1. matplotlib

$y = sin(x)$

??

2. pandas

??

$y = sin(x)$

3. seaborn

??

??

$y = sin(x)$

plot([x], y, [fmt], **kwargs)

??

??

??

$_m inus'] =$

$False$

??

1. matplotlib

$_m inus'] =$

$False$

$_r ate =$

$[9.4, 10.6, 9.6, 7.9, 7.8, 7.3, 6.9, 6.7, 6.8, 6.6] first_i ndustry_r ate =$

$[4.0, 4.3, 4.2, 4.50, 3.8, 4.1, 3.9, 3.3, 4.0, 3.5] second_i ndustry_r ate =$

$[10.3, 12.7, 10.7, 8.4, 8.0, 7.4, 6.2, 6.3, 5.9, 5.8] third_i ndustry_r ate =$

$[9.6, 9.7, 9.5, 8.0, 8.3, 7.8, 8.2, 7.7, 7.9, 7.6] years =$

$[2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018]$

$_r ate,' .-', label ='$

$GDP')plt.plot(years, first_i ndustry_r ate,' .-', label ='$

$')plt.plot(years, second_i ndustry_r ate,' .-', label ='$

$')plt.plot(years, third_i ndustry_r ate,' .-', label ='$

$')$

??

x

y

(x_i, y_i)

1

scatter(x, y, [s], [c], **kwargs)

??

$_m inus'] =$

$False$

??

$_m inus'] =$

$False$

**bar(x,
height,
[width],
kwargs)

$_minus'] =$
$False$
$_number =$
$[6, 7, 6, 1, 2]$
$_number)plt.title('')$
**barh(x,
width,
[height],
kwargs)

$_minus'] =$
$False$
$_number =$
$[6, 7, 6, 1, 2]$
$_number)barhplt.title('')$
$_minus'] =$
$False$
$_number_male =$
$[6, 7, 6, 1, 2]buy_number_female =$
$[9, 4, 4, 5, 6]$
$_width =$
$0.3 index_male =$
$np.arange(len(waters)) index_female =$
$index_male +$
bar_width
$_male, height =$
$buy_number_male, width =$
$bar_width, color ='$
$b', label ='$
$')plt.bar(index_female, height =$
$buy_number_female, width =$
$bar_width, color ='$
$g', label ='$
$')$
$_male +$
$bar_width/2, waters) waters index_male +$
$bar_width/2 plt.ylabel('') plt.title('')$
??

$[n,$
$bins,$
$patches]$
$=$
$hist(x,$
$[bins],$
$**kwargs)$

$\vdots$

??
pie(x,
[ex-
pode],
[la-
bels],
[au-
topic],
**kwargs)

$_minus'] =$
$False$
$_minus'] =$
$False$