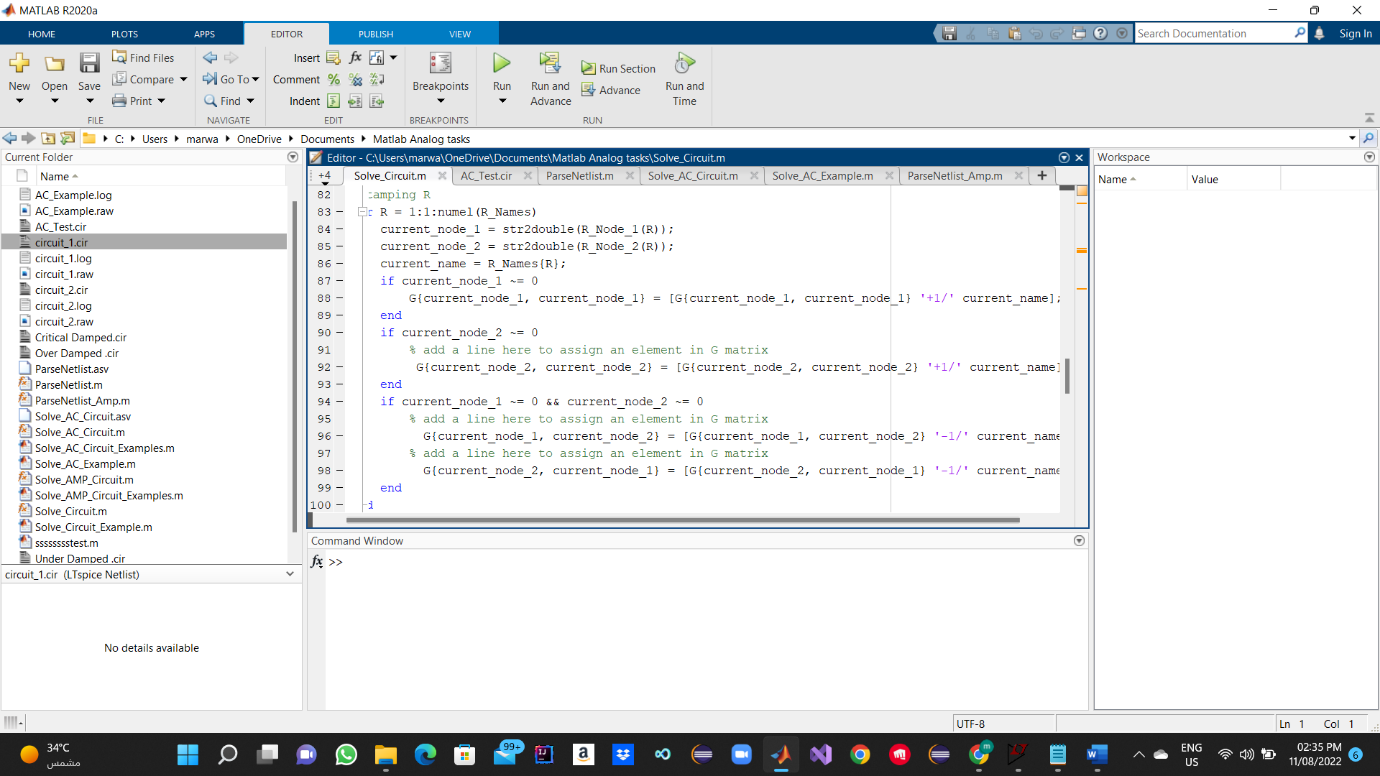
Part 1 :

Code :



Simulation Results

And Solve Example is completed :

Graphical user interface, text, application

Description automatically generated

Table Compare:

|  |  |
| --- | --- |
| Matlab | Ltspice |
| the first netlist:  V\_1 = 30.000000  V\_2 = 16.956522  I\_Vb = -0.260870  the second netlist:  V\_1 = 40.000000  V\_2 = 14.634146  V\_3 = 32.195122  V\_4 = 112.195122  I\_Vb = -1.268293 | the first netlist:  V(1): 30 voltage  V(2): 16.9565 voltage  I(Is):  2 device\_current  I(R3): 1.69565 device\_current  I(R2): 0.565217 device\_current  I(R1): 0.26087 device\_current  I(Vb): -0.26087 device\_current  the second netlist:  **V**(1): 40 voltage  V(2): 14.6341 voltage  V(3): 32.1951 voltage  V(4): 112.195 voltage  I(Is): 1 device\_current  I(R6): 0.804878 device\_current  I(R4): 1.46341 device\_current  I(R3): -1 device\_current  I(R2): -0.195122 device\_current  I(R1): 1.26829 device\_current  I(Vb): -1.26829 device\_current |

Ltspice Find The value of the Current in each branch while Its Not Supported in my code And The results of The voltage Nodes My Code have higher precision.

Part 2:

Created the script for solving Ac. A screenshot of a computer

Description automatically generated

Created the script for solving Ac Example.

