

Simulink

1. How to Simulink

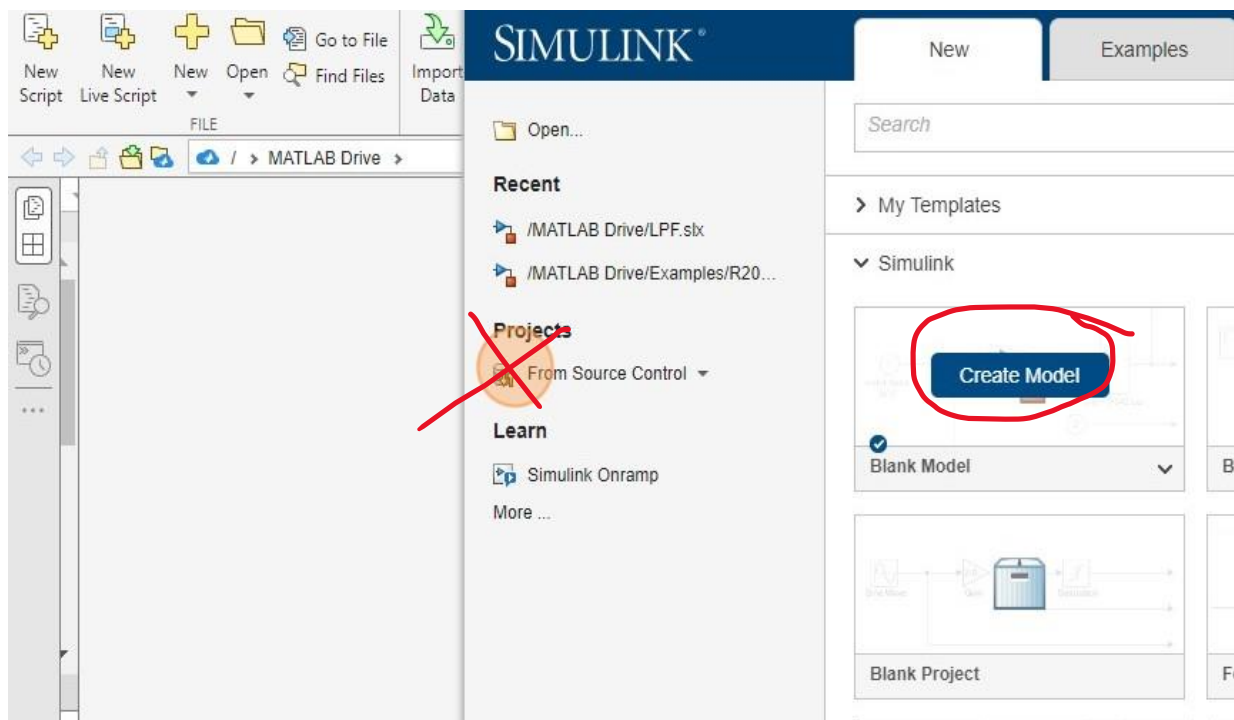
How to Access and Customize a MATLAB

- 1 Navigate to <https://matlab.mathworks.com>

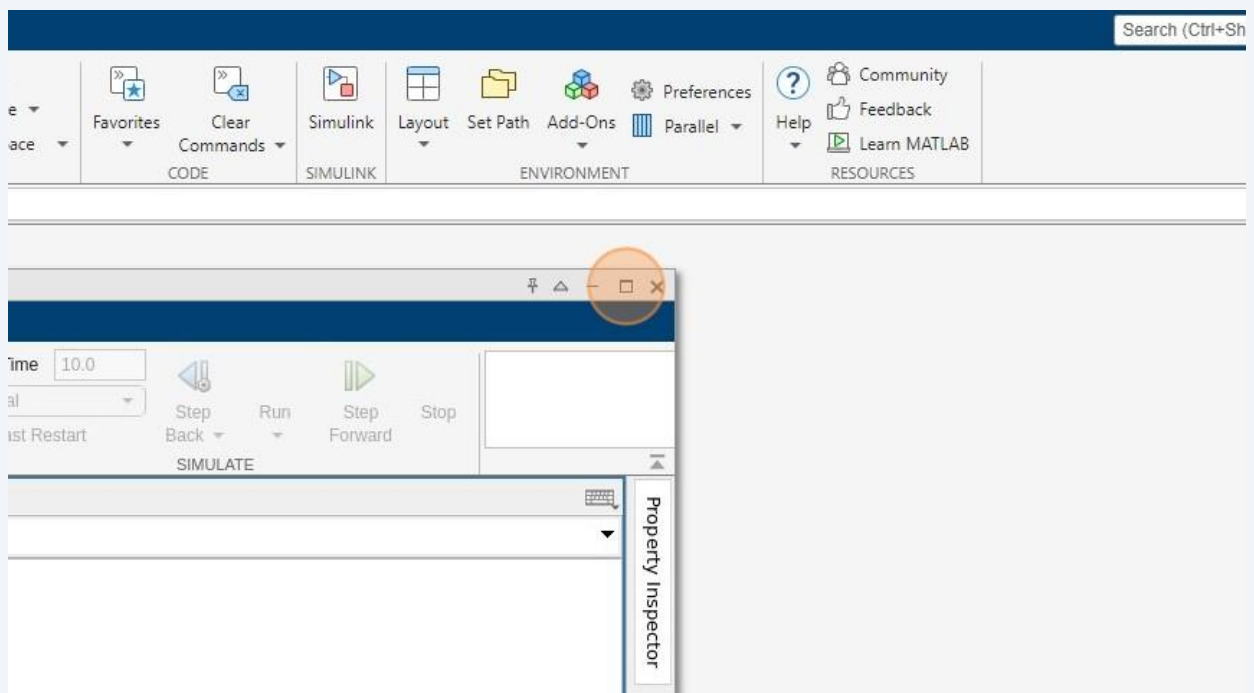
- 2 Click here.



