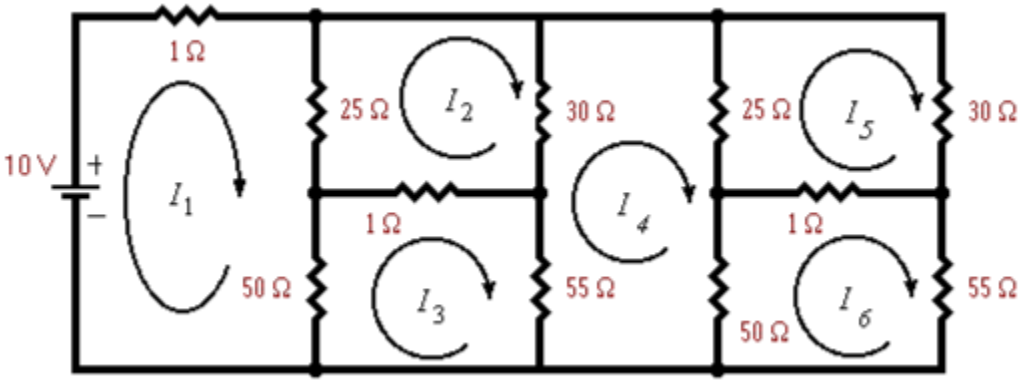
Numerical Methods (ECE 204)
Simulation Assignment # 2
Due date: 07.10.2019

Using MATLAB, calculate the value of the loop currents of the following circuit using the following algorithms:

a) Simple matrix inversion
b) Gaussian elimination
c) LU Factorization
d) Gauss-Seidel iteration



For each algorithm, you need to do the following:

- Each algorithm should be general and hence can be used to solve any n×n system. The algorithms should be able to read two files, i.e. A.txt (for matrix A) and B.txt (for Vector B).
- Use three significant digits in your calculated values.
- Gauss-Seidel algorithm should stop when the absolute approximate relative error is less than 1, 0.5, 0.1 and 0.01%. Show the required number of iterations in each accuracy.
- Label your steps in the m.files
- Assume the values of all resistors increased by 5%, calculate the new value of the loop currents using ONLY **Gaussian elimination**. Is the system of equations ill-condition? justify your answer.