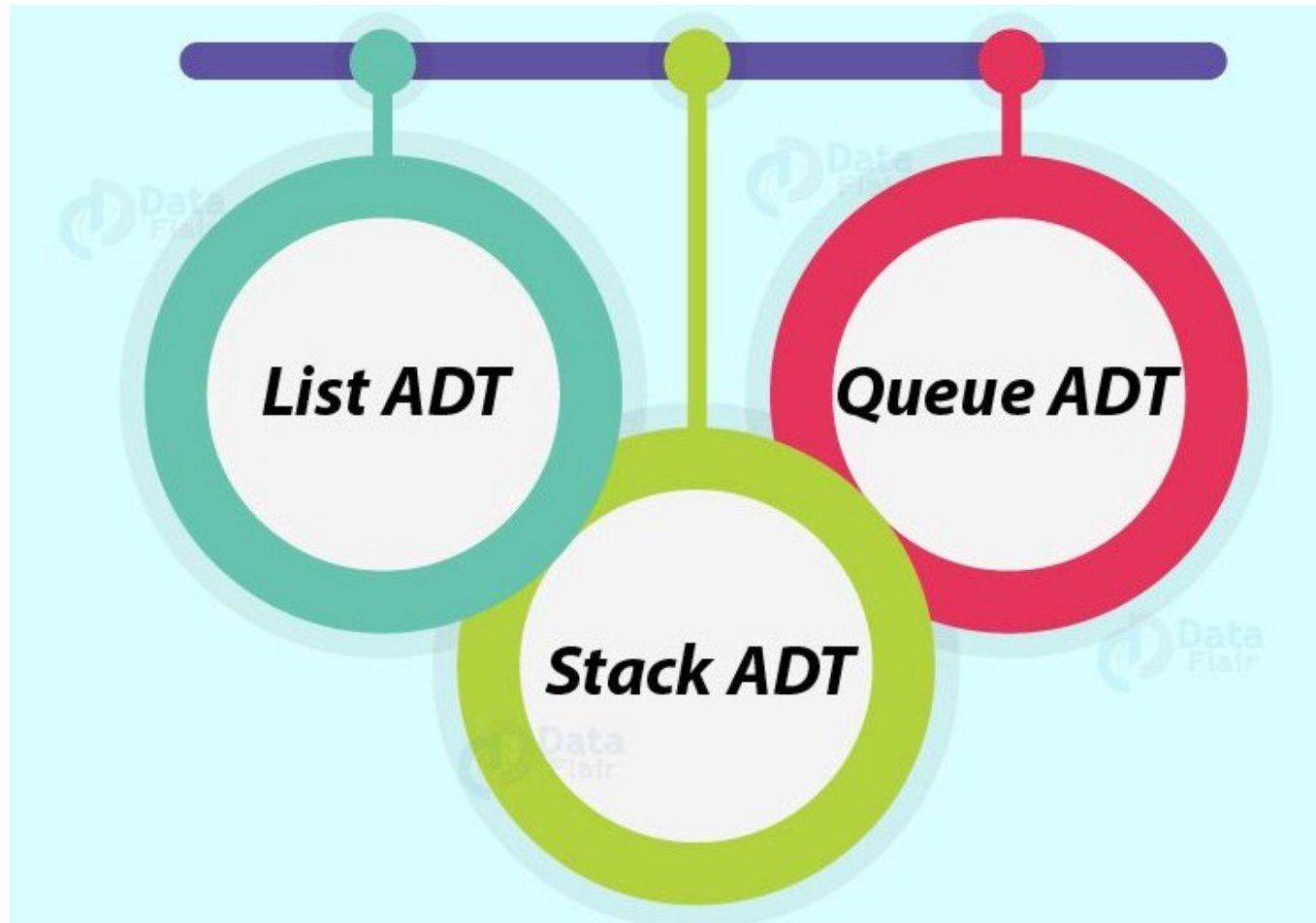


Relationship between ADT & Data Structure



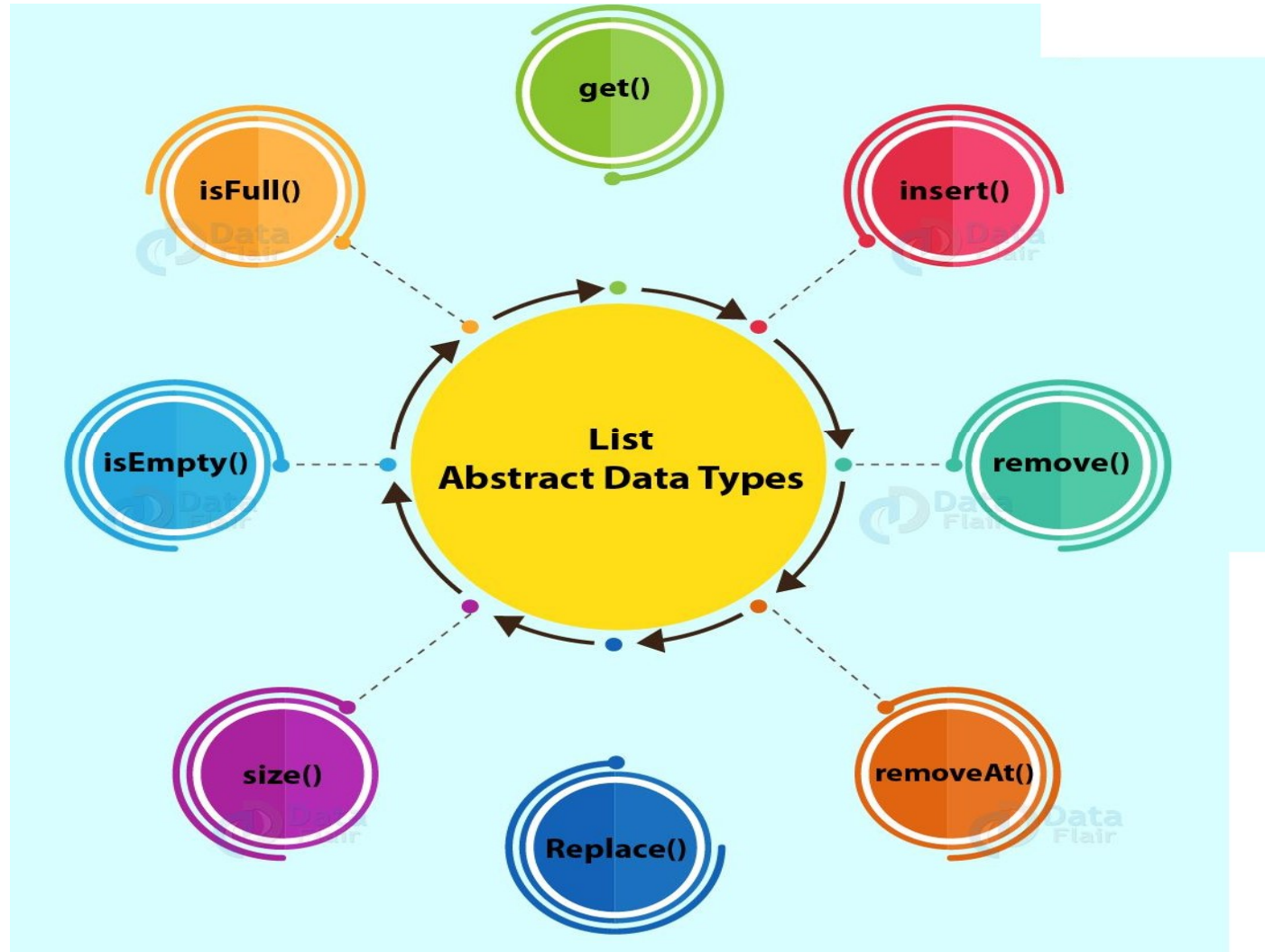


Example for ADT



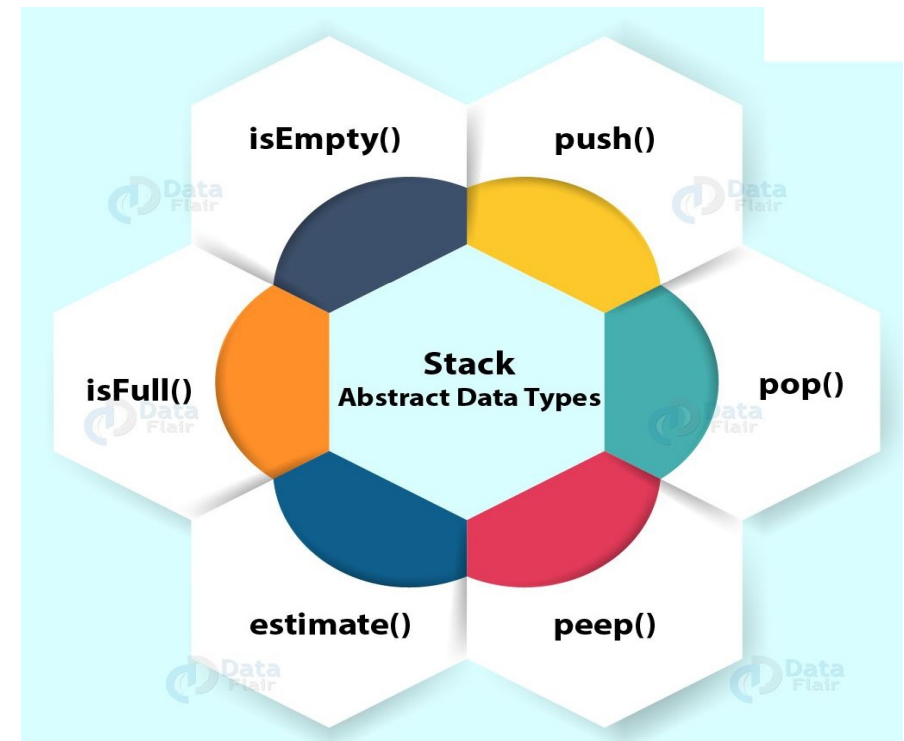
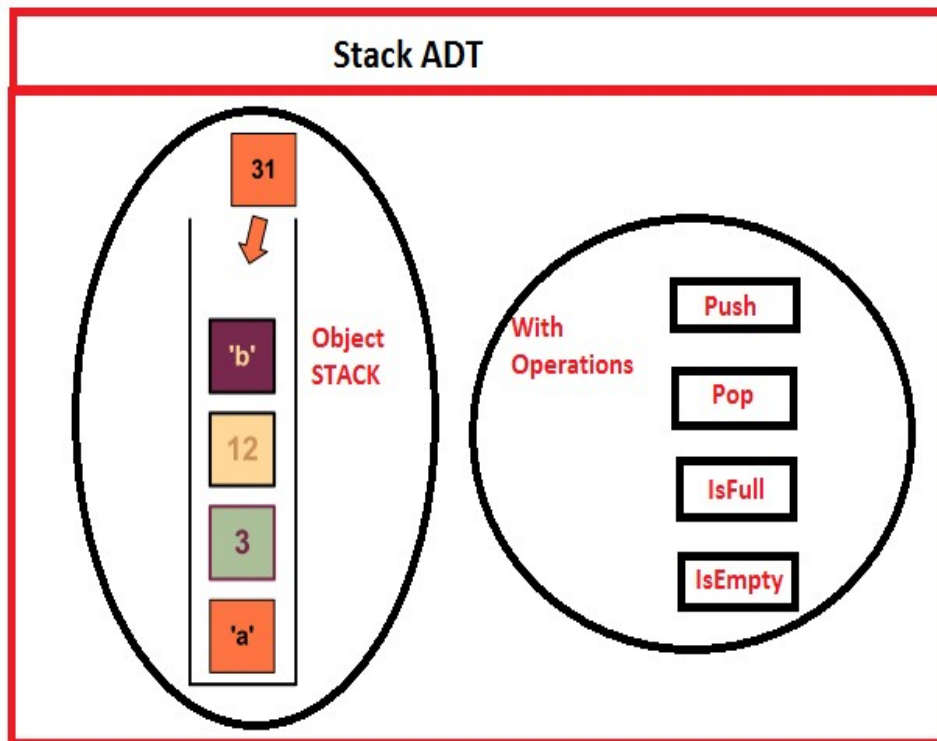


List ADT





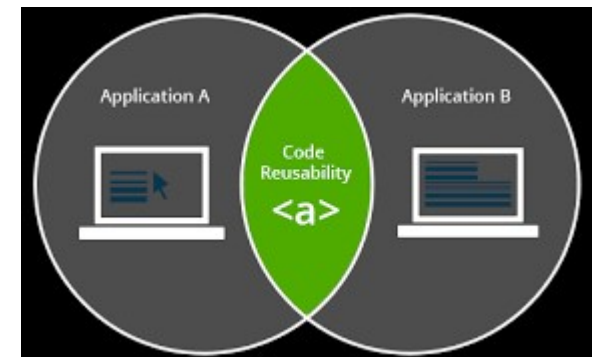
Stack ADT





Benefits of ADT

- Increases the Portability
- Reusability
- Reduce Complexity of Program





ASSESSMENT-1

1.A mathematical-model with a collection of operations defined on that model is called

- A. Data Structure
- B. Abstract Data Type
- C. Primitive Data Type
- D. Algorithm

2.Which of the following abstract data types can be used to represent a many to many relation?

- A. Tree
- B. Plex
- C. Graph
- D. Both (b) and (c)



References

1. M. A. Weiss, "Data Structures and Algorithm Analysis in C", Pearson Education, 2nd Edition, 2002.
2. A. V. Aho, J. E. Hopcroft and J. D. Ullman, "Data Structures and Algorithms", Pearson Education, 2nd Edition, 2007
3. Ashok Kamthane, " Data Structures Using C ", Pearson Education, 2nd Edition, 2012.
4. Sahni Horowitz, "Fundamentals of Data Structures in C" Universities Press; Second edition 2008



Thank You