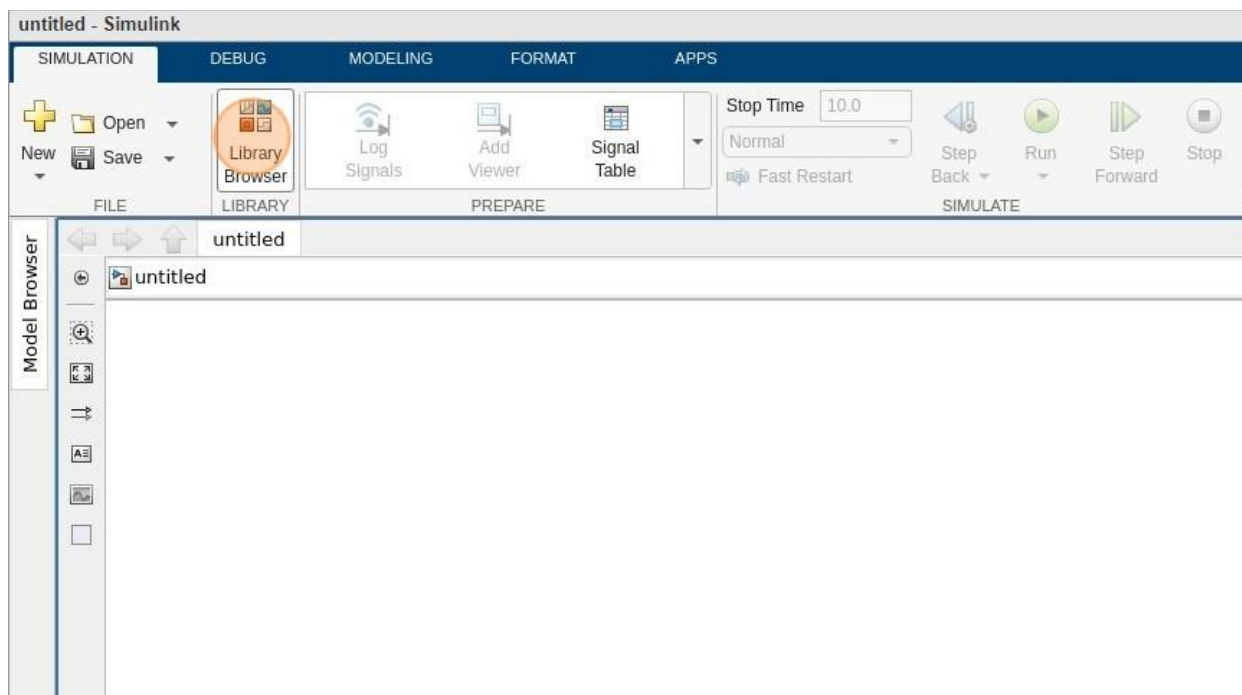
- 3 Click here on the **create model**



