Adding indicator Menus (3 videos)

Adding indicator menu - Tkinter tutorial Python 3.4 part 15

In this Tkinter tutorial, we're going to be adding the indicator menu options. Our goal is to allow the user to choose a "top" indicator, "middle" indicator, and "bottom" indicator. First we need to allow them to set the parameters for these, then we'll build the actual handling that will control the sub plots, data, and all of that. Let's get started!

This section of the tutorial is going to cover the next three videos. If you're following along using the videos, keep that in mind!

That said, if you're comfortable with adding options by now, the actual amount of new content is relatively small.

First we need to add the new menu options, so just add the following under the OHLC interval options:

```
        topIndi = tk.Menu(menubar, tearoff=1)
        topIndi.add_command(label="None",
                                  command=lambda: addTopIndicator('none'))
        topIndi.add_separator()
        topIndi.add_command ( label="RSI",
                                  command=lambda: addTopIndicator('rsi'))
        topIndi.add_command ( label="MACD",
                                  command=lambda: addTopIndicator('macd'))
        menubar.add_cascade(label = "Top Indicator", menu = topIndi)



        mainI = tk.Menu(menubar, tearoff=1)
        mainI.add_command ( label="None",
                                  command=lambda: addMiddleIndicator('none'
        mainI.add_separator()
        mainI.add_command ( label="SMA",
                                  command=lambda: addMiddleIndicator('sma')
        mainI.add_command ( label="EMA",
                                  command=lambda: addMiddleIndicator('ema')
        menubar.add_cascade(label = "Main Graph Indicator", menu = mainI)



        bottomI = tk.Menu(menubar, tearoff=1)
        bottomI.add_command ( label="None",
                                  command=lambda: addBottomIndicator('none'
```

```
                          command=lambda: addBottomIndicator('rsi')
        bottomI.add_command(label="MACD",
                          command=lambda: addBottomIndicator('macd'
        menubar.add_cascade(label = "Bottom Indicator", menu = bottomI)
```


Now, at the top, define the following new global variables:


```
topIndicator = "none"
bottomIndicator = "none"
middleIndicators = "none"
EMAs = []
SMAs = []
```

