In-class notes: Graphs

CS 14 - Data Structures

May 20, 2013

1. You must understand and be able to use the following terms: nodes, vertices, edges, directed, undirected, weight, neighbor, path, cycle, cyclic, acyclic, shortest path, spanning tree, subgraph, connected, disconnected. You do not need to be able to define them.

2. You must know the 4 basic ways to represent graphs in memory. This means knowing the bounds on their asymptotic performance (i.e. filling out the table below), knowing when to use which representation, and how to implement all of the functions for each representation.

operation	adjacency list	incidence list	adjacency matrix	incidence matrix
add vertex				
add edge				
remove vertex				
remove edge				
are vertices u and v adjacent?				
memory usage				