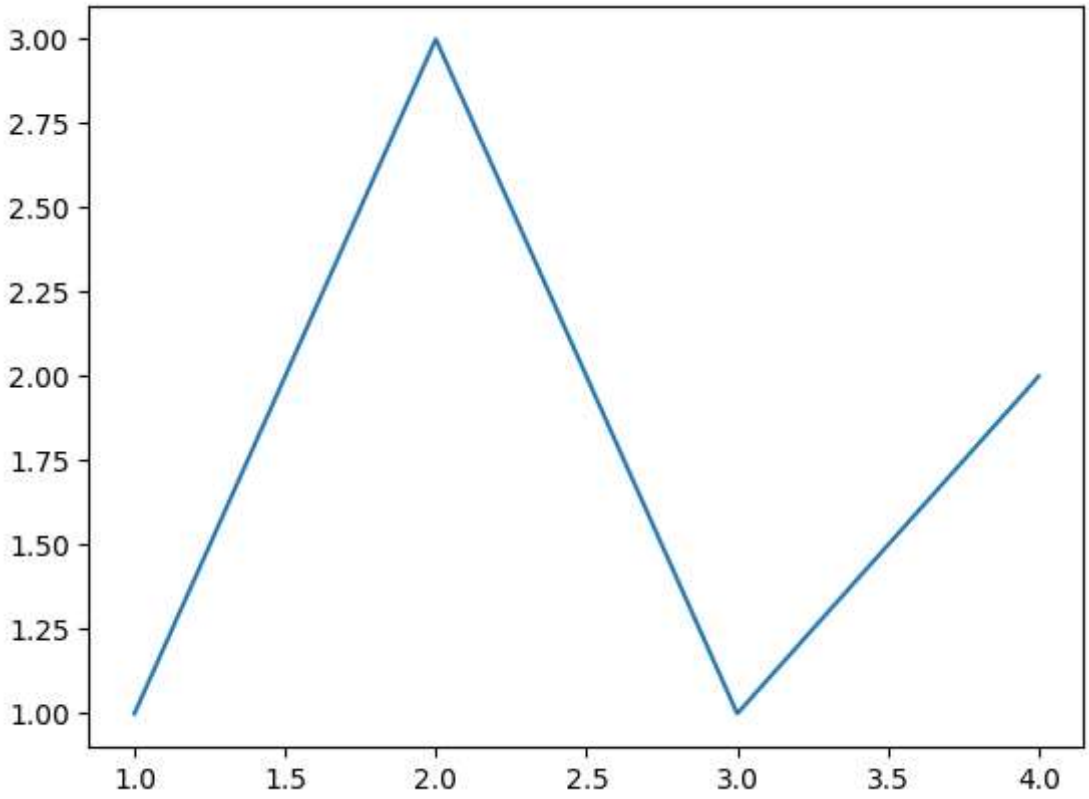
In [ ]:
```
# understanding matplotlib library (Gaurav Dev)
```

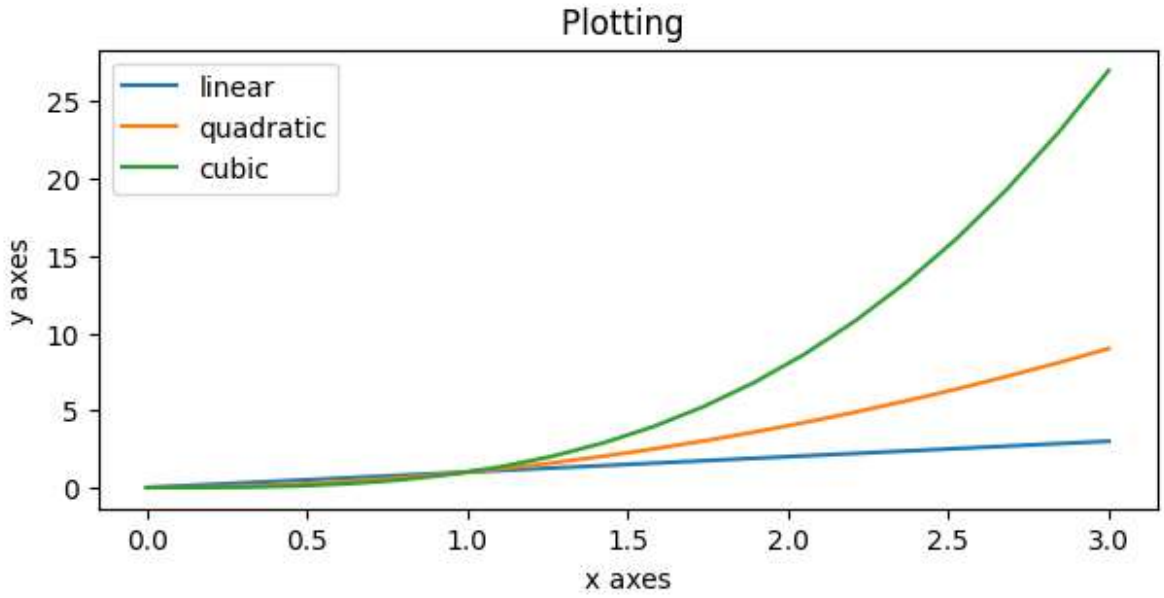
In [7]:
```
import numpy as np
import matplotlib.pyplot as plt
fig,axs = plt.subplots()
axs.plot([1,2,3,4],[1,3,1,2])
```