Next, we're going to add the indicator functions to the top of our script after the main global vars:

```
def addMiddleIndicator(what):
    global middleIndicator
```

```
    if DataPace == "tick":
        popupmsg("Indicators in Tick Data not available.")

    if what != "none":
        if middleIndicator == "none":
            if what == "sma":
                midIQ = tk.Tk()
                midIQ.wm_title("Periods?")
                label = ttk.Label(midIQ, text="Choose how many periods you
                label.pack(side="top", fill="x", pady=10)
                e = ttk.Entry(midIQ)
                e.insert(0,10)
                e.pack()
                e.focus_set()

                def callback():
                    global middleIndicator
                    global DatCounter

                    middleIndicator = []
                    periods = (e.get())
                    group = []
                    group.append("sma")
                    group.append(int(periods))
                    middleIndicator.append(group)
                    DatCounter = 9000
                    print("middle indicator set to:",middleIndicator)
                    midIQ.destroy()

                b = ttk.Button(midIQ, text="Submit", width=10, command=call
                b.pack()
                tk.mainloop()

            if what == "ema":
                midIQ = tk.Tk()
                #midIQ.wm_title("Periods?")
                label = ttk.Label(midIQ, text="Choose how many periods you
                label.pack(side="top", fill="x", pady=10)
                e = ttk.Entry(midIQ)
                e.insert(0,10)
                e.pack()
                e.focus_set()
```

```
                global middleIndicator
                global DatCounter

                middleIndicator = []
                periods = (e.get())
                group = []
                group.append("ema")
                group.append(int(periods))
                middleIndicator.append(group)
                DatCounter = 9000
                print("middle indicator set to:",middleIndicator)
                midIQ.destroy()

            b = ttk.Button(midIQ, text="Submit", width=10, command=call
            b.pack()
            tk.mainloop()

    else:
        if what == "sma":
            midIQ = tk.Tk()
            midIQ.wm_title("Periods?")
            label = ttk.Label(midIQ, text="Choose how many periods you
            label.pack(side="top", fill="x", pady=10)
            e = ttk.Entry(midIQ)
            e.insert(0,10)
            e.pack()
            e.focus_set()

            def callback():
                global middleIndicator
                global DatCounter

                #middleIndicator = []
                periods = (e.get())
                group = []
                group.append("sma")
                group.append(int(periods))
                middleIndicator.append(group)
                DatCounter = 9000
                print("middle indicator set to:",middleIndicator)
                midIQ.destroy()
```

```
            tk.mainloop()
```



```
        if what == "ema":
            midIQ = tk.Tk()
            midIQ.wm_title("Periods?")
            label = ttk.Label(midIQ, text="Choose how many periods you
            label.pack(side="top", fill="x", pady=10)
            e = ttk.Entry(midIQ)
            e.insert(0,10)
            e.pack()
            e.focus_set()

            def callback():
                global middleIndicator
                global DatCounter

                #middleIndicator = []
                periods = (e.get())
                group = []
                group.append("ema")
                group.append(int(periods))
                middleIndicator.append(group)
                DatCounter = 9000
                print("middle indicator set to:",middleIndicator)
                midIQ.destroy()

            b = ttk.Button(midIQ, text="Submit", width=10, command=call
            b.pack()
            tk.mainloop()

    else:
        middleIndicator = "none"




def addTopIndicator(what):
    global topIndicator
```

```
    if DataPace == "tick":
        popupmsg("Indicators in Tick Data not available.")

    elif what == "none":
        topIndicator = what
        DatCounter = 9000

    elif what == "rsi":
        rsiQ = tk.Tk()
        rsiQ.wm_title("Periods?")
        label = ttk.Label(rsiQ, text = "Choose how many periods you want ea
        label.pack(side="top", fill="x", pady=10)

        e = ttk.Entry(rsiQ)
        e.insert(0,14)
        e.pack()
        e.focus_set()

        def callback():
            global topIndicator
            global DatCounter

            periods = (e.get())
            group = []
            group.append("rsi")
            group.append(periods)

            topIndicator = group
            DatCounter = 9000
            print("Set top indicator to",group)
            rsiQ.destroy()

        b = ttk.Button(rsiQ, text="Submit", width=10, command=callback)
        b.pack()
        tk.mainloop()


    elif what == "macd":
        global topIndicator
        global DatCounter
        topIndicator = "macd"
        DatCounter = 9000
```

