8th September 2022(Thursday)

Scribed Notes-Lecture 12

Student ID's

202212071

202212072(Absent)

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202212074(Absent)

202212075

Partial Order:

A partial order is a reflexive, anti-symmetric and transitive relation on a set.

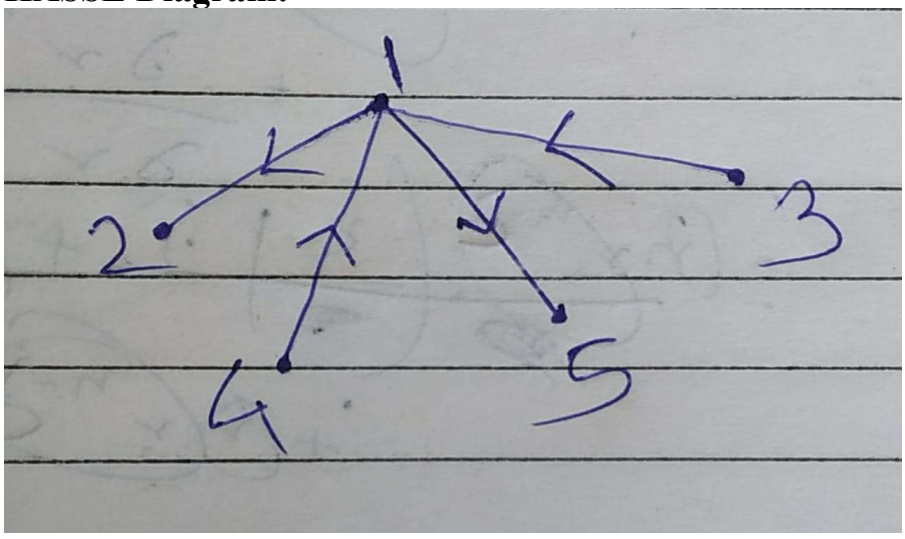
Partial order is bounded by lower and upper value.

Transitive relations :

In transitive relation indirect path implies direct path.
(a, b) ϵ R & (b, c) ϵ R => (a, c) ϵ R

Transitive Closure:
It can be achieved by applying transitivity rule again and again until applied iterative relation doesn't result in any change.

HASSE Diagram:



In Hasse diagram if there is a indirect path between two nodes then it removes the direct edge.
S={1,2,3,4,5}

R={(1,1), (2,2), (3,3), (4,4), (5,5), (1,2), (4,1),(3,1),(1,5)}

Sink:

A node which has no outgoing arrow but has incoming arrow.

Ex.2,5 are sink.

Source:

A node which has no incoming arrow. but has outgoing arrow.

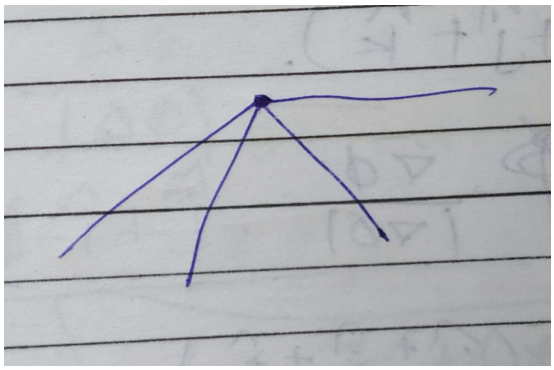
Ex.3,4

Others:

A node which has both incoming and outgoing arrow.

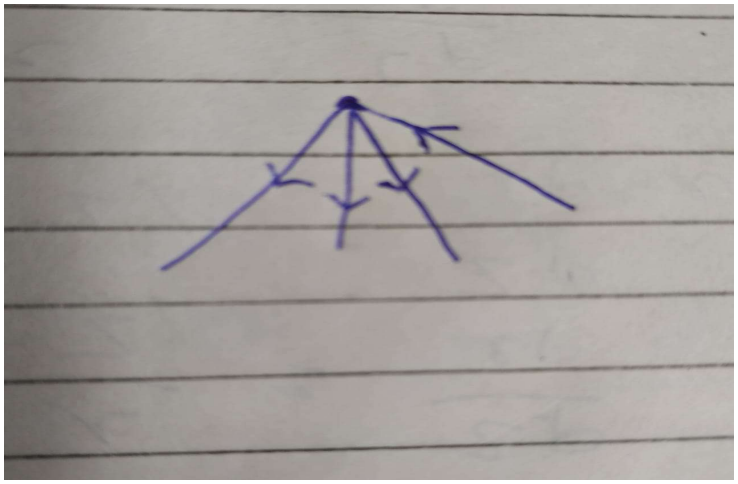
Ex.1

Undirected Graph



Undirected Graph has degree 4.

Directed acyclic graph (DAG) is a directed graph with no directed cycles.



Directed Graph

Concept of indegree, outdegree

Degree=4

Indegree=1

Outdegree=3

Where Indegree=0 its called Source

Where Outdegree=0 its called Sink

Where Not Source NOT Sink it is Others

There are Three Categories of partial order:

Upper Lattice, Lower Lattice, Lattice

Upper Lattice(Unique source)

Lower Lattice(Unique sink)

Lattice(upper^lower)

Every Partial Order has>=1 Source,sink