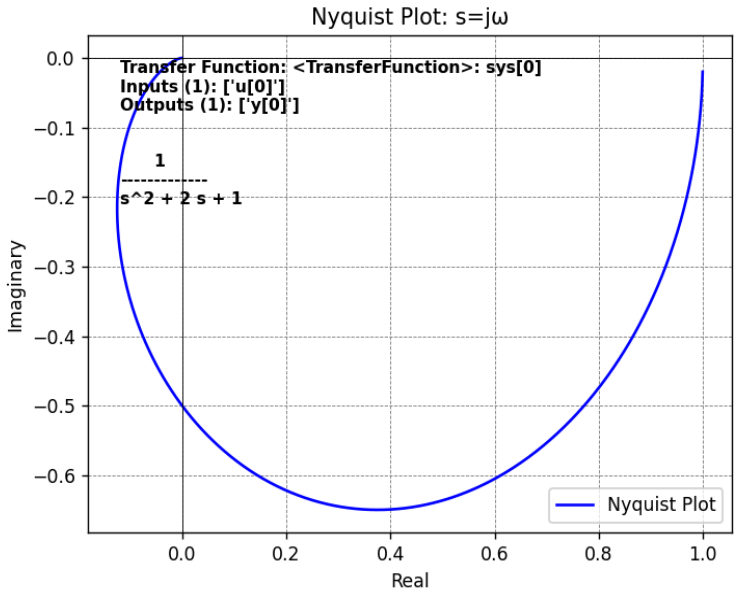
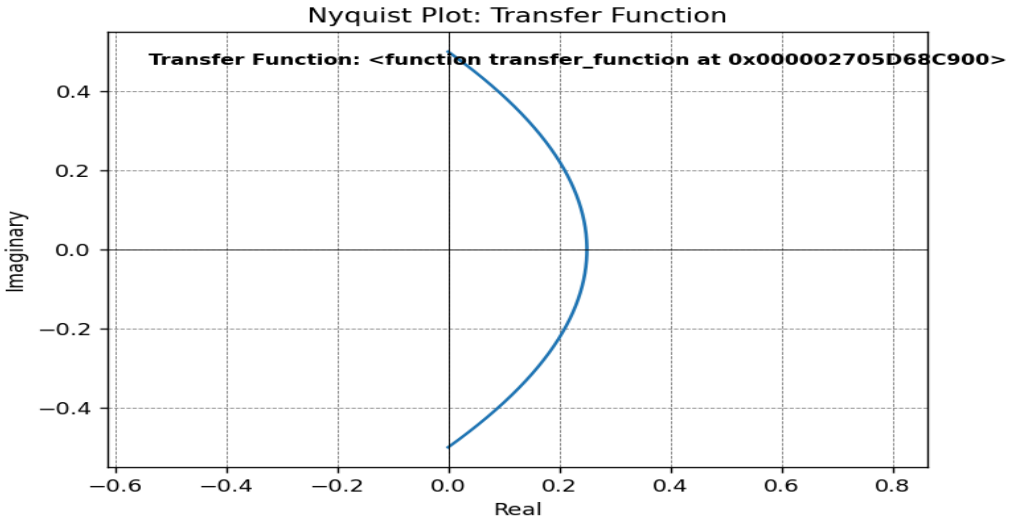
NYQUIST PLOT

STEPS OF NYQUIST PLOT

1. Enter the value of numerator = [1]
2. Enter the value of denominator =[1,2,1]
3. **Step:1**
4. Substitute s=jw, where w is the angular frequency.
5. Calculate the magnitude and phase of the transfer function at different values of w.
6. Plot the magnitude and phase against w.