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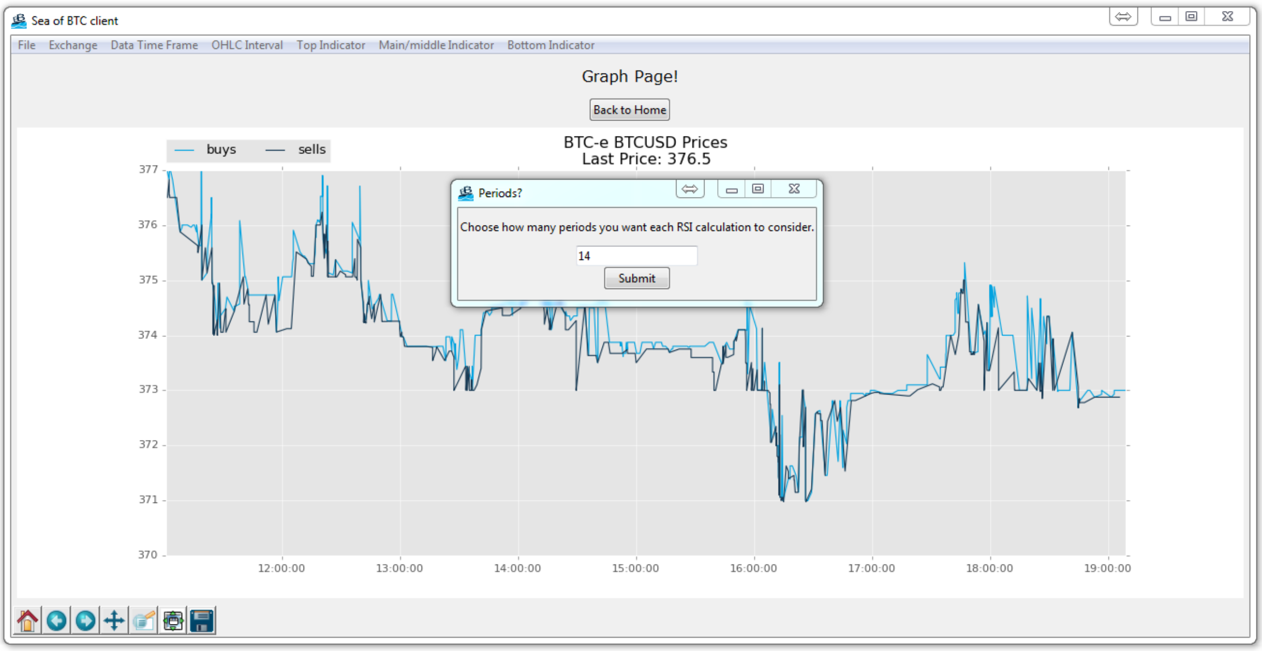
```
def addBottomIndicator(what):
    global bottomIndicator
    global DatCounter

    if DataPace == "tick":
        popupmsg("Indicators in Tick Data not available.")

    elif what == "none":
        bottomIndicator = what
        DatCounter = 9000

    elif what == "rsi":
        rsiQ = tk.Tk()
        rsiQ.wm_title("Periods?")
        label = ttk.Label(rsiQ, text = "Choose how many periods you want ea
        label.pack(side="top", fill="x", pady=10)

        e = ttk.Entry(rsiQ)
        e.insert(0,14)
        e.pack()
        e.focus_set()

        def callback():
            global bottomIndicator
            global DatCounter

            periods = (e.get())
            group = []
            group.append("rsi")
            group.append(periods)

            bottomIndicator = group
            DatCounter = 9000
            print("Set bottom indicator to",group)
            rsiQ.destroy()

        b = ttk.Button(rsiQ, text="Submit", width=10, command=callback)
        b.pack()
        tk.mainloop()


    elif what == "macd":
```

```
bottomIndicator = "macd"
DatCounter = 9000
```


So now we've got the functions for our indicators. For something like MACD (moving average convergence divergence), we aren't going to let the user change the time frames. For EMA, SMA, and RSI, we want to allow the user to choose parameters, so those will come with a popup window that allows the user to then fill in the blank for the number of their choice for time-frame windows.

