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Assignment - 2

Ans-1.

1) Data unit / items = Data items refers to single unit of values.

2) Entity set = Entity set is a collection of entities sharing exactly the same set of attributes.

3) Entity = An entity is something that has certain attributes / properties which may be assigned values. values can be numeric or non-numeric.

Eg. of Data items = XYZ, 12, A

<u>Eg</u> of Entity	Name	class	SEC
	XYZ	12	A

Eg of Entity set

XYZ	12	A
PQR	11	B

Ans-2.

Linear Datastructures

- 1) Every element is organised / arranged in linear order.
- 2) Every element have successor and predecessors except first and last elements.
- 3) Single level involved.
- 4) Data elements can be transversed in an single-run.
- 5) Used in software Development.

Non-Linear Datastructures

- 1) In Non-linear Datastructure form sequence data elements are arranged
- 2) In Non-linear DS elements are arranged in hierarchical.
- 3) Multi-level involved.
- 4) Can't be transversed in single run.
- 5) Used In AI and DIP.

Ans-3- Different characteristics of an algorithm is:-

- 1) Finiteness - algorithm have finite steps and end after finite time
- 2) Output - algorithm have atleast one output.
- 3) ~~Input - It can have may/may not~~
- 3) Input - It can have many inputs.
- 4) Effectiveness - Each step should have simple and finite amount of time
- 5) Definiteness - Each step must be clear, will be defined and precise.

A_1 algorithm is faster than A_2 algorithm because A_1 algorithm have less No. of inputs than A_2 algorithm and A_1 algorithm contain more reusable variables.

- 6) Time Complexity = An algorithm should take less time.
- 7) Space Complexity = An algorithm should take less space also.

Ans-4.

Arrays.

- 1) Array's is the collection of similar data type called by an common name.
- 2) Data elements are stored in contiguous locations in memory.
- 3) Insertion and Deletion operations are difficult as they stored in continuous memory.
- 4) Memory is allocated during compile time.
- 5) Array elements can be accessed randomly using array index.
- 6) Array sized is fixed.

Linked list.

- 1) Linked list is ordered collection of elements of same type in each element connected to next element using pointers.
- 2) New elements can be stored anywhere and reference is created for the new elements using pointers.
- 3) Insertion and Deletion operations are fast and easy in a linked list.
- 4) Memory is allocated during run time.
- 5) Random accessing is not possible in linked list. Elements will have to be accessed sequentially.
- 6) Linked list size can be grows/shrink at insertion/deletion.

Ans-5 For designing page ranking algorithm used in search engine I will use linked as a Data Structure.

Because in linked list continuous memory is not required and Insertion and deletion of page algorithm is less costlier than Array's.

As, we don't know the no. of pages, if we use array's ~~there~~ then, their's an time come that continuous memory get's finished in server and No. other page can be added. ~~or del~~

→ But, at the same if we use linked list their's ^{no} is no limitations of continuous memory allocation. And N number of page's can be added or deleted.