Bob Trieste

Java, Python, C# - 2019.

- AWS setup environment
- Scripting in TD Ameritrade's thinkorswim
- Python
- Java
- FizzBuzz in Java
- FizzBuzz in Python
- FizzBuzz in C#
- Bob's resume (https://github.com/bobtreehouse/JavaPython2019/blob/master/RobertTriesteCV.pdf)

Sample of Java & Python projects as well as workflow.

- Java core programming in IntelliJ IDE, JDBC implementation, MySQL, TDD, J-Unit and Mockito testing.
- Spring Frameworks, Spring Boot, Eureka microservices, REST APIs, MVC design.
- Python (NumPy, Pandas, SciPy, matplotlib), Jupyter Notebook & Spyder IDE.
- Amazon Web Services (AWS) EC2 & Lambda, Twilio API, HTTP, HTML.
- GitHub, Jenkins, Blue Ocean, Docker and other utilities, services and protocols for software CI/CD.

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https://github.com/bobtreehouse (https://github.com/bobtreehouse)
http://bit.ly/BobTbio (http://bit.ly/BobTbio)

- This interactive Python notebook contains screenshots and code examples.

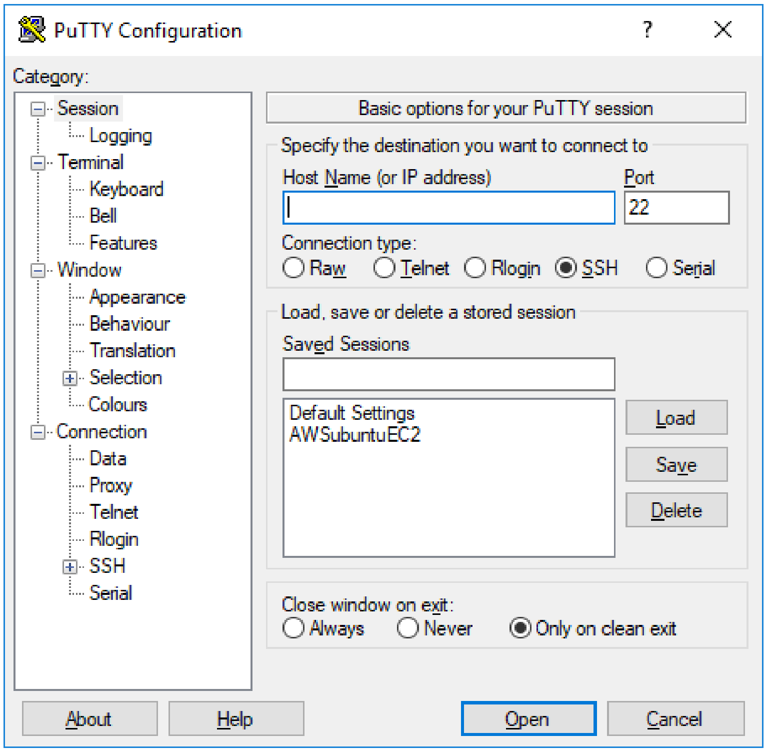
- It can be downloaded and run in locally in Jupyter Notebooks or as a PDF. Source code for Python and Java projects may also be found in the root directory of this repository or in other public repositories on my GitHub page.

AWS EC2 Instance for hosting and running apps in the cloud.

- I employ an Ubuntu-Linux version of Amazon Web Services EC2 remote server to host and run certain code and services.
- the server is in Amazon's US-Ohio-East region.
- I connect through a PuTTY SSH client.

In [6]:

```python
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "PuTTYsshClient.png", width=452, height=442))
```



Specify the destination you want to connect to

Host Name (or IP address)