The current result should be something like this if you click on the RSI indicator option:




```
# The code for changing pages was derived from: http://stackoverflow.com/qu
# License: http://creativecommons.org/licenses/by-sa/3.0/
import matplotlib
matplotlib.use("TkAgg")
```

```
import matplotlib.animation as animation
from matplotlib import style

import tkinter as tk
from tkinter import ttk

import urllib
import json

import pandas as pd
import numpy as np

from matplotlib import pyplot as plt


LARGE_FONT= ("Verdana", 12)
NORM_FONT= ("Verdana", 10)
SMALL_FONT= ("Verdana", 8)


style.use("ggplot")

f = Figure()
a = f.add_subplot(111)

exchange = "BTC-e"
DatCounter = 9000
programName = "btce"
resampleSize = "15Min"
DataPace = "1d"
candleWidth = 0.008

topIndicator = "none"
bottomIndicator = "none"
middleIndicator = "none"
EMAs = []
SMAs = []


def addMiddleIndicator(what):
    global middleIndicator
    global DatCounter
```

```
        popupmsg("Indicators in Tick Data not available.")

    if what != "none":
        if middleIndicator == "none":
            if what == "sma":
                midIQ = tk.Tk()
                midIQ.wm_title("Periods?")
                label = ttk.Label(midIQ, text="Choose how many periods you
                label.pack(side="top", fill="x", pady=10)
                e = ttk.Entry(midIQ)
                e.insert(0,10)
                e.pack()
                e.focus_set()

                def callback():
                    global middleIndicator
                    global DatCounter

                    middleIndicator = []
                    periods = (e.get())
                    group = []
                    group.append("sma")
                    group.append(int(periods))
                    middleIndicator.append(group)
                    DatCounter = 9000
                    print("middle indicator set to:",middleIndicator)
                    midIQ.destroy()

                b = ttk.Button(midIQ, text="Submit", width=10, command=call
                b.pack()
                tk.mainloop()

            if what == "ema":
                midIQ = tk.Tk()
                #midIQ.wm_title("Periods?")
                label = ttk.Label(midIQ, text="Choose how many periods you
                label.pack(side="top", fill="x", pady=10)
                e = ttk.Entry(midIQ)
                e.insert(0,10)
                e.pack()
                e.focus_set()
```

```
                global DatCounter

                middleIndicator = []
                periods = (e.get())
                group = []
                group.append("ema")
                group.append(int(periods))
                middleIndicator.append(group)
                DatCounter = 9000
                print("middle indicator set to:",middleIndicator)
                midIQ.destroy()

            b = ttk.Button(midIQ, text="Submit", width=10, command=call
            b.pack()
            tk.mainloop()

    else:
        if what == "sma":
            midIQ = tk.Tk()
            midIQ.wm_title("Periods?")
            label = ttk.Label(midIQ, text="Choose how many periods you
            label.pack(side="top", fill="x", pady=10)
            e = ttk.Entry(midIQ)
            e.insert(0,10)
            e.pack()
            e.focus_set()

            def callback():
                global middleIndicator
                global DatCounter

                #middleIndicator = []
                periods = (e.get())
                group = []
                group.append("sma")
                group.append(int(periods))
                middleIndicator.append(group)
                DatCounter = 9000
                print("middle indicator set to:",middleIndicator)
                midIQ.destroy()

            b = ttk.Button(midIQ, text="Submit", width=10, command=call
```

```
            if what == "ema":
                midIQ = tk.Tk()
                midIQ.wm_title("Periods?")
                label = ttk.Label(midIQ, text="Choose how many periods you
                label.pack(side="top", fill="x", pady=10)
                e = ttk.Entry(midIQ)
                e.insert(0,10)
