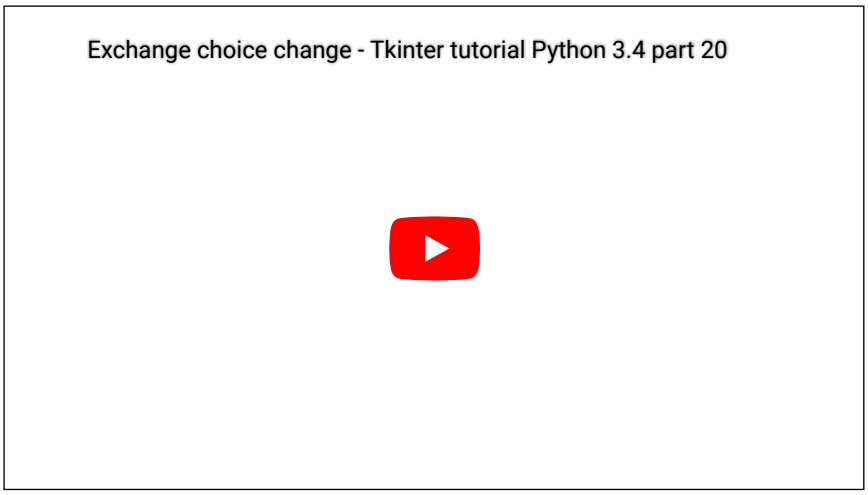
Allowing the exchange choice option to affect actual shown exchange




```
# The code for changing pages was derived from: http://stackoverflow.com/questions/7546050/switch-between-two-
# License: http://creativecommons.org/licenses/by-sa/3.0/

import matplotlib
matplotlib.use("TkAgg")
from matplotlib.backends.backend_tkagg import FigureCanvasTkAgg, NavigationToolbar2TkAgg
#from matplotlib.figure import Figure
import matplotlib.animation as animation
from matplotlib import style
from matplotlib import pyplot as plt

import matplotlib.dates as mdates
import matplotlib.ticker as mticker


import tkinter as tk
from tkinter import ttk

import urllib
import json

import pandas as pd
import numpy as np




LARGE_FONT= ("Verdana", 12)
NORM_FONT= ("Verdana", 10)
```



```
style.use("ggplot")

f = plt.figure()

#a = f.add_subplot(111)

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

paneCount = 1

topIndicator = "none"
bottomIndicator = "none"
middleIndicator = "none"
chartLoad = True

EMAs = []
SMAs = []




def tutorial():

##    def leavemini(what):
##        what.destroy()

    def page2():
        tut.destroy()
        tut2 = tk.Tk()

        def page3():
            tut2.destroy()
            tut3 = tk.Tk()

            tut3.wm_title("Part 3!")

            label = ttk.Label(tut3, text="Part 3", font=NORM_FONT)
            label.pack(side="top", fill="x", pady=10)
            B1 = ttk.Button(tut3, text="Done!", command= tut3.destroy)
            B1.pack()
            tut3.mainloop()



        tut2.wm_title("Part 2!")
        label = ttk.Label(tut2, text="Part 2", font=NORM_FONT)
        label.pack(side="top", fill="x", pady=10)
        B1 = ttk.Button(tut2, text="Next", command= page3)
        B1.pack()
        tut2.mainloop()

    tut = tk.Tk()
    tut.wm_title("Tutorial")
    label = ttk.Label(tut, text="What do you need help with?", font=NORM_FONT)
    label.pack(side="top", fill="x", pady=10)

    B1 = ttk.Button(tut, text = "Overview of the application", command=page2)
```


```
    B2 = ttk.Button(tut, text = "How do I trade with this client?", command=lambda:popupmsg("Not yet completed
    B2.pack()

    B3 = ttk.Button(tut, text = "Indicator Questions/Help", command=lambda:popupmsg("Not yet completed"))
    B3.pack()

    tut.mainloop()









def loadChart(run):
    global chartLoad

    if run == "start":
        chartLoad = True

    elif run == "stop":
        chartLoad = False



def addMiddleIndicator(what):
    global middleIndicator
    global DatCounter

    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 want your SMA to be.")
                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.pack()
            tk.mainloop()

        if what == "ema":
            midIQ = tk.Tk()
            #midIQ.wm_title("Periods?")
            label = ttk.Label(midIQ, text="Choose how many periods you want your EMA to be.")
            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=callback)
            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 want your SMA to be.")
            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=callback)
            b.pack()
            tk.mainloop()
```

```
                midIQ.wm_title("Periods?")
                label = ttk.Label(midIQ, text="Choose how many periods you want your EMA to be.")
                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=callback)
                b.pack()
                tk.mainloop()

    else:
        middleIndicator = "none"




def addTopIndicator(what):
    global topIndicator
    global DatCounter

    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 each RSI calculation to consider.")
        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)
```

```
            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


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 each RSI calculation to consider.")
        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
        global DatCounter
        bottomIndicator = "macd"
        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 higher OHLC interval")
    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 higher OHLC interval")

    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


def popupmsg(msg):
    popup = tk.Tk()
    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):
    global refreshRate
    global DatCounter

    if chartLoad:
        if paneCount == 1:
            if DataPace == "tick":
                try:

                    a = plt.subplot2grid((6,4), (0,0), rowspan = 5, colspan = 4)
                    a2 = plt.subplot2grid((6,4), (5,0), rowspan = 1, colspan = 4, sharex = a)

                    dataLink = 'https://btc-e.com/api/3/trades/btc_usd?limit=2000'
                    data = urllib.request.urlopen(dataLink)
```

