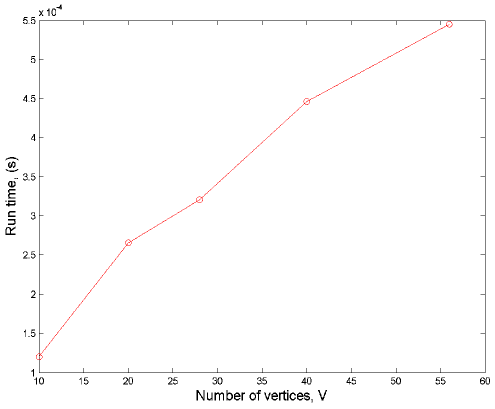
Problem

Implement Bellman Ford Algorithm and run it for a number of a number of inputs.

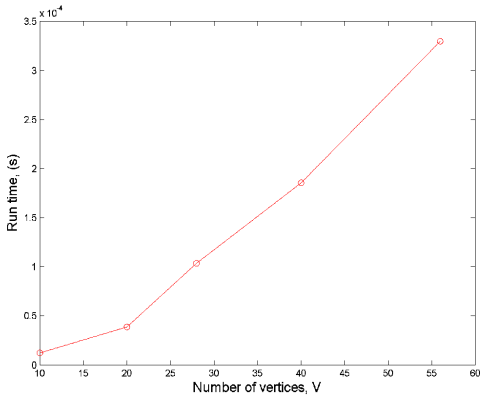
1. Implementation: Github link
2. Chart showing the running time vs input (vertices and edges) [Submit a pdf/picture]

Solution

1. Github link = `Assignment_3.m`
2. Formation of test cases:
   - Number of vertices, **V** are varied in domain = {10,20,28,40,56}.
   - Number of edges, **E** are varied in domain = [v, 2v], where v $\in$ **V**.
   - Total number of runs for each case is **R** = 100.
3. Plots:
   - Fig 1 Run-time vs V, with E = 100 (1a), V (1b), for V = {10,20,28,40,56}.
   - Fig 2 Run-time vs E, with E = [v, 2v], for = 20 (2a) and 56 (2b).
   - Fig 3 Run-time vs (V x E), for V = {10,20,28,40,56}.

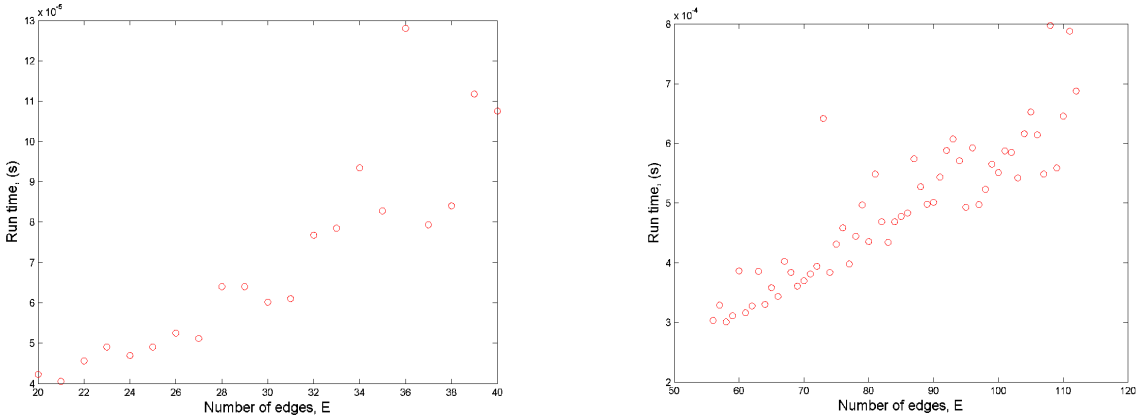


(a) Run time vs V with E = 100



(b) Run time vs V with E = V

Figure 1: Run time for Bellman Ford algorithm vs number of vertices



(a) Run time vs E with V = 20 (b) Run time vs E with V = 56

Figure 2: Run time for Bellman Ford algorithm vs number of edges

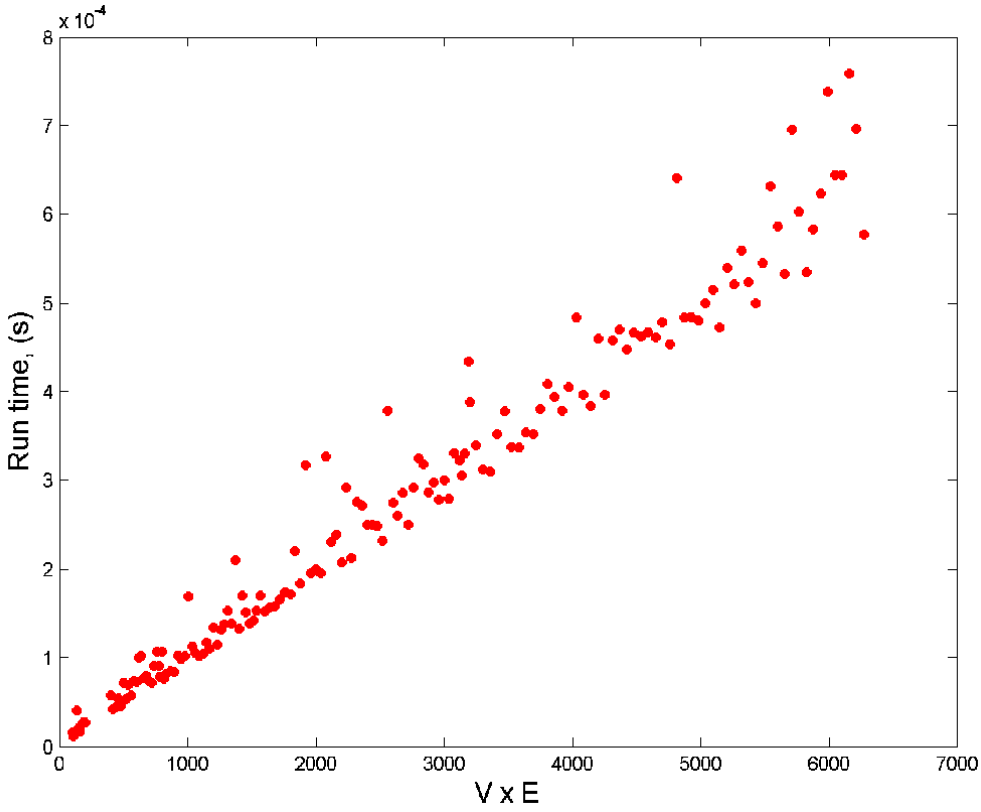


Figure 3: Run time for Bellman Ford algorithm vs V x E