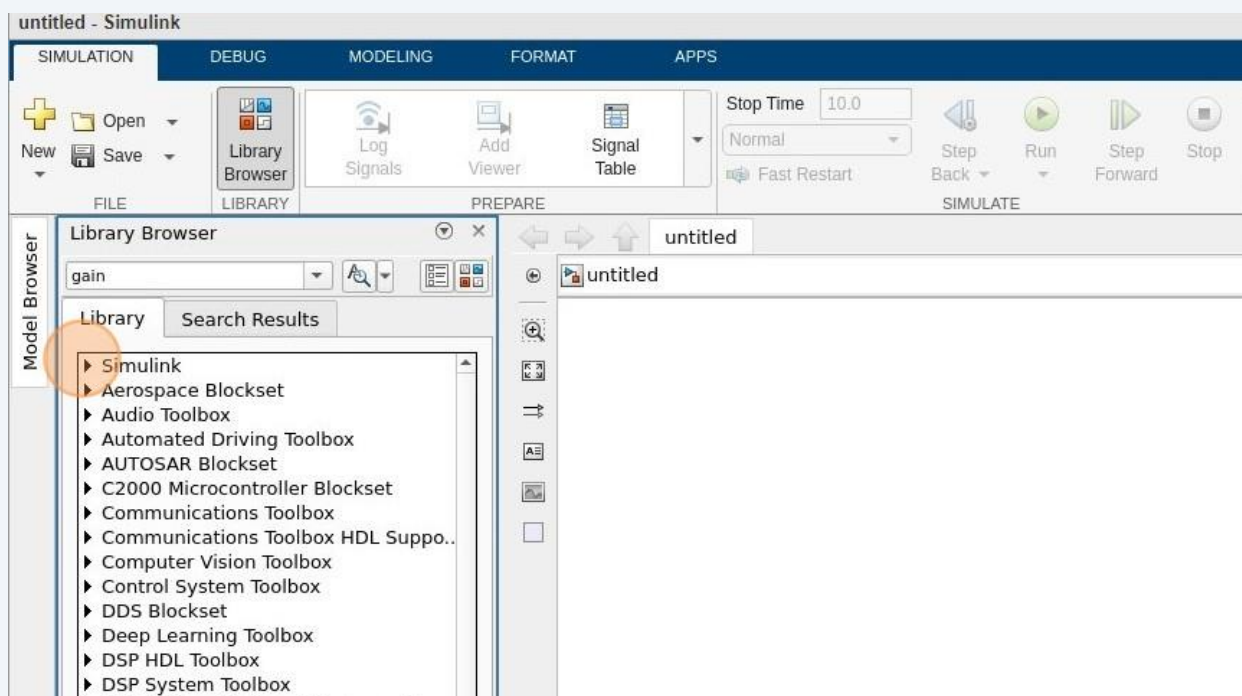
4 Click here.



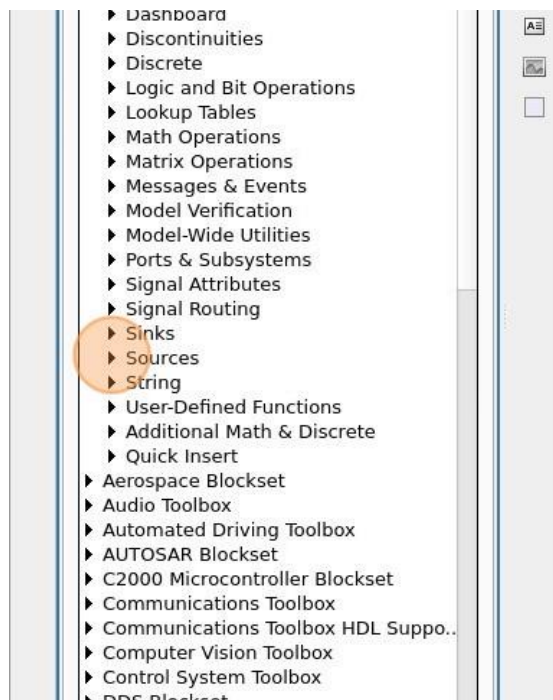
5 Click here.