A screenshot of a computer

Description automatically generated

My Simulator Results:

Over Damped RLC:

A screenshot of a computer

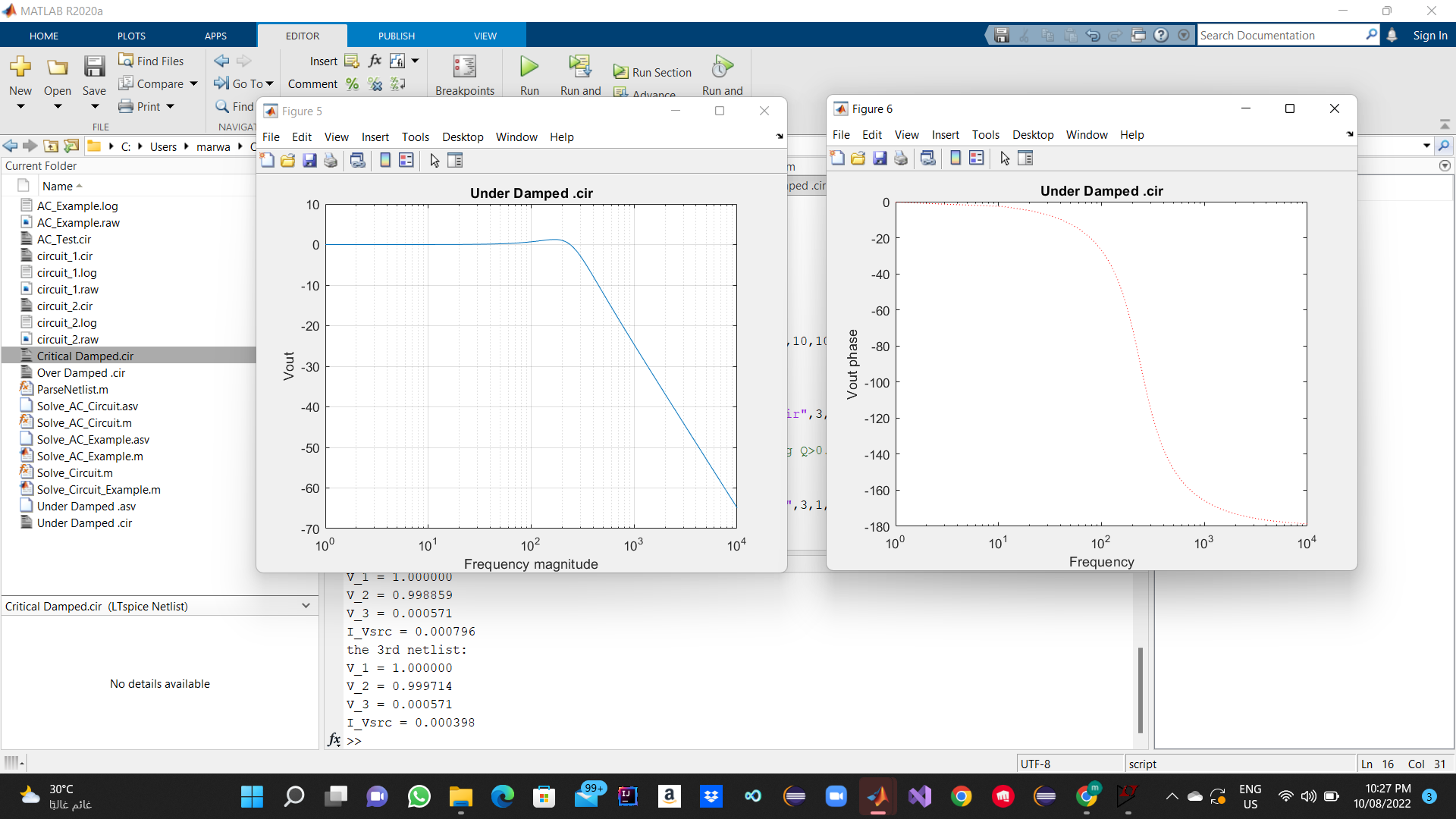
Description automatically generated

Critical Damped RLC:

Graphical user interface, chart

Description automatically generated

Under Damped RLC With Peaking :



LTspice Results:

Over Damped RLC: Graphical user interface, text

Description automatically generated

Critical Damping RLC:

Graphical user interface, text

Description automatically generated

Under Damped RLC:

Graphical user interface, text

Description automatically generated

Comment:

The Graphs Are The Same For Both Lt Spice and my Simulator

But LtSpice Is faster at getting Results and have more helping tools like cursor to have an accurate number for the cutoff Freq etc.

PART 3:

Added Support for both VCVS and VCCS :

Graphical user interface, text, application

Description automatically generated

Note:

Modified The Parseing function to add support for VCVS And VCCS

I used the modifeid one along with the original one ,its not optimum for coding it can be done with the orginal one with some modifications only.

Graphical user interface, text, application

Description automatically generated

My Simulator Results :

Non Inverting amplifier with UGF=10 Megahz connected in UGain Configuration

A screenshot of a computer

Description automatically generated with medium confidence

Lt SPice Results :

A screenshot of a computer

Description automatically generated

Comment: The Graphs are Identical The Simulator is spice accurate but its much slower than spice.