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~~Course Name : Data~~

Course Title : Data Structure

Course Code : CSE-217

"Mid-Term 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 date 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.

Ans to the Q No 1

(c)

Array operations ; 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 operations ;

Array operations are performed on vectors and matrices.

means array ~~attr~~ Operations

The platform enables 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 ~~of~~ 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 retrived in the last.

Various applications of stack in data structure:

a) Evaluation of Arithmetic Expressions.

b) Backtracking.

c) Delimiter checking.

d) Reverse a data.

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.

Ans to the Q. No. 2

(c)

The formula for calculating arithmetic mean is (sum of all observations) / (number of observations).

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

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

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

$$= 25$$

(Ans)

Ans to the Q No 1

(a)

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

Array operations:

Array operations means the platform which enables as to define array attributes. Blob a attributes that represent numeric array of 64 bit integer or double values.