                e.pack()
                e.focus_set()

                def callback():
                    global middleIndicator
                    global DatCounter

                    #middleIndicator = []
                    periods = (e.get())
                    group = []
                    group.append("ema")
                    group.append(int(periods))
                    middleIndicator.append(group)
                    DatCounter = 9000
                    print("middle indicator set to:",middleIndicator)
                    midIQ.destroy()

                b = ttk.Button(midIQ, text="Submit", width=10, command=call
                b.pack()
                tk.mainloop()

    else:
        middleIndicator = "none"




def addTopIndicator(what):
    global topIndicator
    global DatCounter
```

```
        popupmsg("Indicators in Tick Data not available.")

    elif what == "none":
        topIndicator = what
        DatCounter = 9000

    elif what == "rsi":
        rsiQ = tk.Tk()
        rsiQ.wm_title("Periods?")
        label = ttk.Label(rsiQ, text = "Choose how many periods you want ea
        label.pack(side="top", fill="x", pady=10)

        e = ttk.Entry(rsiQ)
        e.insert(0,14)
        e.pack()
        e.focus_set()

        def callback():
            global topIndicator
            global DatCounter

            periods = (e.get())
            group = []
            group.append("rsi")
            group.append(periods)

            topIndicator = group
            DatCounter = 9000
            print("Set top indicator to",group)
            rsiQ.destroy()

        b = ttk.Button(rsiQ, text="Submit", width=10, command=callback)
        b.pack()
        tk.mainloop()


    elif what == "macd":
        global topIndicator
        global DatCounter
        topIndicator = "macd"
        DatCounter = 9000
```

```
    global bottomIndicator
    global DatCounter

    if DataPace == "tick":
        popupmsg("Indicators in Tick Data not available.")

    elif what == "none":
        bottomIndicator = what
        DatCounter = 9000

    elif what == "rsi":
        rsiQ = tk.Tk()
        rsiQ.wm_title("Periods?")
        label = ttk.Label(rsiQ, text = "Choose how many periods you want ea
        label.pack(side="top", fill="x", pady=10)

        e = ttk.Entry(rsiQ)
        e.insert(0,14)
        e.pack()
        e.focus_set()

        def callback():
            global bottomIndicator
            global DatCounter

            periods = (e.get())
            group = []
            group.append("rsi")
            group.append(periods)

            bottomIndicator = group
            DatCounter = 9000
            print("Set bottom indicator to",group)
            rsiQ.destroy()

        b = ttk.Button(rsiQ, text="Submit", width=10, command=callback)
        b.pack()
        tk.mainloop()


    elif what == "macd":
        global bottomIndicator
```

```
        DatCounter = 9000
```



```
def changeTimeFrame(tf):
    global DataPace
    global DatCounter
    if tf == "7d" and resampleSize == "1Min":
        popupmsg("Too much data chosen, choose a smaller time frame or high
    else:
        DataPace = tf
        DatCounter = 9000


def changeSampleSize(size,width):
    global resampleSize
    global DatCounter
    global candleWidth
    if DataPace == "7d" and resampleSize == "1Min":
        popupmsg("Too much data chosen, choose a smaller time frame or high

    elif DataPace == "tick":
        popupmsg("You're currently viewing tick data, not OHLC.")

    else:
        resampleSize = size
        DatCounter = 9000
        candleWidth = width



def changeExchange(toWhat,pn):
    global exchange
    global DatCounter
    global programName

    exchange = toWhat
    programName = pn
    DatCounter = 9000
```

```
    popup.wm_title("!")
    label = ttk.Label(popup, text=msg, font=NORM_FONT)
    label.pack(side="top", fill="x", pady=10)
    B1 = ttk.Button(popup, text="Okay", command = popup.destroy)
    B1.pack()
    popup.mainloop()



def animate(i):
    dataLink = 'https://btc-e.com/api/3/trades/btc_usd?limit=2000'
    data = urllib.request.urlopen(dataLink)