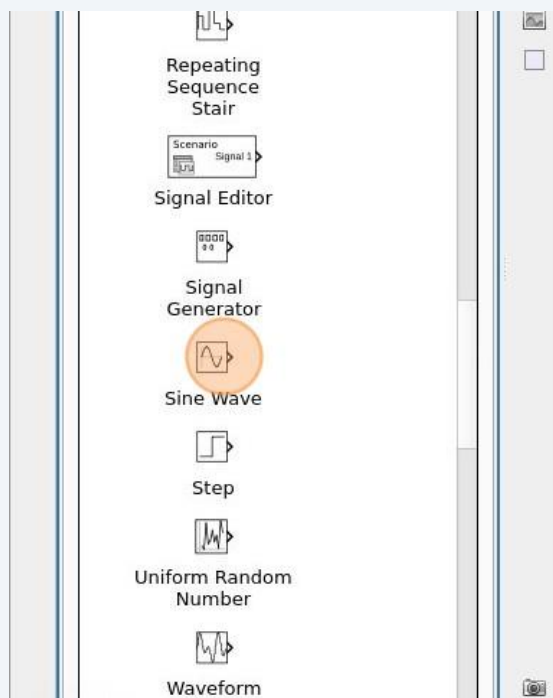
6 Click here on Simulink



7 Click here on the sources to choose any source we require



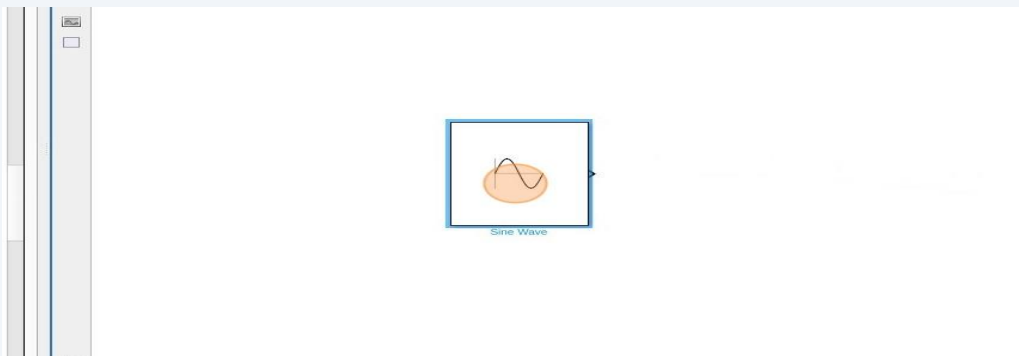
8 Click here to select a sine wave



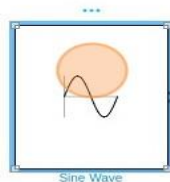
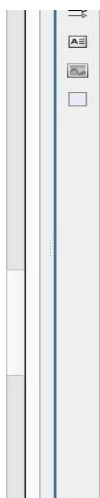
9 This is the sine wave block



