

Name : Abdallah Bin Noman Tabid

Student ID : 2120180031

~~Course Name : Data~~

Course Title & Data Structure

Course Code : CS1-217

"Mid-Persem Exam"

Ans-to-the-Q-No-1

(b)

Operations of data structure:

Data structure is the way of storing data in computer's memory so that it can be used easily and efficiently.

There are different data structures used for the storage of data.

Advantages of Data Structure:

- ① The data structure is a good solution for storing data on framework.
- ② Data structures make it easier for us to handle data.
- ③ Data structures also aid us in efficiently

Storing data on disks so that we can recover the data.

④ Data structures are critical for planning computations.

⑤ As we have seen, data structures are a mechanism for arranging data into a specified structure.

⑥ Data structures allow us to reuse data.

⑦ Data structures are also used in the database administration framework industry for creating a list, storing data using B and B+ trees, and so on.

3

Ans to the Q. No - 1

(c)

Array operators: types:

In Computer science, array is a data type that represents a collection of elements, each selected by one or more indices that can be computed at run time during program execution.

Such a collection is usually called an array variable or array value.

Array operators:

Array operators are performed on vectors and matrices.

The platform ^{means array} enables ~~the~~ ^{you} to define array attributes - blob attributes that represent numeric array of 64-bit integer or double values. See Array - Attribute Expression Variables, we can use one of the following ^{like} syntax variations of the array operator $[]$ to reference specific elements of an array attribute in expressions.

Ans. to the Q No. 2(a)Basic operations on stack:

There are basically three operations that can be performed on stacks.

They are -

- ① Inserting an item into a stack (Push)
- ② Deleting an item from the stack (Pop).
- ③ Displaying the contents of the stack (Peek on top).

Stack's Application :

A stack is widely used linear data structure in modern computers in which insertions and deletions of an element can occur only at one end, and top of the stack. It is used in all those applications in which data must be stored and retrieved in the last.

Various applications of stack, in data

Structure :

- a) Evaluation of Arithmetic Expressions.
- b) Backtracking.
- c) Delimiten checking.
- d) Reverse a data.

7

e) Processing functions Calls

Ans to the Q No 2

(b)

By Graph representation, we simply mean the technique to be used to store some graph into the computer's memory.

There are two ways to store or represent graph into the computer's memory.

1) Sequential representation:

In sequential representation, there is a use of an adjacency matrix.

to represent the mapping between vertices and edges of the graph. We can use an adjacency matrix to represent the undirected graph, directed graph, weighted directed graph, and weighted undirected graph.

② Linked list representation

An adjacency list is used in the linked representation to store the graph in the computer's memory.

It is efficient in terms of storage as we only have to store the values for edges.

9

Ans to Que. No. 2

(c)

The formula for calculating arithmetic mean is $(\text{Sum of all observations}) / (\text{Number of observations})$

For example, the arithmetic mean of a set of numbers $\{10, 20, 30, 40\}$ can be found as,

$$\text{Arithmetic mean} = \frac{(10+20+30+40)}{4}$$

$$= \frac{100}{4}$$

$$= 25$$

(Ans.)

Ans to Que No 1

(a)

A data structure is a specialized for arranging, organizing, processing, retrieving and storing data.

Array operators:

Array operators means the platform which enables us to define array attributes. It is a platform that represents numeric array of 64-bit integer or double values.