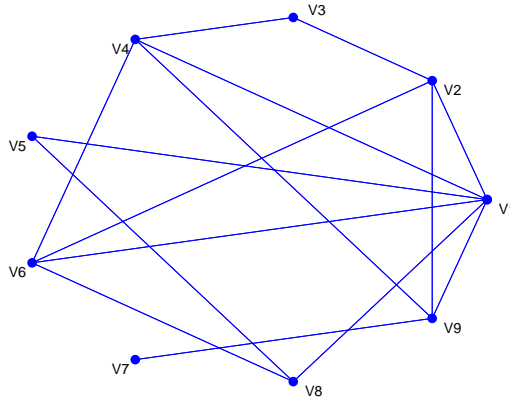


2. Write down the adjacency matrix for the graph below:

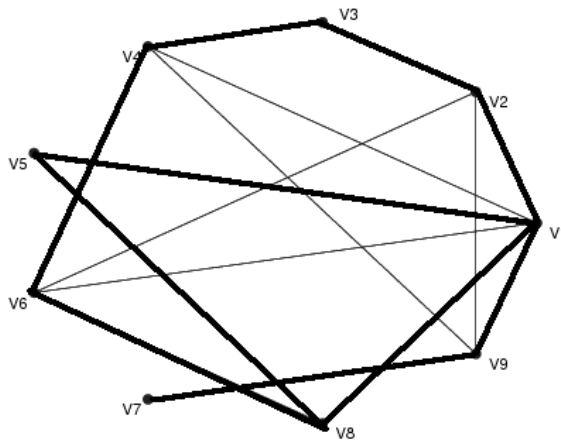


Show that it is semi-Eulerian and find a Eulerian path through the graph.

$$E = \begin{bmatrix} 0 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 1 \\ 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 \end{bmatrix}$$

The degrees of the vertices are 6,4,2,4,2,4,1,3,4 respectively so the graph is semi-Eulerian with start/end nodes V7 and V8.

An initial path might be 8-1-2-3-4-6-8-5-1-9-7



The cycle 1-4-9-2-6-1 can be inserted into this path at any of the points of the cycle to get the complete path. For example:

8-1-2-3-4-6-1-4-9-2-6-8-5-1-9-7