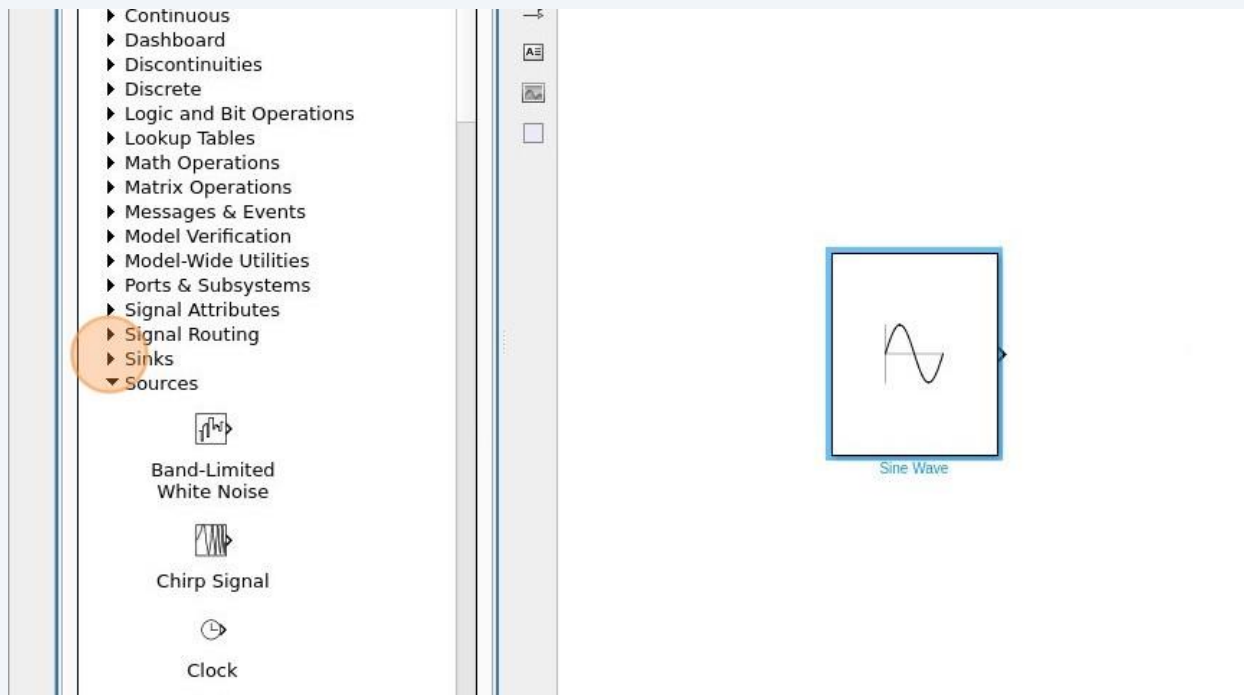
10 Enlarge it to have better visibility



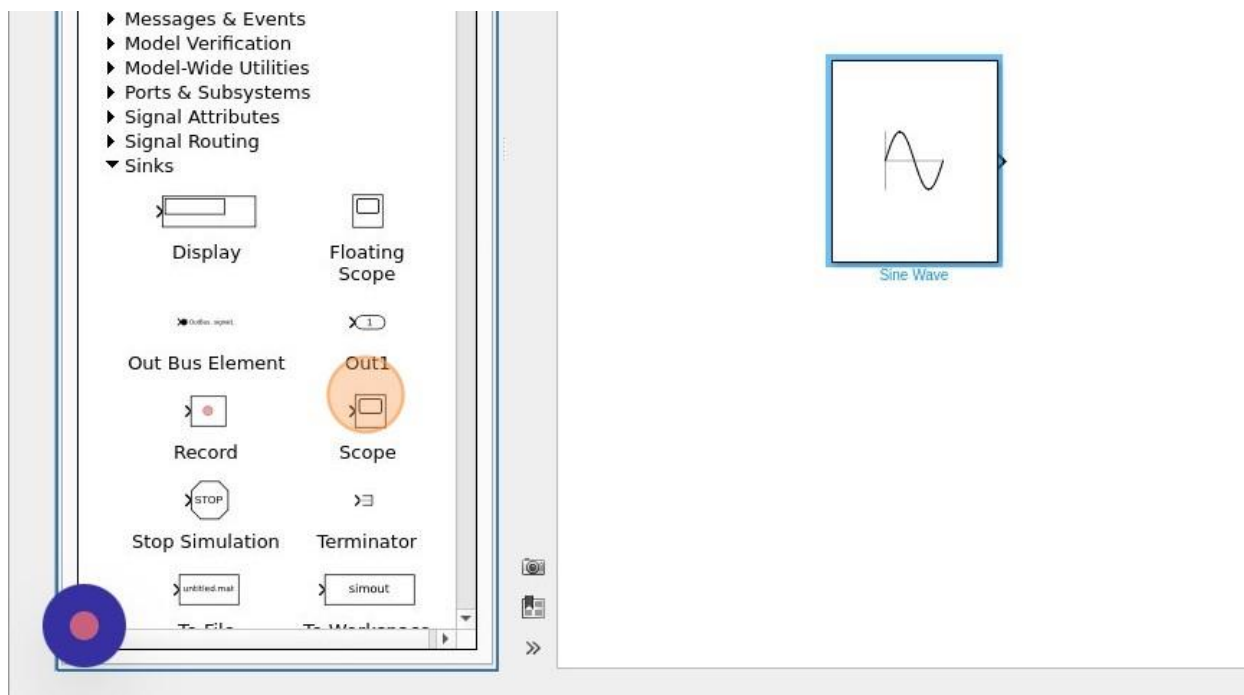
11 Click here.



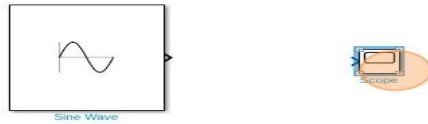
12 Choose scope to output the signal, click sink.