Out[7]:
```
[<matplotlib.lines.Line2D at 0x1faa6ed22d0>]
```



In [8]:
```
x = np.linspace(0,3,20) #sample data
fig, axs = plt.subplots(figsize=(6,3.1), layout = 'constrained')
axs.plot(x,x,label='linear')
axs.plot(x,x**2,label='quadratic')
axs.plot(x,x**3,label='cubic')
axs.set_xlabel('x axes')
axs.set_ylabel('y axes')
axs.set_title("Plotting ")
axs.legend()
```

Out[8]: <matplotlib.legend.Legend at 0x1faa371fa90>



In [ ]:
```
# annotaions in matplotlib
```

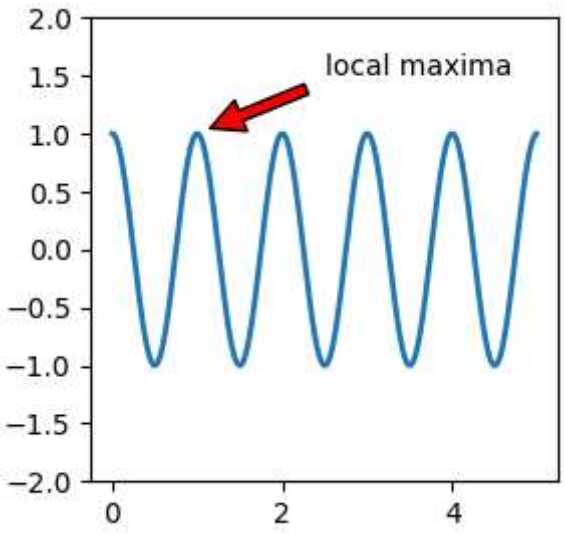
In [24]:
```
import numpy as np
import matplotlib.pyplot as plt

fig, ax = plt.subplots(figsize=(3, 3))

t = np.arange(0.0, 5.0, 0.01)
s = np.cos(2*np.pi*t)
line, = ax.plot(t, s, lw=2)

ax.annotate('local maxima', xy=(1, 1), xytext=(2.5, 1.5),
            arrowprops=dict(facecolor='red', shrink=0.1))
ax.set_ylim(-2, 2)
```

Out[24]: (-2.0, 2.0)



In [ ]:
```
# Using annotate() function, to plot a new graph
# let us consider a dataset where y axes denotes the number of hours a student
# we will plot the point when Gaurav studied the least number of hours
```

In [1]:
```
import numpy as np
import matplotlib.pyplot as plt
y_hrs = [2,5,4,3,1,6,5,3,4]
x = range(1,10)

min_y= min(y_hrs)
x_co = x[y_hrs.index(min_y)]
plt.plot(x, y_hrs, label='Daily study hours')
plt.xlabel('Day')
plt.ylabel('Study Hours')
plt.legend(loc = 'upper right')
plt.title("Daily study hours of Gaurav")
plt.annotate('Least hours',
             xy=(x_co,min_y),
             xytext=(7.5,2),
             arrowprops=dict(facecolor='black', shrink=0.1))
plt.show()
```