CO253: Lab03

Introduction to programming and networking for Electrical Engineering

August 03, 2017

1 Introduction

In this Lab you will do circuit analysis using C Programming.

2 Problem

Following is an example circuit. A branch in the circuit is marked by a single capital letter as shown. Mesh currents are always marked clockwise. The circuit only consists of voltage sources and resistors.
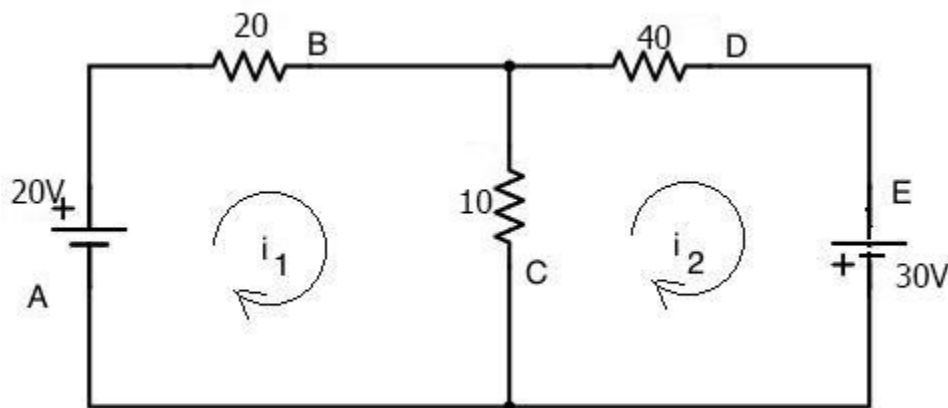
A branch in the circuit is represented in a single line as follows in the user input.

MeshNumber BranchLetter VoltageSource=Resistor Value

For example the above circuit will be represented as follows in the user input.

1 A V 20.0
1 B R 20.0
1 C R 10.0
2 C R 10.0
2 D R 40.0
2 E V -30.0

Note that R stands for resistor and V stands for voltage source. The sign of the voltage is given considering the direction as clockwise along the loop. Also note that the order in which the branches are listed need to be in sorted order.

You can get the program function as follows

Do you wish to continue? (y)es (n)o : //user enters y
//user inputs the values
Do you wish to continue? (y)es (n)o : //user enters y
//user inputs the values
Do you wish to continue? (y)es (n)o : //user enters n
//the program calculates the currents, outputs and terminates

3 Task

Write a C Program that takes a circuit as the input (in given input format) and calculate the mesh currents and prints them. The current should be printed in ampere to two decimal places. e.g. For the given circuit, output is

0.5

1.0

A matrix inverse function is given for you and you can use the necessary pieces it in your code.

4 What to turn in?

Submit a single C file EXXYYY.c to FEeLS before the deadline.