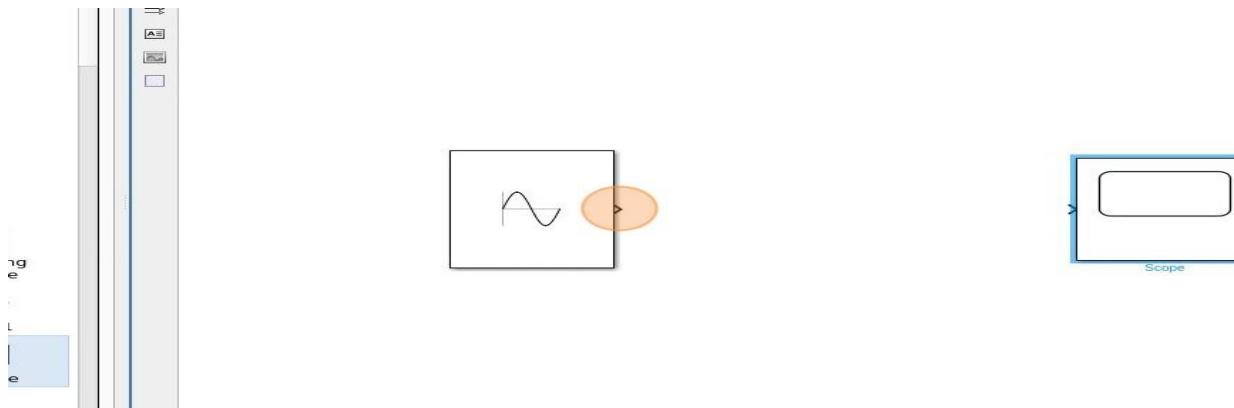
13 Click here to choose the scope



14 Click here.



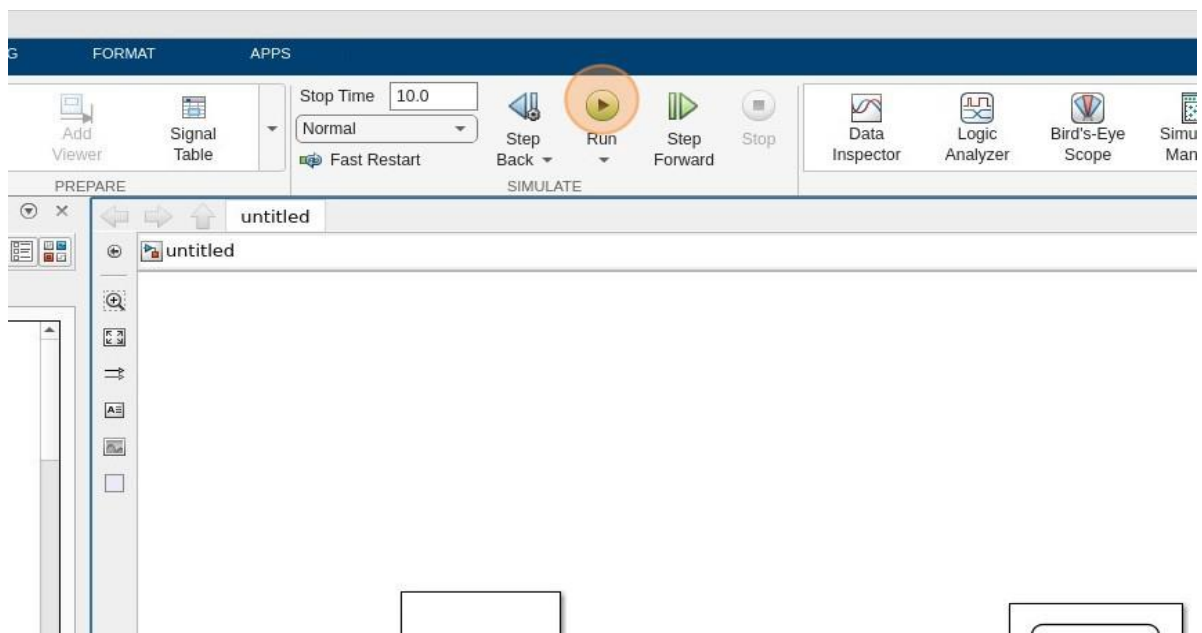
15 Click here, the small arrow