Port 22

Connection type:
○ Raw ○ Telnet ○ Rlogin ● SSH ○ Serial

Load, save or delete a stored session

Saved Sessions

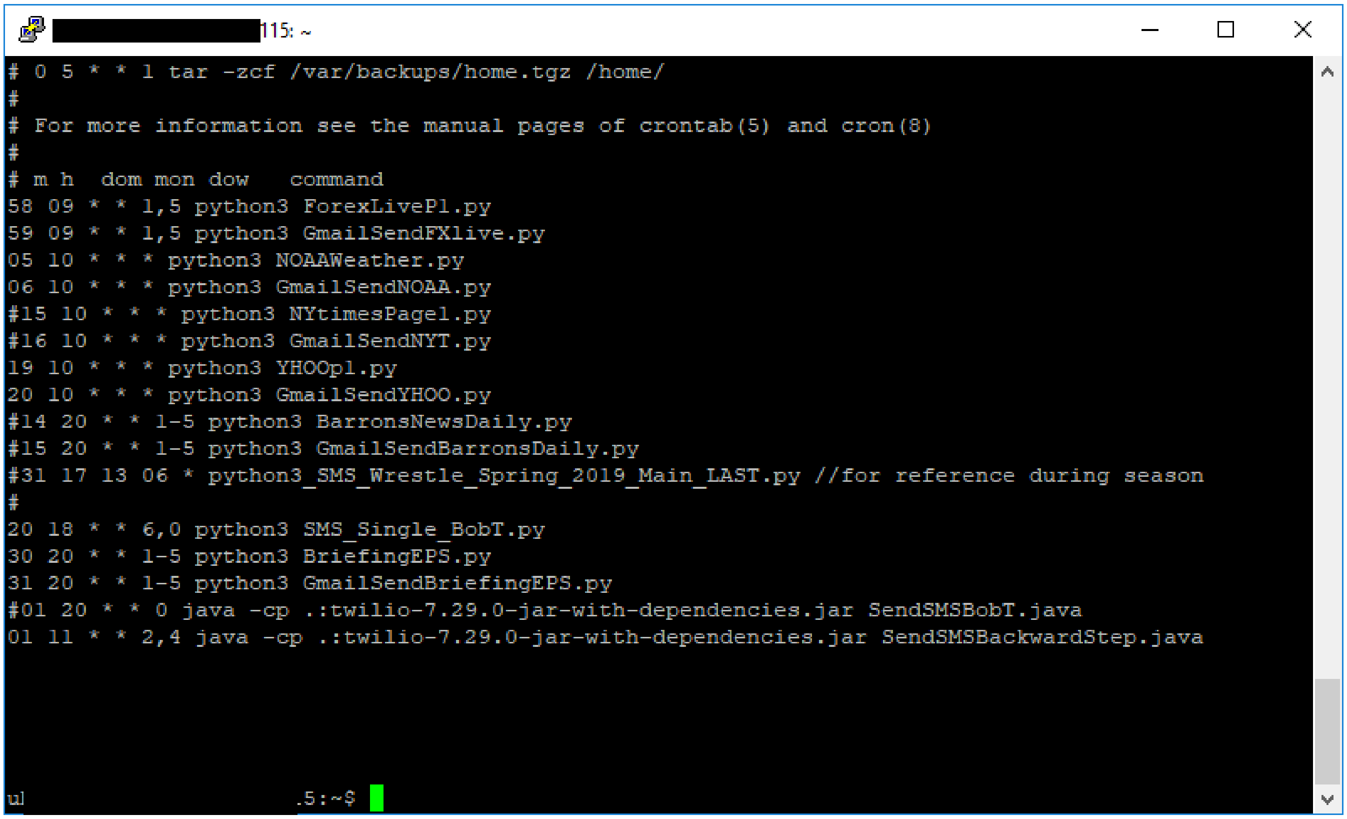
Default Settings
AWSubuntuEC2

Close window on exit:
○ Always ○ Never ● Only on clean exit

I use software utility cron (UTC time-based job scheduler for Unix operating systems) to schedule repetitive tasks.

In [11]:

```python
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "CRONtabAWS.png"))
```



