**Monotonic shortest path.** Given an edge-weighted digraph *G*, design an *E*log*E* algorithm to find a *monotonic* shortest path from s*s* to every other vertex. A path is *monotonic* if the sequence of edge weights along the path are either strictly increasing or strictly decreasing.

**Second shortest path.** Given an edge-weighted digraph and let *P* be a shortest path from vertex s*s* to vertex *t*. Design an *E*log*V* algorithm to find a path (not necessarily simple) other than *P* from *s* to *t* that is as short as possible. Assume all of the edge weights are strictly positive.

**Shortest path with one skippable edge.** Given an edge-weighted digraph, design an *E*log*V* algorithm to find a shortest path from s*s* to *t* where you can change the weight of any one edge to zero. Assume the edge weights are nonnegative.