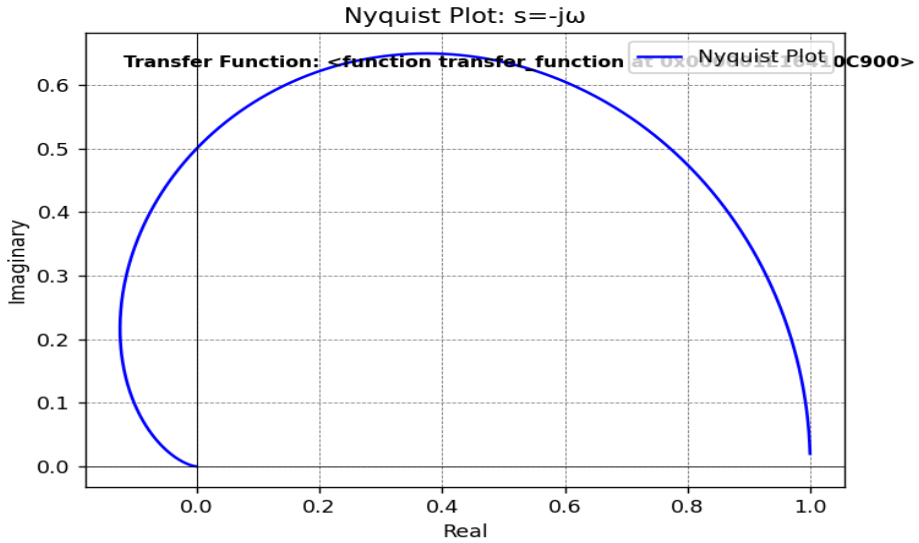


7. **Step:2**
8. Substitute s=Re^jθ , where R=infinity (1) and θ ranges from 90 to −90
9. Calculate the magnitude and phase of the transfer function.
10. Plot the magnitude and phase against θ.



step:3

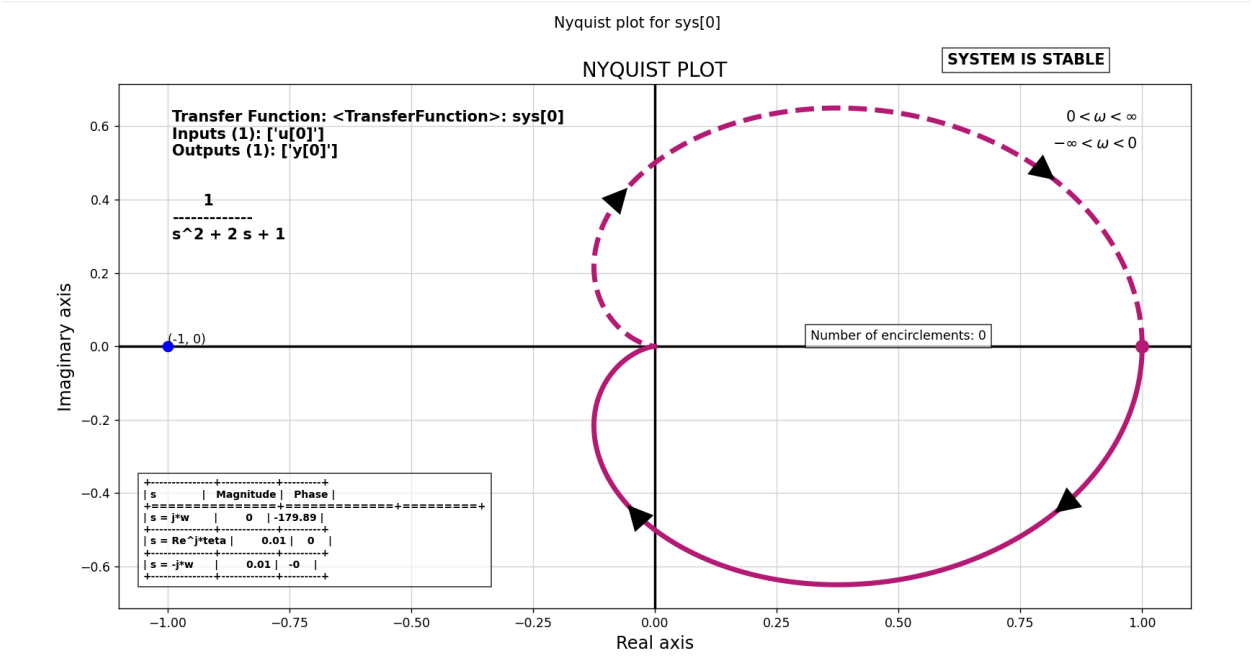
11. Substitute s=-jw, where w is the angular frequency. **(it is always inverse of step:1)**
12. Calculate the magnitude and phase of the transfer function at different values of w.
13. Plot the magnitude and phase against w.
14.



15. Step:4

16. Substitute s=re^ jθ , where r=0 and θ ranges from −90 to 90
17. Calculate the magnitude and phase of the transfer function.
18. Plot the magnitude and phase **only when it touches a critical point**.

Final graph


Nyquist plot for sys[0]
NYQUIST PLOT
SYSTEM IS STABLE
Transfer Function: <TransferFunction>: sys[0]
Inputs (1): ['u[0]']
Outputs (1): ['y[0]']
1
---
s^2 + 2 s + 1
0 < ω < ∞
−∞ < ω < 0
Number of encirclements: 0
(-1, 0)
Imaginary axis
Real axis
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
−1.00
−0.75
−0.50
−0.25
0.00
0.25
0.50
0.75
1.00
s	Magnitude	Phase
s = j*w	0	-179.89
s = Re^j*teta	0.01	0
s = -j*w	0.01	-0