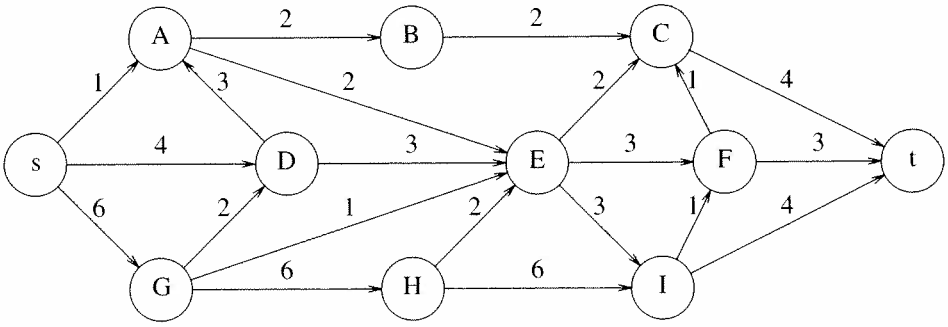

Figure 9.79 Graph used in Exercises 9.1 and 9.11

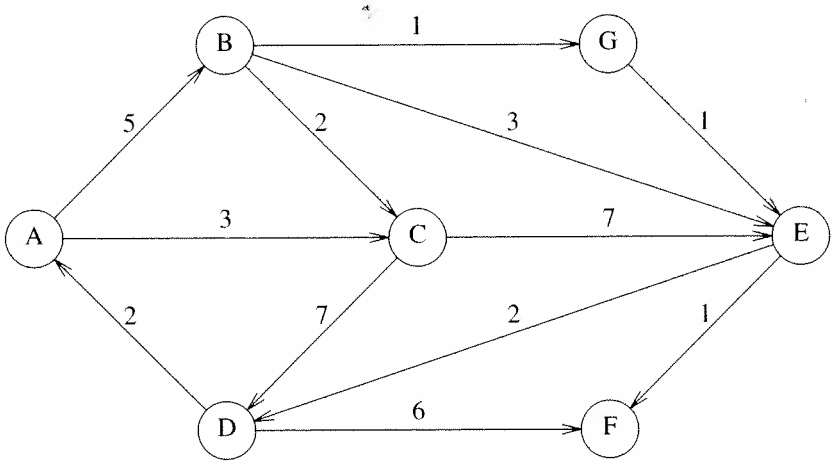

Figure 9.80 Graph used in Exercise 9.5

9.4 An adjacency matrix requires $O(|V|^2)$ merely to initialize using a standard double loop. Propose a method that stores a graph in an adjacency matrix (so that testing for the existence of an edge is $O(1)$) but avoids the quadratic running time.

9.5 a. Find the shortest path from A to all other vertices for the graph in Figure 9.80.
b. Find the shortest unweighted path from B to all other vertices for the graph in Figure 9.80.

9.6 What is the worst-case running time of Dijkstra's algorithm when implemented with d-heaps (Section 6.5)?

9.7 a. Give an example where Dijkstra's algorithm gives the wrong answer in the presence of a negative edge but no negative-cost cycle.

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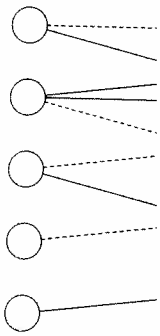

Figure 9.81