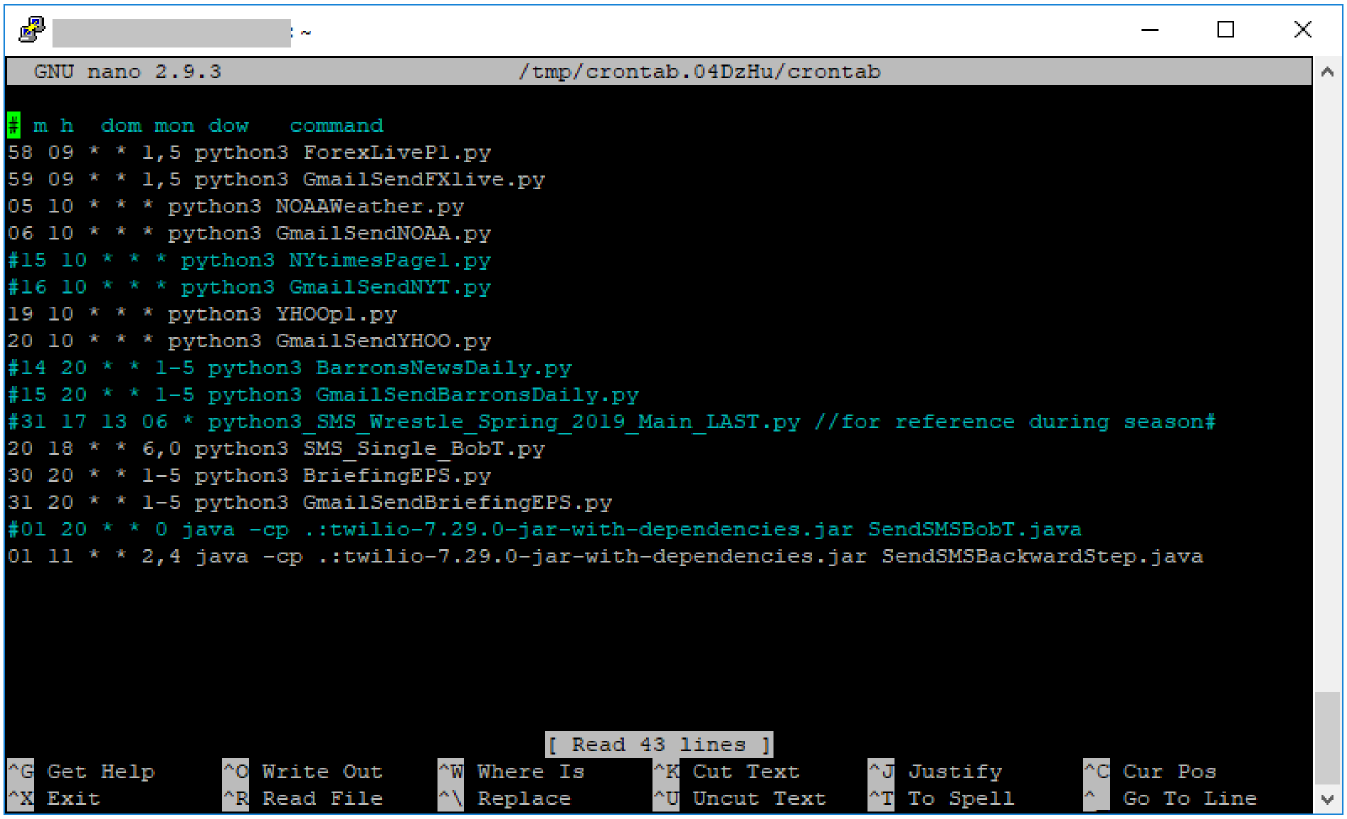
[redacted]115: ~

```
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command
58 09 * * 1,5 python3 ForexLivePl.py
59 09 * * 1,5 python3 GmailSendFXlive.py
05 10 * * * python3 NOAAWeather.py
06 10 * * * python3 GmailSendNOAA.py
#15 10 * * * python3 NYtimesPage1.py
#16 10 * * * python3 GmailSendNYT.py
19 10 * * * python3 YHOOp1.py
20 10 * * * python3 GmailSendYHOO.py
#14 20 * * 1-5 python3 BarronsNewsDaily.py
#15 20 * * 1-5 python3 GmailSendBarronsDaily.py
#31 17 13 06 * python3_SMS_Wrestle_Spring_2019_Main_LAST.py //for reference during season
#
20 18 * * 6,0 python3 SMS_Single_BobT.py
30 20 * * 1-5 python3 BriefingEPS.py
31 20 * * 1-5 python3 GmailSendBriefingEPS.py
#01 20 * * 0 java -cp .:twilio-7.29.0-jar-with-dependencies.jar SendSMSBobT.java
01 11 * * 2,4 java -cp .:twilio-7.29.0-jar-with-dependencies.jar SendSMSBackwardStep.java




ul[redacted].5:~$
```

Java and Python programs sit side by side and can be set to repeat at custom intervals or scheduled to run at a specified time in the future.

A python script written in conjunction with use of the Twilio texting API was used to send automated text messages out on regular intervals to members of a sports team for reminders. This code was later ported into Java code and run with a Twilio JAR dependency.

In [12]:
```python
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "CRONeditAWS.png"))
```