16 Click the receiving arrow of the scope



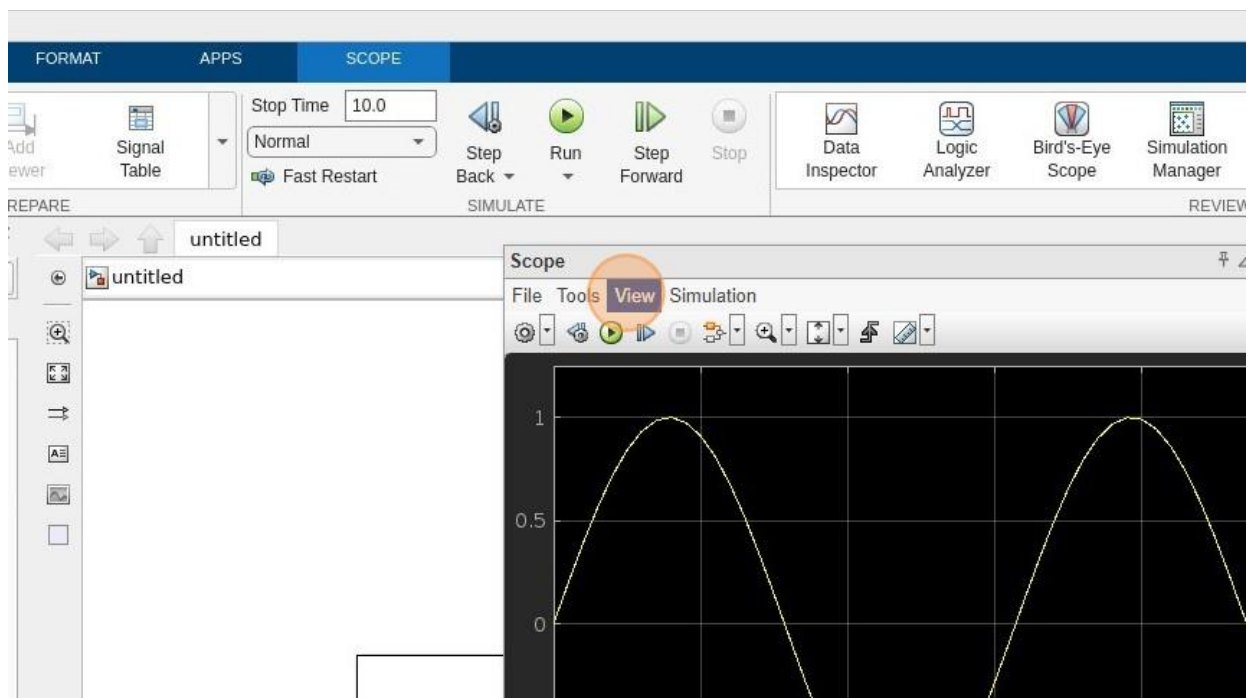
17 Click here, the run button



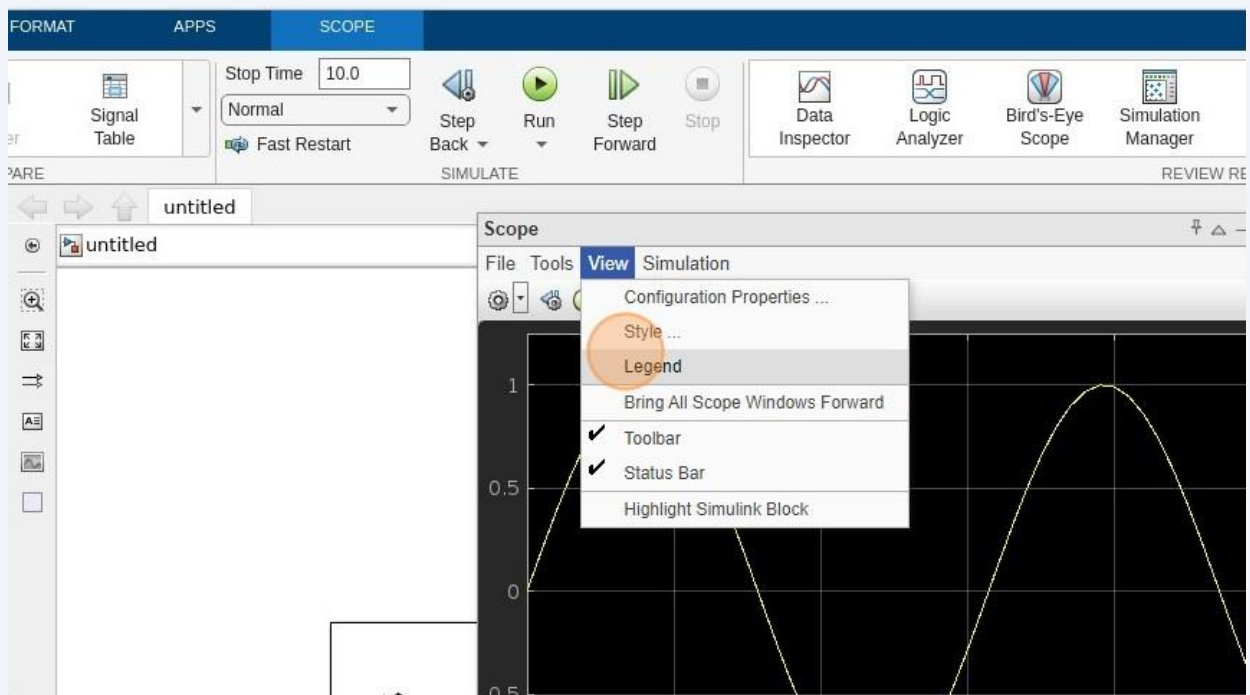
18 Double-click here on the scope to get the output



