MAZ-CAS-DDJ / kurs_18_19

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0 contributors

134 lines (100 sloc) 5.83 KB

PLOTTING CHEAT SHEET

by Simon Schmid. Work in progress, without any guarantees

SETUP

`%matplotlib inline` ❞ůśè ćõṃṃaňḋ ţõ ḋìśqḻaẏ qḻõţś ìň ňõţèḇõõǩś

`import matplotlib.pyplot as plt` ❞ţõ ůśè èẁèřẏţȟìňğ ẁìţȟ qḻţ»

`import matplotlib.ticker as ticker`

`import matplotlib.dates as dates`

`matplotlib.rcParams['pdf.fonttype'] = 42` ❞ţõ èyqõřţ ìň ţẏqè4 ḟõňţś ňõţ ţẏqè6

PANDAS BUILT-IN FUNCTION

`df.plot()` ❞ḋèḟaůḻţ>a ḻìňè čȟařţ (reference)

- `linewidth=n` ❞ẁìḋţȟ õḟ ḻìňè ìň ḻìňèčȟařţ

`kind="bar"` ❞ẁèřţìčaḻ ḇař čȟařţ

- `stacked=True/False` ❞ḟõř śţačǩèḋ ḇař čȟařţś
- `x="field1", y="field2"` ❞śqèčìḟẏ śèřìèś ţõ ůśè ḟõř y aňḋ ẏ èyqḻìčìţḻẏ

`kind="barh"` ❞ȟõřìžõňţaḻ ḇař čȟařţ

- `stacked=True/False` ❞ḟõř śţačǩèḋ ḇař čȟařţś
- `x="field1", y="field2"` ❞śqèčìḟẏ śèřìèś ţõ ůśè ḟõř y aňḋ ẏ èyqḻìčìţḻẏ

`kind="scatter"` ❞śčaţţèřqḻõţ

- `s=number` ❞śìžè õḟ ţȟè ḋõţś ìň a śčaţţèřqḻõţ ¤čaň ḇè a ḻìśţ/
- `x="field1", y="field2"` ❞śqèčìḟẏ śèřìèś ţõ ůśè ḟõř y aňḋ ẏ èyqḻìčìţḻẏ
- `alpha=number` ❞aḻqȟaẁaḻůè ¤ţřaňśqařèňčẏ/
- `s=number` ❞śìžè õḟ śčaţţèř❞ḋõţś«čaň ḇè a ḻìśţ
- `ylim=(val1, val2)` ❞śèţ ṃìň aňḋ ṃay õḟ ẏ❞ayìś

Format Options

- `figsize=(valx, valy)` ❞ḋèḟìňè śìžè õḟ ţȟè ğřaqȟ
- `title="title"` ❞ţȟè ţìţḻè
- `legend="True/False"` ❞ḋìśqḻaẏ a ḻèğèňḋ
- `label="labellist"`
- `color="color/colorlist"` ❞śèţ čõḻõř õḟ ḻìňè-ḇař«čaň ḇè a ḻìśţ

WHERE TO PLOT

- `ax=otherplot` ❞Pḻőţ őñ śőṁè èyìśţìñğ ćȟaŗţ ¤ őţȟèŗqḻőţ: /

Histograms

`df["field1"].hist()` ❞ŗèţúŗñś a ğŗaqȟìćaḻ ȟìśţőğŗaṁ

- `bins=n` ❞ćȟañğè ñúṁḇèŗ őḟ ḇìñś ţő ñ
- `bins=[n1, n2, n3, ...]` ❞śèţ śqèćìḟìć ŗañğèś

MATPLOTLIB PLOTTING

fig, ax = plt.subplots() #create separate handles for the figure and axis

df.plot(ax=ax) #add a plot to the figure and axis specified ax.plot() #other way to add a plot to the figure and axis ax.scatter() ax.pie() ax.bar() ax.barh() ax.hlines() ... #overwiew: https://matplotlib.org/2.0.2/api/axes_api.html

MULTIPLE SUBPLOTS

fig = plt.figure() #create the figure seperately ax = fig.add_subplot(vpos, hpos, n) #add an axis to the figure, at the nth position in a (v*h) grid

#FORMATTING THE PLOT - MAIN SETUP fig.set_size_inches(x, y) #Set the sizes

.set_title("Title") #Set the title fontsize=number .spines['right'].set_visible(True/False) #display borders around canvas 'left' 'top' 'bottom' .set_xlim([min, max]) #set range on the x-Axis .set_ylim([min, max]) #Set range on the y-Axis

#FORMATTING THE AXES - LABELS .axis('off') #remove the axes completely .set_xlabel("Label") #Set label of horizontal axis fontsize=number .set_ylabel("Label") #Set label of vertical axis fontsize=number .xaxis.set_ticks_position('top') #position of ticks 'bottom' 'none'

#FORMATTING THE AXES - TICKS .xaxis.set_ticks(listofticks)

.xaxis.set_major_locator() #efine ticks frequency in a time plot dates.YearLocator() dates.MonthLocator()

.xaxis.set_major_formatter() #define the date format of the ticks in a time plot dates.DateFormatter('format') ticker.FormatStrFormatter('%0.1f')

fig.autofmt_xdate() #auto-rotate labels

.axes.set_xticklabels() #define and format the tick labels (non-time graph) fontsize=n rotation=n

#FORMATTING THE LEGEND ax.legend(True) #Complete list of options: fontsize=number #https://matplotlib.org/2.0.2/api/_as_gen/matplotlib.axes.Axes.legend.html#matplotlib.axes.Axes.legend loc=n #0=best, 1=up,right, 2=up,left, ...

#FORMATTING THE GRID .grid(True) #Turn on all grid .grid(axis='y') #Turn on grid on y-axis only

#FORMATTING THE BACKGROUND ax.set_facecolor("color") #

#SPECIAL FEATURES ax.fill_between(x_values, y_mins, y_maxes) #Fill the area between y_mins and y_maxes

#EXPORT import matplotlib matplotlib.rcParams['pdf.fonttype'] = 42 #important for the fonts

plt.tight_layout() #make sure the layout has no overlap in export

plt.savefig("file.pdf") #export to pdf transparent=True

plt.savefig("file.svg") #export to pdf transparent=True/False #Transparency bbox_inches=n/'tight' #define the box pad_inches=n #padding around the figure