"Jai Sri Gurudev"
Sri Adichunchanagiri Shikshana Trust®
ADICHUNCHANAGIRI INSTITUTE OF TECHNOLOGY
CHIKKAMAGALURU – 577102, KARNATAKA, INDIA
(Affiliated to Visvesvaraya Technological University, Belagavi)
www.aitckm.in, ds@aitckm.in
Dept. of Computer Science and Engineering (Data Science)

Remidial classes for Slow Learners

Subject: Data Structures and Applications(BCS304)

Sl.No	USN	Name	27/1	10/2	24/2	24/2	27/2	28/2	29/2	1/3	7/3	9/3
1	Lateral Entry	Guru Kiran	0	1	2	3	4	5	6	7	8	9
2	4AI22CD001	Abhigna N Shetty	1	2	3	4	5	6	7	8	9	10
3	4AI22CD003	Amrutha B V	1	2	2	3	4	5	6	6	7	8
4	4AI22CD015	Darshith C	0	1	2	2	3	4	5	6	7	8
5	4AI22CD017	Devika Rani S K	1	1	2	3	4	5	6	7	7	8
6	4AI22CD018	Disha N H	0	1	2	3	4	5	6	7	8	9
7	4AI22CD021	Ganesh Naik M	0	1	2	3	4	5	6	7	8	9
8	4AI22CD026	Hitha B R	1	2	3	4	5	6	7	8	9	10
9	4AI22CD029	Krushitha P R	1	2	3	4	5	6	7	8	9	10
10	4AI22CD030	M Hemanth Kumar	1	2	3	3	4	5	6	7	8	9
11	4AI22CD036	Mohammed Shakir	1	1	2	3	3	4	5	6	7	8
12	4AI22CD041	RaghavNayak	1	2	3	4	5	6	6	7	8	9
13	4AI22CD046	Sankalp S	1	2	3	4	5	6	6	7	8	9
14	4AI22CD051	Sohan Arya	0	0	1	2	3	4	5	6	7	8
15	4AI22CD052	Soukhya K J	1	2	3	4	5	6	7	8	9	10
16	4AI22CD056	Sunil Kumar A B	0	1	2	3	4	5	6	7	8	9
17	4AI22CD057	Supreeth V S	0	1	2	3	4	5	5	6	6	7
18	4AI22CD064	Shivani	0	1	2	3	4	5	6	7	8	9

Hemanth. M.P

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Slow Learners IA Marks List

Subject: Data Structures and Applications(BCS304)

Sl.No	USN	Name	IA -1	IA -2	
1.	4AI22CD001	Abhigna N Shetty	09	23	
2.	4AI22CD003	Amrutha B V	11	20	
3.	4AI22CD015	Darshith C	08	12	
4.	4AI22CD017	Devika Rani S K	15	14	
5.	4AI22CD018	Disha N H	10	18	
6.	4AI22CD021	Ganesh Naik M	06	12	08
7.	4AI22CD026	Hitha B R	12	23	
8.	4AI22CD029	Krushitha P R	10	18	
9.	4AI22CD030	M Hemanth Kumar	10	10	
10.	4AI22CD036	Mohammed Shakir	10	08	10
11.	4AI22CD041	Raghav Nayak	03	06	14
12.	4AI22CD046	Sankalp S	01	07	13
13.	4AI22CD051	Sohan Arya	06	10	10
14.	4AI22CD052	Soukhya K J	09	18	
15.	4AI22CD056	Sunil Kumar A B	10	13	
16.	4AI22CD057	Supreeth V S	02	04	15
17.	4AI22CD064	Shivani	05	20	
18.	4AI23CD400	Guru Kiran	11	11	

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Remidial classes for Slow Learners

Subject: Data Structures and Applications(BCS304)
(Syllabus covered)

Module – 1

- Strings
- Dynamic memory allocation
- Stack
- Infix to postfix conversion
- Postfix evaluation

Module – 2

- Queues
- Linked list

Module – 3

- Linked list implementation
- Polynomials
- Sparse matrix
- Trees

Module – 4

- Binary search Trees
- Graphs

Module – 5

- Hashing

Fast learners identified in third sem

1. Bhagya shree
2. Chinmay
3. Darsgan B C
4. Nidhi Barker
5. Pallavi
6. Rao Siddarth
7. Shreya M S
8. Shwetha K M

Action Plan

- *The students are made to interact with higher sem students who are pursuing internship in various companies and are encouarged to strive hard.*
- *The students are motivated to take NPTEL courses and learn modern day subjects.*
- *The students are encouraged to open hacker rank profile and build their postfolios.*

AIT	REMEDIAL CLASS TIMETABLE			Format No.	
				Issue No.	01
				Rev. No.	00
Department	CSE (Data Science)	Semester	'III'	Section	
Academic Year	2023 – 2024 (ODD Semester)	Room No.	E-305		
Class Coordinator	Prof. Shalini I S				