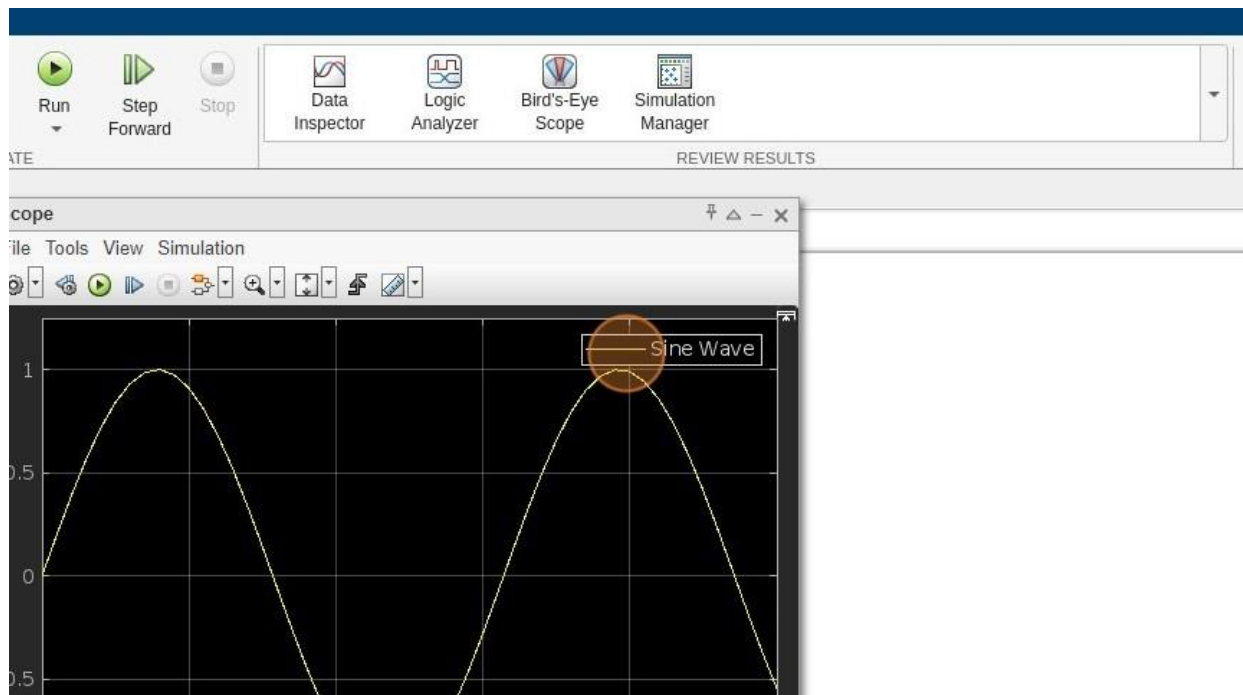
19 Click "View"



20 Click "Legend"



21 Legen will help you in identifying different waveforms(if you use)



2. Low Pass Filter

The circuit diagram we are going to replicate using Simulink is in figure 1.1 and the derivations to get output is in the figure 1.2. Here the RC are the resistor and capacitor values. i.e they are constant.

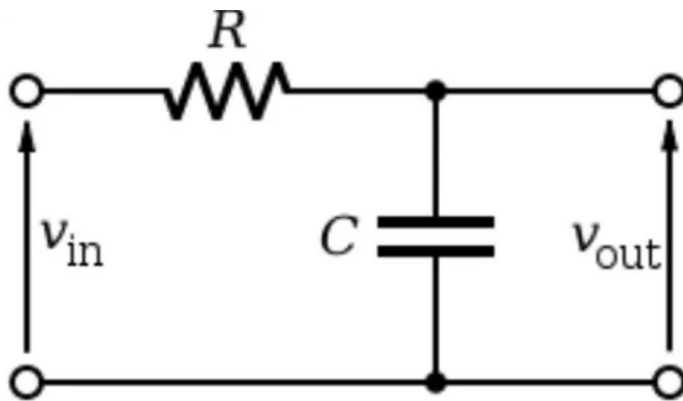


Figure 2.1 Low Pass Filter - Circuit

$$v_{in}(t) - v_{out}(t) = R i(t)$$

$$Q_c(t) = C v_{out}(t)$$

$$i(t) = \frac{d Q_c}{d t}$$

$$v_{in}(t) - v_{out}(t) = RC \frac{d v_{out}}{d t}$$

Figure 2.2 Low Pass Filter Derivation

Further details available at <https://github.com/Allwyn3t6/Simulink>