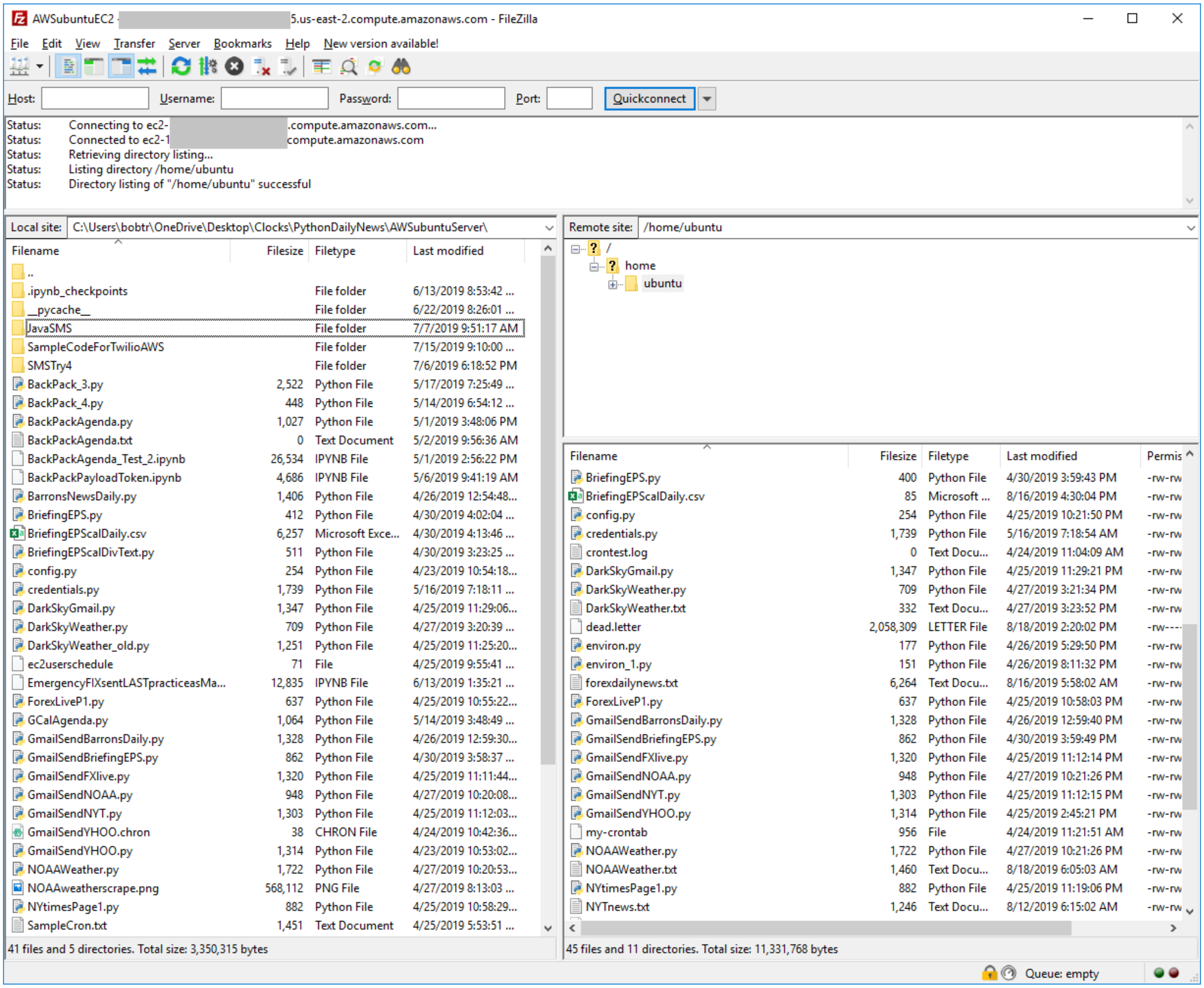
[redacted]: ~

```
  GNU nano 2.9.3                    /tmp/crontab.04DzHu/crontab

# m h  dom mon dow   command
58 09 * * 1,5 python3 ForexLiveP1.py
59 09 * * 1,5 python3 GmailSendFXlive.py
05 10 * * * python3 NOAAWeather.py
06 10 * * * python3 GmailSendNOAA.py
#15 10 * * * python3 NYtimesPage1.py
#16 10 * * * python3 GmailSendNYT.py
19 10 * * * python3 YHOOp1.py
20 10 * * * python3 GmailSendYHOO.py
#14 20 * * 1-5 python3 BarronsNewsDaily.py
#15 20 * * 1-5 python3 GmailSendBarronsDaily.py
#31 17 13 06 * python3_SMS_Wrestle_Spring_2019_Main_LAST.py //for reference during season#
20 18 * * 6,0 python3 SMS_Single_BobT.py
30 20 * * 1-5 python3 BriefingEPS.py
31 20 * * 1-5 python3 GmailSendBriefingEPS.py
#01 20 * * 0 java -cp .:twilio-7.29.0-jar-with-dependencies.jar SendSMSBobT.java
01 11 * * 2,4 java -cp .:twilio-7.29.0-jar-with-dependencies.jar SendSMSBackwardStep.java







                                        [ Read 43 lines ]
^G Get Help      ^O Write Out     ^W Where Is      ^K Cut Text      ^J Justify       ^C Cur Pos
^X Exit          ^R Read File     ^\ Replace       ^U Uncut Text    ^T To Spell      ^_ Go To Line
```

Files can be managed between a local machine and remote server with FileZilla FTP client.