Period → / Day ▼ Time →	1	2		3	4		5	6	7
	09:00 – 10:00	10:00 – 11:00	11:00 – 11:15	11:15 – 12:15	12:15 – 01:15	01:15 – 02:30	02:30 – 03:20	03:20 – 04:10	04:10 – 05:00
Monday	OS	DS	↑ BREAK ↓	M3	Tutorial M3	↑ LUNCH ↓	←DS LAB (B1 BATCH)/ DE LAB (B2 BATCH)/ OS LAB(B3 BATCH)→		
Tuesday	PPD	OS		M3	DDCO		←DS LAB (B2 BATCH)/ DE LAB (B3 BATCH)/ OS LAB(B1 BATCH)→		
ednesday	PPD	M3		DDCO	DS		← DS LAB (B3 BATCH)/ DE LAB (B1 BATCH)/ OS LAB(B2 BATCH)→		
hursday	M3	DS		DDCO	OS		←PHP LAB(C1 BATCH) / PYTHON LAB (C2 BATCH) →		
riday	DS	DDCO		OS	SCR		←PHP LAB(C2 BATCH) / PYTHON LAB (C1 BATCH) →		
turday	YOGA			NSS/PE	Tutorial PPD		Tutorial DDCO	Tutorial OS	Tutorial DS

cation of Subjects

THEORY

bject Code	Subject Name	Faculty Name	Faculty Code
301	Mathematics for Computer Science (M3)	Prof. RASHMI B T	
302	Digital Design and Computer Organization(DDCO)	Prof. SHALINI I S	
303	Operating Systems(OS)	Prof. GAGANA DEEPA J	
304	Data Structures And Applications(DS)	Dr. ADARSH M J	
L305	Data Structures Laboratory (DS)	Dr. ADARSH M J	
06B	Python Programming for Data Science (PPD)	Prof. SUHAS BHAT	
BSCK307	Social Connect & Responsibility(SCR)	Prof. SEEMA B.S	
BAI358D	PHP Programming(PHP)	Prof. PALLAVI C S	

Signature of the Time-table Coordinators

HOD's Signature

DATA STRUCTURES

Data may be organized in many different ways. The logical or mathematical model of a particular organization of data is called a **data structure.**

The choice of a particular data model depends on the two considerations

1. It must be rich enough in structure to mirror the actual relationships of the data in the real world.
2. The structure should be simple enough that one can effectively process the data whenever necessary.

CLASSIFICATION OF DATA STRUCTURES

Data structures are generally classified into

- Primitive data Structures
- Non-primitive data Structures

Primitive data Structures: Primitive data structures are the fundamental data types which are supported by a programming language. Basic data types such as integer, real, character and Boolean are known as Primitive data Structures. These data types consists of characters that cannot be divided and hence they also called simple data types.

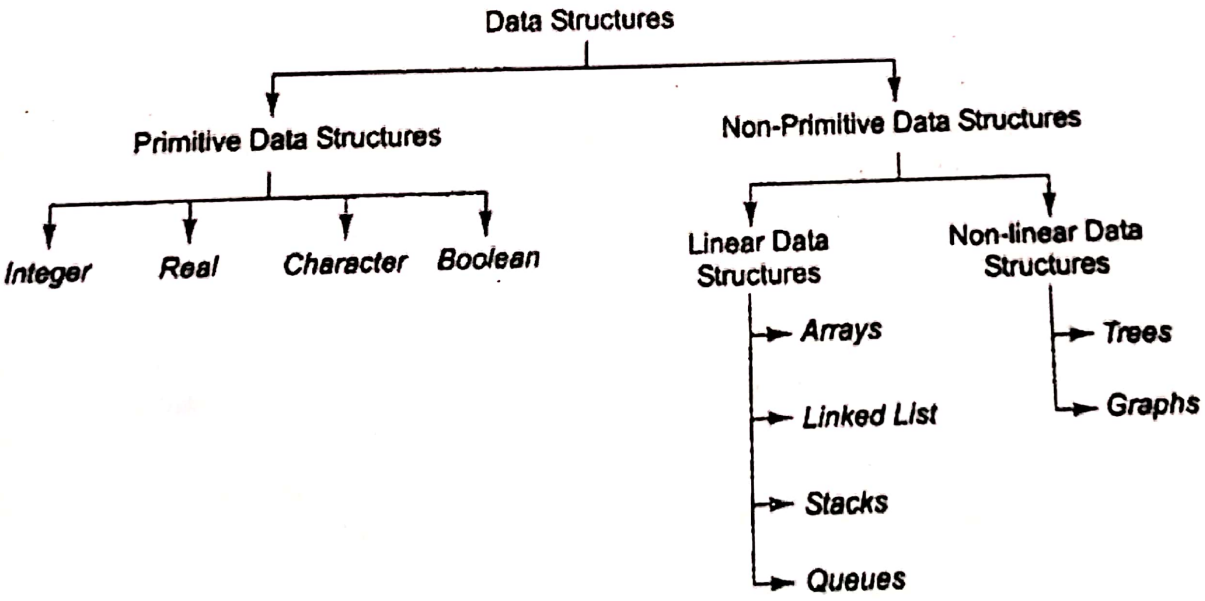


Fig. 1.1 Classification of Data Structures

Non- Primitive data Structures: Non-primitive data structures are those data structures which are created using primitive data structures. Examples of non-primitive data structures is the processing of complex numbers, linked lists, stacks, trees, and graphs.

