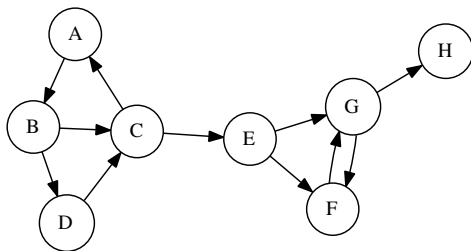


Today's topic: graphs, shortest-path algorithm; Ch. 23.

Next class: pairing heaps and weighted shortest-path algorithm; §§ 23.\*, 14.3.

1. List the members of your group below. Underline your name.

2. Consider the following directed graph (digraph):



- (a) The graph's *order* (number of vertices) is \_\_\_\_\_ .
- (b) The graph's *size* (number of edges) is \_\_\_\_\_ .
- (c) The number of *strongly connected components* is \_\_\_\_\_ .
- (d) The number of *connected components* (undirected edges) is \_\_\_\_\_ .
- (e) The number of *directed simple cycles* is \_\_\_\_\_ .
- (f) The number of *undirected simple cycles* is \_\_\_\_\_ .
- (g) The length of the *longest path* is \_\_\_\_\_ .
- (h) The *in-degree* and *out-degree* of the vertex E are \_\_\_\_\_ and \_\_\_\_\_ .
- (i) The number of *distinct simple paths* from B to G is \_\_\_\_\_ .
- (j) The number of *edge-disjoint paths* from B to G is \_\_\_\_\_ .
- (k) The number of *edge-disjoint paths* from E to F is \_\_\_\_\_ .
- (l) The vertices *adjacent to* B (its *out-neighbors*) are \_\_\_\_\_ .
- (m) The vertices *adjacent from* B (its *in-neighbors*) are \_\_\_\_\_ .

3. Depict an adjacency-list representation of the graph of Question 2.

4. Depict the action of the unweighted single-source shortest-path algorithm on the graph of Question 2 with source vertex B. Follow the conventions suggested by Figure 14.21 (p. 544) in the textbook.