In [20]:

```
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "FileZillaAWS.png"))
```



AWSubuntuEC2 -[redacted]5.us-east-2.compute.amazonaws.com - FileZilla

Host: Username: Password: Port:

```
Status:     Connecting to ec2-[redacted].compute.amazonaws.com...
Status:     Connected to ec2-1[redacted]compute.amazonaws.com
Status:     Retrieving directory listing...
Status:     Listing directory /home/ubuntu
Status:     Directory listing of "/home/ubuntu" successful
```

Local site: C:\Users\bobtr\OneDrive\Desktop\Clocks\PythonDailyNews\AWSubuntuServer\

Filename	Filesize	Filetype	Last modified
..			
.ipynb_checkpoints		File folder	6/13/2019 8:53:42 ...
__pycache__		File folder	6/22/2019 8:26:01 ...
JavaSMS		File folder	7/7/2019 9:51:17 AM
SampleCodeForTwilioAWS		File folder	7/15/2019 9:10:00 ...
SMSTry4		File folder	7/6/2019 6:18:52 PM
BackPack_3.py	2,522	Python File	5/17/2019 7:25:49 ...
BackPack_4.py	448	Python File	5/14/2019 6:54:12 ...
BackPackAgenda.py	1,027	Python File	5/1/2019 3:48:06 PM
BackPackAgenda.txt	0	Text Document	5/2/2019 9:56:36 AM
BackPackAgenda_Test_2.ipynb	26,534	IPYNB File	5/1/2019 2:56:22 PM
BackPackPayloadToken.ipynb	4,686	IPYNB File	5/6/2019 9:41:19 AM
BarronsNewsDaily.py	1,406	Python File	4/26/2019 12:54:48...
BriefingEPS.py	412	Python File	4/30/2019 4:02:04 ...
BriefingEPScalDaily.csv	6,257	Microsoft Exce...	4/30/2019 4:13:46 ...
BriefingEPScalDivText.py	511	Python File	4/30/2019 3:23:25 ...
config.py	254	Python File	4/23/2019 10:54:18...
credentials.py	1,739	Python File	5/16/2019 7:18:11 ...
DarkSkyGmail.py	1,347	Python File	4/25/2019 11:29:06...
DarkSkyWeather.py	709	Python File	4/27/2019 3:20:39 ...
DarkSkyWeather_old.py	1,251	Python File	4/25/2019 11:25:20...
ec2userschedule	71	File	4/25/2019 9:55:41 ...
EmergencyFIXsentLASTpracticeasMa...	12,835	IPYNB File	6/13/2019 1:35:21 ...
ForexLiveP1.py	637	Python File	4/25/2019 10:55:22...
GCalAgenda.py	1,064	Python File	5/14/2019 3:48:49 ...
GmailSendBarronsDaily.py	1,328	Python File	4/26/2019 12:59:30...
GmailSendBriefingEPS.py	862	Python File	4/30/2019 3:58:37 ...
GmailSendFXlive.py	1,320	Python File	4/25/2019 11:11:44...
GmailSendNOAA.py	948	Python File	4/27/2019 10:20:08...
GmailSendNYT.py	1,303	Python File	4/25/2019 11:12:03...
GmailSendYHOO.chron	38	CHRON File	4/24/2019 10:42:36...
GmailSendYHOO.py	1,314	Python File	4/23/2019 10:53:02...
NOAAWeather.py	1,722	Python File	4/27/2019 10:20:53...
NOAAweatherscrape.png	568,112	PNG File	4/27/2019 8:13:03 ...
NYtimesPage1.py	882	Python File	4/25/2019 10:58:29...
SampleCron.txt	1,451	Text Document	4/25/2019 5:53:51 ...