Based on the structure and arrangement of data, non-primitive data structures is further classified into

1. Linear Data Structure
2. Non-linear Data Structure

1. Linear Data Structure:

A data structure is said to be linear if its elements form a sequence or a linear list. There are basically two ways of representing such linear structure in memory.

1. One way is to have the linear relationships between the elements represented by means of sequential memory location. These linear structures are called arrays.
2. The other way is to have the linear relationship between the elements represented by means of pointers or links. These linear structures are called linked lists.

The common examples of linear data structure are Arrays, Queues, Stacks, Linked lists .

2. Non-linear Data Structure:

A data structure is said to be non-linear if the data are not arranged in sequence or a linear. The insertion and deletion of data is not possible in linear fashion. This structure is mainly used to represent containing a hierarchical relationship between elements. Trees and graphs are the examples of non-linear data structure.

ARRAYS:

The simplest type of data structure is a linear (or one dimensional) array. A list of a finite number of similar data referenced respectively by a set of *n* consecutive numbers, usually 1, 2, 3 . . . . . *n*, if chosen the name for the array, then the elements of **A** are denoted by subscript notation a1, a2, a3....

by the bracket notation A [1], A [2], A [3] . . . . . A [n]

Trees

Data frequently contain a hierarchical relationship between various elements. The data structure which reflects this relationship is called a rooted tree graph or a tree. Some of the basic properties of tree are explained by means of examples.

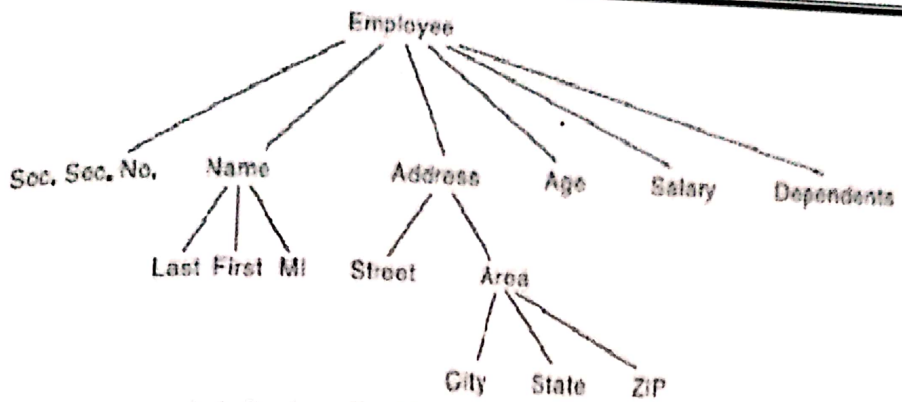
Example1: Record Structure

Although a file may be maintained by means of one or more arrays a record, where one indicates both group items and the elementary items, can best be described by means of a tree structure.

For example, an employee personnel record may contain the following data items:

Social Security Number, Name, Address, Age, Salary, Dependents

. However, Name may be a group item with the sub-items Last, First and MI (middle initial). Also Address may be a group item with the sub items Street address and Area address, where Area itself may be a group item having sub items City, State and ZIP code number. This hierarchical structure is pictured below



Some of the data structures are briefly described below.

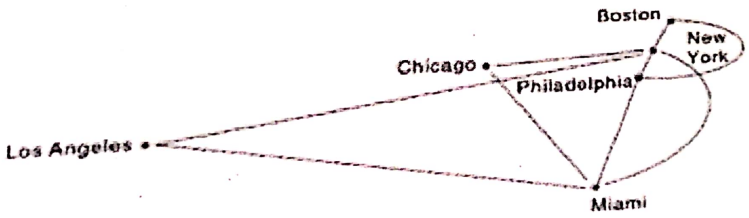
1. **Stack:** A stack, also called a fast-in first-out (LIFO) system, is a linear list in which insertions and deletions can take place only at one end, called the top. This structure is similar in its operation to a stack of dishes on a spring system as shown in fig.

Note that new 4 dishes are inserted only at the top of the stack and dishes can be deleted only from the top of the Stack.

2. **Queue:** A queue, also called a first-in first-out (FIFO) system, is a linear list in which deletions can take place only at one end of the list, the "from" of the list, and insertions can take place only at the other end of the list, the "rear" of the list.

This structure operates in much the same way as a line of people waiting at a bus stop, as pictured in Fig. the first person in line is the first person to board the bus. Another analogy is with automobiles waiting to pass through an intersection the first car in line is the first car through.

3. **Graph:** Data sometimes contain a relationship between pairs of elements which is not necessarily hierarchical in nature. For example, suppose an airline flies only between the cities connected by lines in Fig. The data structure which reflects this type of relationship is called a graph.



Airline flights