

CS 367 - Introduction to Data Structures

Thursday, April 14, 2016

Program 4 due 10 pm this Sunday, April 17th
Program 5 assigned Monday?

Homework h9 assigned Monday

Last Time

Exam mechanics
Sample questions

Today

Graphs

- traversals
- applications of BFS/DFS
- more terminology

Next Time

Read: finish *Graphs*, start *Hashing*

- topological ordering
- Dijkstra's algorithm

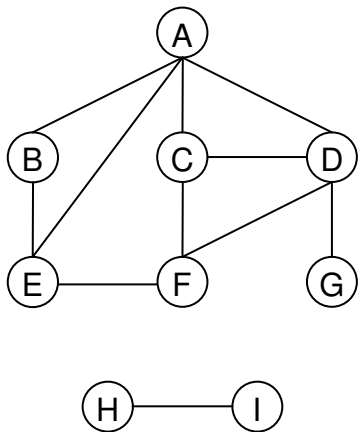
Hashing

- terminology
- Exam 2 returned

Searches and Traversals

Search

Traversal



→ Which connected component in the graph above can produce the longest path?



Depth-First Search (DFS)

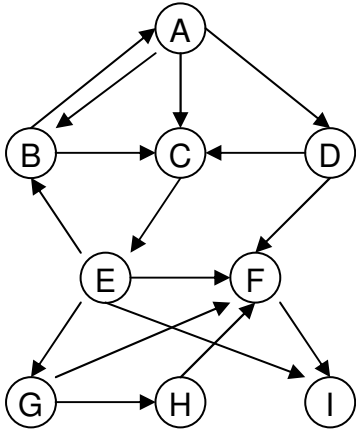
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Algorithm

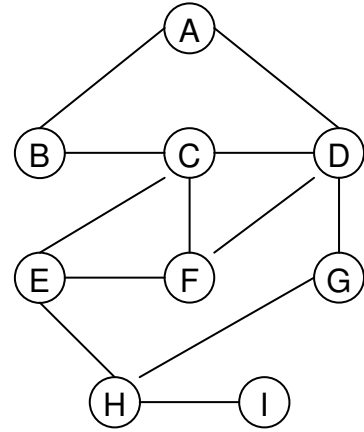


DFS Practice

Graph 1



Graph 2



→ Give the order that vertices are visited for depth-first search (DFS) starting at A.

Graph 1:

Graph 2:

→ Give the DFS spanning tree starting at A.

Graph 1:

Graph 2:

Breadth-First Search (BFS)

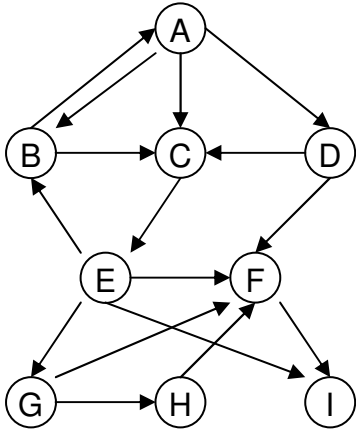
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Algorithm

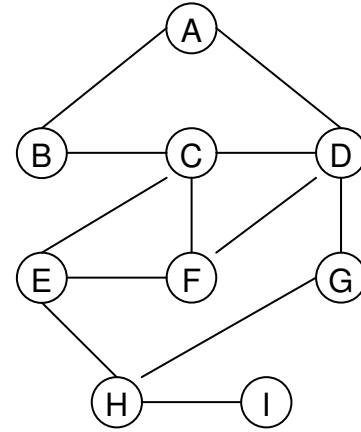


BFS Practice

Graph 1



Graph 2



→ Give the order that vertexes are visited for breadth-first search (BFS) starting at A.

Graph 1:

Graph 2:

Give the BFS spanning tree starting at A.

Graph 1:

Graph 2:

Applications of DFS/BFS

Path Detection

Cycle Detection

More Graph Terminology