41 files and 5 directories. Total size: 3,350,315 bytes

Remote site: /home/ubuntu

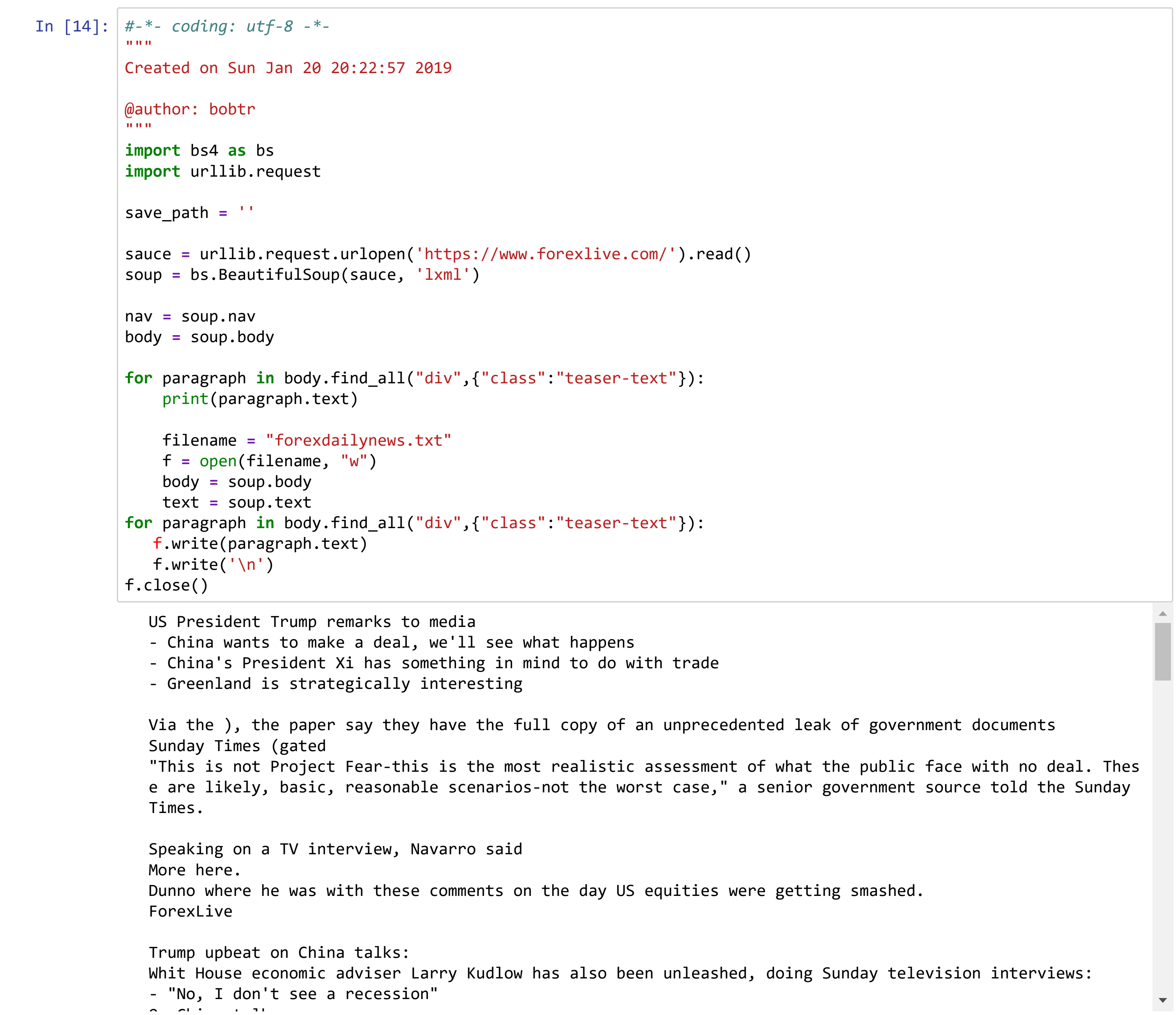
```
/
  home
    ubuntu
```

Filename	Filesize	Filetype	Last modified	Permis
BriefingEPS.py	400	Python File	4/30/2019 3:59:43 PM	-rw-rw
BriefingEPScalDaily.csv	85	Microsoft ...	8/16/2019 4:30:04 PM	-rw-rw
config.py	254	Python File	4/25/2019 10:21:50 PM	-rw-rw
credentials.py	1,739	Python File	5/16/2019 7:18:54 AM	-rw-rw
crontest.log	0	Text Docu...	4/24/2019 11:04:09 AM	-rw-rw
DarkSkyGmail.py	1,347	Python File	4/25/2019 11:29:21 PM	-rw-rw
DarkSkyWeather.py	709	Python File	4/27/2019 3:21:34 PM	-rw-rw
DarkSkyWeather.txt	332	Text Docu...	4/27/2019 3:23:52 PM	-rw-rw
dead.letter	2,058,309	LETTER File	8/18/2019 2:20:02 PM	-rw---
environ.py	177	Python File	4/26/2019 5:29:50 PM	-rw-rw
environ_1.py	151	Python File	4/26/2019 8:11:32 PM	-rw-rw
forexdailynews.txt	6,264	Text Docu...	8/16/2019 5:58:02 AM	-rw-rw
ForexLiveP1.py	637	Python File	4/25/2019 10:58:03 PM	-rw-rw
GmailSendBarronsDaily.py	1,328	Python File	4/26/2019 12:59:40 PM	-rw-rw
GmailSendBriefingEPS.py	862	Python File	4/30/2019 3:59:49 PM	-rw-rw
GmailSendFXlive.py	1,320	Python File	4/25/2019 11:12:14 PM	-rw-rw
GmailSendNOAA.py	948	Python File	4/27/2019 10:21:26 PM	-rw-rw
GmailSendNYT.py	1,303	Python File	4/25/2019 11:12:15 PM	-rw-rw
GmailSendYHOO.py	1,314	Python File	4/25/2019 2:45:21 PM	-rw-rw
my-crontab	956	File	4/24/2019 11:21:51 AM	-rw-rw
NOAAWeather.py	1,722	Python File	4/27/2019 10:21:26 PM	-rw-rw
NOAAWeather.txt	1,460	Text Docu...	8/18/2019 6:05:03 AM	-rw-rw
NYtimesPage1.py	882	Python File	4/25/2019 11:19:06 PM	-rw-rw
NYTnews.txt	1,246	Text Docu...	8/12/2019 6:15:02 AM	-rw-rw

45 files and 11 directories. Total size: 11,331,768 bytes

Queue: empty

Here are some samples of web text-scrapers to read and parse daily morning news and deliver seamlessly to an e-mail inbox.

