DAG Definitions

DAG --- Directed Acyclic Graph

Topological Sort --- List nodes of graph in order such that no node appears before any of its immediate successors.

Height of a DAG Node --- two different definitions can be used; one indicates the largest number of arcs that can be visited on a path from "this" node to the "sink" of the DAG. The other indicates the largest cost of any path from this node to the sink.

OUR CONVENTION:
Height counts arcs on a path to sink, but

Weighted Height sums the weights on a path to the sink.
DAG Scheduling Definitions

MinTime(X) --- the earliest time that X can be started.

MaxTime(X) --- the latest time that X can be started without delaying the finish of the project.

Slack Time --- for DAG node, X, X->maxTime - X->minTime

Critical Path --- any DAG node, X, whose MinTime = MaxTime is said to be on a critical path.
DAG Algorithms

Height(node X)
X->ht = 0
for each successor, S, of X
    X->ht = max(X->ht, S->ht + 1)

WeightedHeight(node X)
X->wht = 0
// E(X,S) is the weight of the edge from X to S
for each successor, S, of X
    X->wht = max(X->wht, S->wht + E(X,S))

MinTime(node X) // earliest time that X can "start"
X->minTime = 0
// E(P,X) is the weight of the edge from P to X
for each predecessor, P, of X
    X->minTime = max(X->minTime, P->minTime + E(P,X))

MaxTime(node X) // latest time that X can "start"
X->maxTime = Sink->minTime - X->wht