    data = data.readall().decode("utf-8")
    data = json.loads(data)


    data = data["btc_usd"]
    data = pd.DataFrame(data)

    buys = data[(data['type']=="bid")]
    buys["datestamp"] = np.array(buys["timestamp"]).astype("datetime64[s]")
    buyDates = (buys["datestamp"]).tolist()


    sells = data[(data['type']=="ask")]
    sells["datestamp"] = np.array(sells["timestamp"]).astype("datetime64[s]
    sellDates = (sells["datestamp"]).tolist()

    a.clear()

    a.plot_date(buyDates, buys["price"], "#00A3E0", label="buys")
    a.plot_date(sellDates, sells["price"], "#183A54", label="sells")

    a.legend(bbox_to_anchor=(0, 1.02, 1, .102), loc=3,
             ncol=2, borderaxespad=0)

    title = "BTC-e BTCUSD Prices\nLast Price: "+str(data["price"][1999])
    a.set_title(title)
```

```
class SeaofBTCapp(tk.Tk):

    def __init__(self, *args, **kwargs):

        tk.Tk.__init__(self, *args, **kwargs)

        tk.Tk.iconbitmap(self, default="clienticon.ico")
        tk.Tk.wm_title(self, "Sea of BTC client")


        container = tk.Frame(self)
        container.pack(side="top", fill="both", expand = True)
        container.grid_rowconfigure(0, weight=1)
        container.grid_columnconfigure(0, weight=1)


        menubar = tk.Menu(container)
        filemenu = tk.Menu(menubar, tearoff=0)
        filemenu.add_command(label="Save settings", command = lambda: popup
        filemenu.add_separator()
        filemenu.add_command(label="Exit", command=quit)
        menubar.add_cascade(label="File", menu=filemenu)

        exchangeChoice = tk.Menu(menubar, tearoff=1)
        exchangeChoice.add_command(label="BTC-e",
                                   command=lambda: changeExchange("BTC-e","
        exchangeChoice.add_command(label="Bitfinex",
                                   command=lambda: changeExchange("Bitfinex
        exchangeChoice.add_command(label="Bitstamp",
                                   command=lambda: changeExchange("Bitstamp
        exchangeChoice.add_command(label="Huobi",
                                   command=lambda: changeExchange("Huobi","

        menubar.add_cascade(label="Exchange", menu=exchangeChoice)

        dataTF = tk.Menu(menubar, tearoff=1)
        dataTF.add_command(label = "Tick",
                           command=lambda: changeTimeFrame('tick'))
        dataTF.add_command(label = "1 Day",
```

```
                   command=lambda: changeTimeFrame('3d'))
dataTF.add_command(label = "1 Week",
                   command=lambda: changeTimeFrame('7d'))
menubar.add_cascade(label = "Data Time Frame", menu = dataTF)

OHLCI = tk.Menu(menubar, tearoff=1)
OHLCI.add_command(label = "Tick",
                   command=lambda: changeTimeFrame('tick'))
OHLCI.add_command(label = "1 minute",
                   command=lambda: changeSampleSize('1Min', 0.0005)
OHLCI.add_command(label = "5 minute",
                   command=lambda: changeSampleSize('5Min', 0.003))
OHLCI.add_command(label = "15 minute",
                   command=lambda: changeSampleSize('15Min', 0.008)
OHLCI.add_command(label = "30 minute",
                   command=lambda: changeSampleSize('30Min', 0.016)
OHLCI.add_command(label = "1 Hour",
                   command=lambda: changeSampleSize('1H', 0.032))
OHLCI.add_command(label = "3 Hour",
                   command=lambda: changeSampleSize('3H', 0.096))

menubar.add_cascade(label="OHLC Interval", menu=OHLCI)


topIndi = tk.Menu(menubar, tearoff=1)
topIndi.add_command(label="None",
                    command = lambda: addTopIndicator('none'))
topIndi.add_command(label="RSI",
                    command = lambda: addTopIndicator('rsi'))
topIndi.add_command(label="MACD",
                    command = lambda: addTopIndicator('macd'))

menubar.add_cascade(label="Top Indicator", menu=topIndi)



mainI = tk.Menu(menubar, tearoff=1)
mainI.add_command(label="None",
                    command = lambda: addMiddleIndicator('none'))
mainI.add_command(label="SMA",
                    command = lambda: addMiddleIndicator('sma'))
mainI.add_command(label="EMA",
```

```
        menubar.add_cascade(label="Main/middle Indicator", menu=mainI)
```