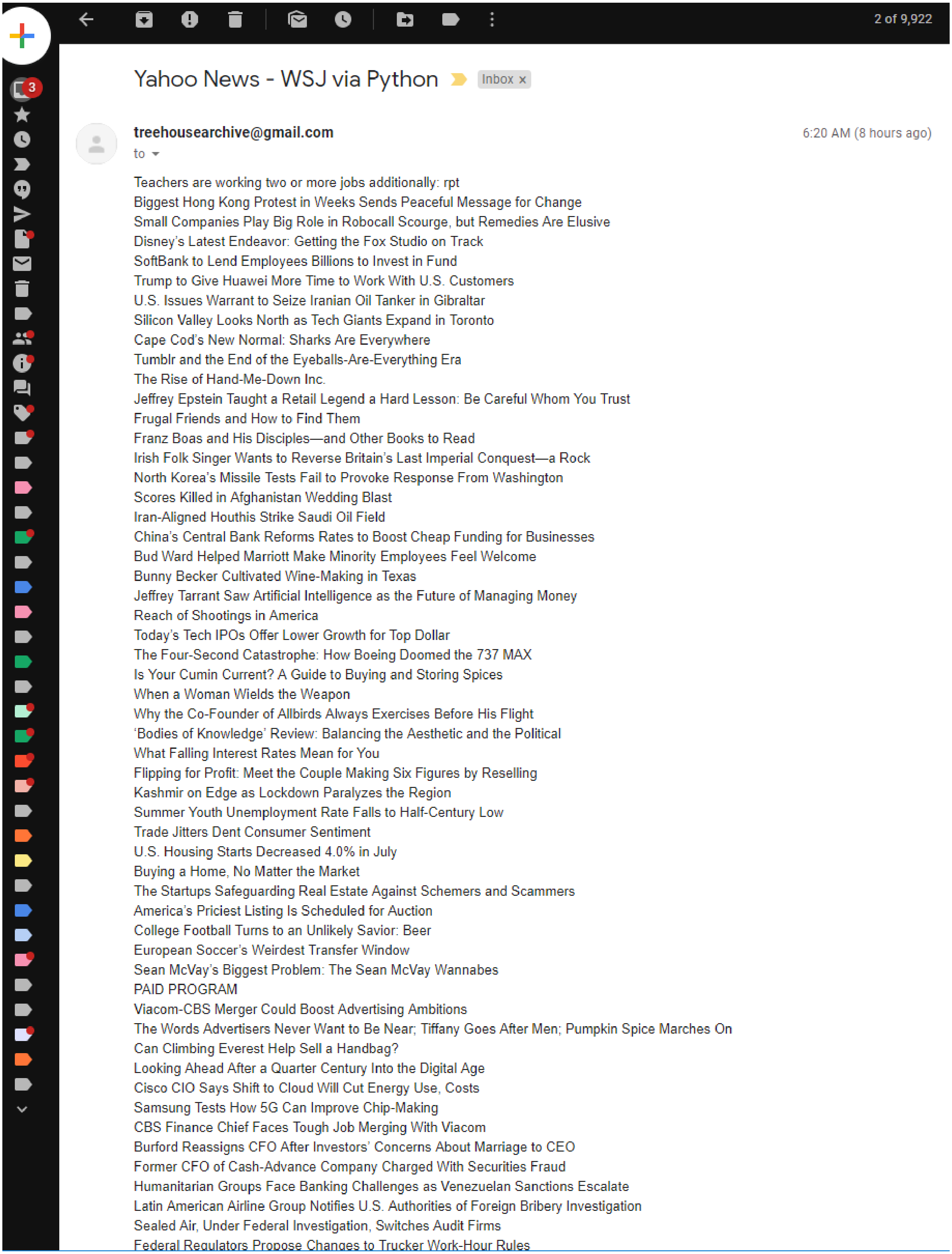


```
In [14]: #-*- coding: utf-8 -*-
         """
         Created on Sun Jan 20 20:22:57 2019

         @author: bobtr
         """
         import bs4 as bs
         import urllib.request

         save_path = ''

         sauce = urllib.request.urlopen('https://www.forexlive.com/').read()
         soup = bs.BeautifulSoup(sauce, 'lxml')

         nav = soup.nav
         body = soup.body

         for paragraph in body.find_all("div",{"class":"teaser-text"}):
             print(paragraph.text)

             filename = "forexdailynews.txt"
             f = open(filename, "w")
             body = soup.body
             text = soup.text
         for paragraph in body.find_all("div",{"class":"teaser-text"}):
            f.write(paragraph.text)
            f.write('\n')
         f.close()
```

```
  US President Trump remarks to media
  - China wants to make a deal, we'll see what happens
  - China's President Xi has something in mind to do with trade
  - Greenland is strategically interesting

  Via the ), the paper say they have the full copy of an unprecedented leak of government documents
  Sunday Times (gated
  "This is not Project Fear-this is the most realistic assessment of what the public face with no deal. Thes
  e are likely, basic, reasonable scenarios-not the worst case," a senior government source told the Sunday
  Times.

  Speaking on a TV interview, Navarro said
  More here.
  Dunno where he was with these comments on the day US equities were getting smashed.
  ForexLive

  Trump upbeat on China talks:
  Whit House economic adviser Larry Kudlow has also been unleashed, doing Sunday television interviews:
  - "No, I don't see a recession"
```