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

                    data["datestamp"] = np.array(data['timestamp']).astype("datetime64[s]")
                    allDates = data["datestamp"].tolist()

                    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()

                    volume = data["amount"]

                    a.clear()

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

                    a2.fill_between(allDates, 0, volume, facecolor = "#183A54")

                    a.xaxis.set_major_locator(mticker.MaxNLocator(5))
                    a.xaxis.set_major_formatter(mdates.DateFormatter("%Y-%m-%d %H:M:S"))



                    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)

                    print("here")


                except Exception as e:
                    print("Failed because of:",e)









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)
```


```
menubar = tk.Menu(container)
filemenu = tk.Menu(menubar, tearoff=0)
filemenu.add_command(label="Save settings", command = lambda: popupmsg("Not supported just yet!"))
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","btce"))
exchangeChoice.add_command(label="Bitfinex",
                           command=lambda: changeExchange("Bitfinex","bitfinex"))
exchangeChoice.add_command(label="Bitstamp",
                           command=lambda: changeExchange("Bitstamp","bitstamp"))
exchangeChoice.add_command(label="Huobi",
                           command=lambda: changeExchange("Huobi","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('1d'))
dataTF.add_command(label = "3 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)
```


```
                    command = lambda: addMiddleIndicator('none'))
mainI.add_command(label="SMA",
                    command = lambda: addMiddleIndicator('sma'))
mainI.add_command(label="EMA",
                    command = lambda: addMiddleIndicator('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)


tradeButton = tk.Menu(menubar, tearoff=1)
tradeButton.add_command(label = "Manual Trading",
                        command=lambda: popupmsg("This is not live yet"))
tradeButton.add_command(label = "Automated Trading",
                        command=lambda: popupmsg("This is not live yet"))

tradeButton.add_separator()
tradeButton.add_command(label = "Quick Buy",
                        command=lambda: popupmsg("This is not live yet"))
tradeButton.add_command(label = "Quick Sell",
                        command=lambda: popupmsg("This is not live yet"))

tradeButton.add_separator()
tradeButton.add_command(label = "Set-up Quick Buy/Sell",
                        command=lambda: popupmsg("This is not live yet"))

menubar.add_cascade(label="Trading", menu=tradeButton)

startStop = tk.Menu(menubar, tearoff = 1)
startStop.add_command( label="Resume",
                       command = lambda: loadChart('start'))
startStop.add_command( label="Pause",
                       command = lambda: loadChart('stop'))
menubar.add_cascade(label = "Resume/Pause client", menu = startStop)

helpmenu = tk.Menu(menubar, tearoff=0)
helpmenu.add_command(label="Tutorial", command=tutorial)

menubar.add_cascade(label="Help", menu=helpmenu)









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


```
        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):
        tk.Frame.__init__(self,parent)
        label = tk.Label(self, text=("""ALPHA Bitcoin trading application
        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()
```

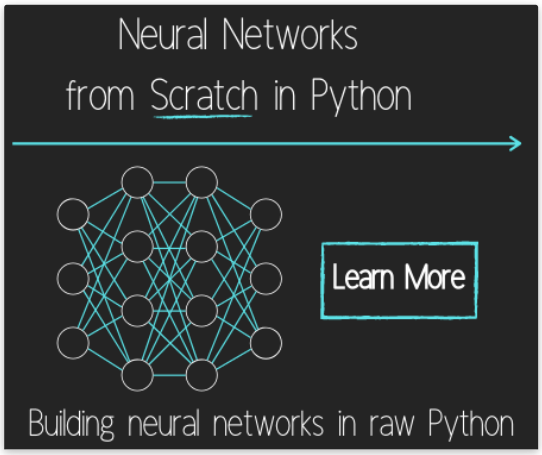
```
        canvas.show()
        canvas.get_tk_widget().pack(side=tk.BOTTOM, fill=tk.BOTH, expand=True)

        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: Adding Exchange Choice Cont'd



Time-frame and sample size option

Adding indicator Menus (3 videos)

Trading option, start/stop, and help menu options

Tutorial on adding a tutorial

Allowing the exchange choice option to affect actual shown exchange

Adding exchange choice cont'd

Adding exchange choices part 3

Indicator Support

Pulling data from the Sea of BTC API

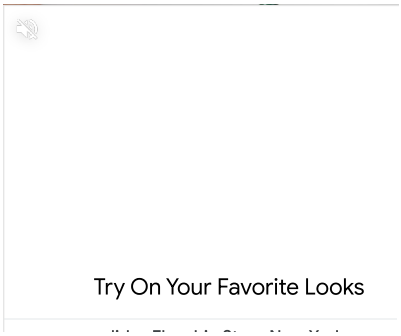
Setting up sub plots within our Tkinter GUI

Graphing an OHLC candlestick graph embedded in our Tkinter GUI

Acquiring RSI data from Sea of BTC API

Acquiring MACD data from Sea of BTC API

Converting Tkinter application to .exe and installer with cx_Freeze



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