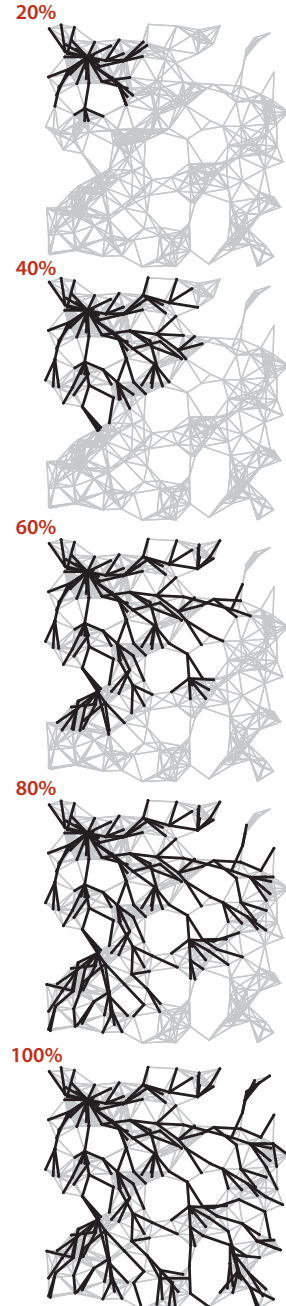


DFS for paths (250 vertices)

THE DIAGRAMS ON EITHER SIDE of this page, which show the progress of DFS and BFS for our sample graph `mediumG.txt`, make plain the differences between the paths that are discovered by the two approaches. DFS wends its way through the graph, storing on the stack the points where other paths branch off; BFS sweeps through the graph, using a queue to remember the frontier of visited places. DFS explores the graph by looking for new vertices far away from the start point, taking closer vertices only when dead ends are encountered; BFS completely covers the area close to the starting point, moving farther away only when everything nearby has been examined. DFS paths tend to be long and winding; BFS paths are short and direct. Depending upon the application, one property or the other may be desirable (or properties of paths may be immaterial). In SECTION 4.4, we will be considering other implementations of the Paths API that find paths having other specified properties.



BFS for shortest paths (250 vertices)