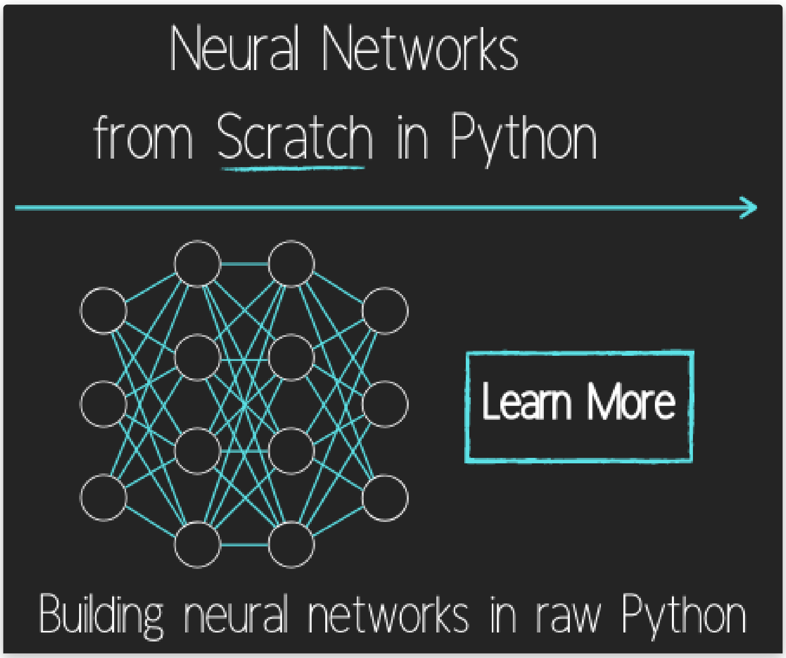


```
        bottomI = tk.Menu(menubar, tearoff=1)
        bottomI.add_command(label="None",
                            command = lambda: addBottomIndicator('none'))
        bottomI.add_command(label="RSI",
                            command = lambda: addBottomIndicator('rsi'))
        bottomI.add_command(label="MACD",
                            command = lambda: addBottomIndicator('macd'))

        menubar.add_cascade(label="Bottom Indicator", menu=bottomI)




        tk.Tk.config(self, menu=menubar)

        self.frames = {}

        for F in (StartPage, BTCe_Page):

            frame = F(container, self)

            self.frames[F] = frame

            frame.grid(row=0, column=0, sticky="nsew")

        self.show_frame(StartPage)

    def show_frame(self, cont):

        frame = self.frames[cont]
        frame.tkraise()


class StartPage(tk.Frame):

    def __init__(self, parent, controller):
```

```
        use at your own risk. There is no promise
        of warranty."""), font=LARGE_FONT)
        label.pack(pady=10,padx=10)

        button1 = ttk.Button(self, text="Agree",
                            command=lambda: controller.show_frame(BTCe_Page
        button1.pack()

        button2 = ttk.Button(self, text="Disagree",
                            command=quit)
        button2.pack()



class PageOne(tk.Frame):

    def __init__(self, parent, controller):
        tk.Frame.__init__(self, parent)
        label = tk.Label(self, text="Page One!!!", font=LARGE_FONT)
        label.pack(pady=10,padx=10)

        button1 = ttk.Button(self, text="Back to Home",
                            command=lambda: controller.show_frame(StartPage
        button1.pack()




class BTCe_Page(tk.Frame):

    def __init__(self, parent, controller):
        tk.Frame.__init__(self, parent)
        label = tk.Label(self, text="Graph Page!", font=LARGE_FONT)
        label.pack(pady=10,padx=10)

        button1 = ttk.Button(self, text="Back to Home",
                            command=lambda: controller.show_frame(StartPage
        button1.pack()
```

```
        canvas.show()
        canvas.get_tk_widget().pack(side=tk.BOTTOM, fill=tk.BOTH, expand=Tr

        toolbar = NavigationToolbar2TkAgg(canvas, self)
        toolbar.update()
        canvas._tkcanvas.pack(side=tk.TOP, fill=tk.BOTH, expand=True)



app = SeaofBTCapp()
app.geometry("1280x720")
ani = animation.FuncAnimation(f, animate, interval=5000)
app.mainloop()
```

The next tutorial: Trading Option, Start/Stop, And Help Menu Options



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