the scraped web content sent via e-mail

```
In [24]: from IPython.core.display import Image, display
         PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
         display(Image(filename = PATH + "WSJnewsAutoEmail.png"))
```



Yahoo News - WSJ via Python

treehousearchive@gmail.com
to
6:20 AM (8 hours ago)

Teachers are working two or more jobs additionally: rpt
Biggest Hong Kong Protest in Weeks Sends Peaceful Message for Change
Small Companies Play Big Role in Robocall Scourge, but Remedies Are Elusive
Disney's Latest Endeavor: Getting the Fox Studio on Track
SoftBank to Lend Employees Billions to Invest in Fund
Trump to Give Huawei More Time to Work With U.S. Customers
U.S. Issues Warrant to Seize Iranian Oil Tanker in Gibraltar
Silicon Valley Looks North as Tech Giants Expand in Toronto
Cape Cod's New Normal: Sharks Are Everywhere
Tumblr and the End of the Eyeballs-Are-Everything Era
The Rise of Hand-Me-Down Inc.
Jeffrey Epstein Taught a Retail Legend a Hard Lesson: Be Careful Whom You Trust
Frugal Friends and How to Find Them
Franz Boas and His Disciples—and Other Books to Read
Irish Folk Singer Wants to Reverse Britain's Last Imperial Conquest—a Rock
North Korea's Missile Tests Fail to Provoke Response From Washington
Scores Killed in Afghanistan Wedding Blast
Iran-Aligned Houthis Strike Saudi Oil Field
China's Central Bank Reforms Rates to Boost Cheap Funding for Businesses
Bud Ward Helped Marriott Make Minority Employees Feel Welcome
Bunny Becker Cultivated Wine-Making in Texas
Jeffrey Tarrant Saw Artificial Intelligence as the Future of Managing Money
Reach of Shootings in America
Today's Tech IPOs Offer Lower Growth for Top Dollar
The Four-Second Catastrophe: How Boeing Doomed the 737 MAX
Is Your Cumin Current? A Guide to Buying and Storing Spices
When a Woman Wields the Weapon
Why the Co-Founder of Allbirds Always Exercises Before His Flight
'Bodies of Knowledge' Review: Balancing the Aesthetic and the Political
What Falling Interest Rates Mean for You
Flipping for Profit: Meet the Couple Making Six Figures by Reselling
Kashmir on Edge as Lockdown Paralyzes the Region
Summer Youth Unemployment Rate Falls to Half-Century Low
Trade Jitters Dent Consumer Sentiment
U.S. Housing Starts Decreased 4.0% in July
Buying a Home, No Matter the Market
The Startups Safeguarding Real Estate Against Schemers and Scammers
America's Priciest Listing Is Scheduled for Auction
College Football Turns to an Unlikely Savior: Beer
European Soccer's Weirdest Transfer Window
Sean McVay's Biggest Problem: The Sean McVay Wannabes
PAID PROGRAM
Viacom-CBS Merger Could Boost Advertising Ambitions
The Words Advertisers Never Want to Be Near; Tiffany Goes After Men; Pumpkin Spice Marches On
Can Climbing Everest Help Sell a Handbag?
Looking Ahead After a Quarter Century Into the Digital Age
Cisco CIO Says Shift to Cloud Will Cut Energy Use, Costs
Samsung Tests How 5G Can Improve Chip-Making
CBS Finance Chief Faces Tough Job Merging With Viacom
Burford Reassigns CFO After Investors' Concerns About Marriage to CEO
Former CFO of Cash-Advance Company Charged With Securities Fraud
Humanitarian Groups Face Banking Challenges as Venezuelan Sanctions Escalate
Latin American Airline Group Notifies U.S. Authorities of Foreign Bribery Investigation
Sealed Air, Under Federal Investigation, Switches Audit Firms
Federal Regulators Propose Changes to Trucker Work-Hour Rules

Can be customized for other news surces with a sample of the code output below.

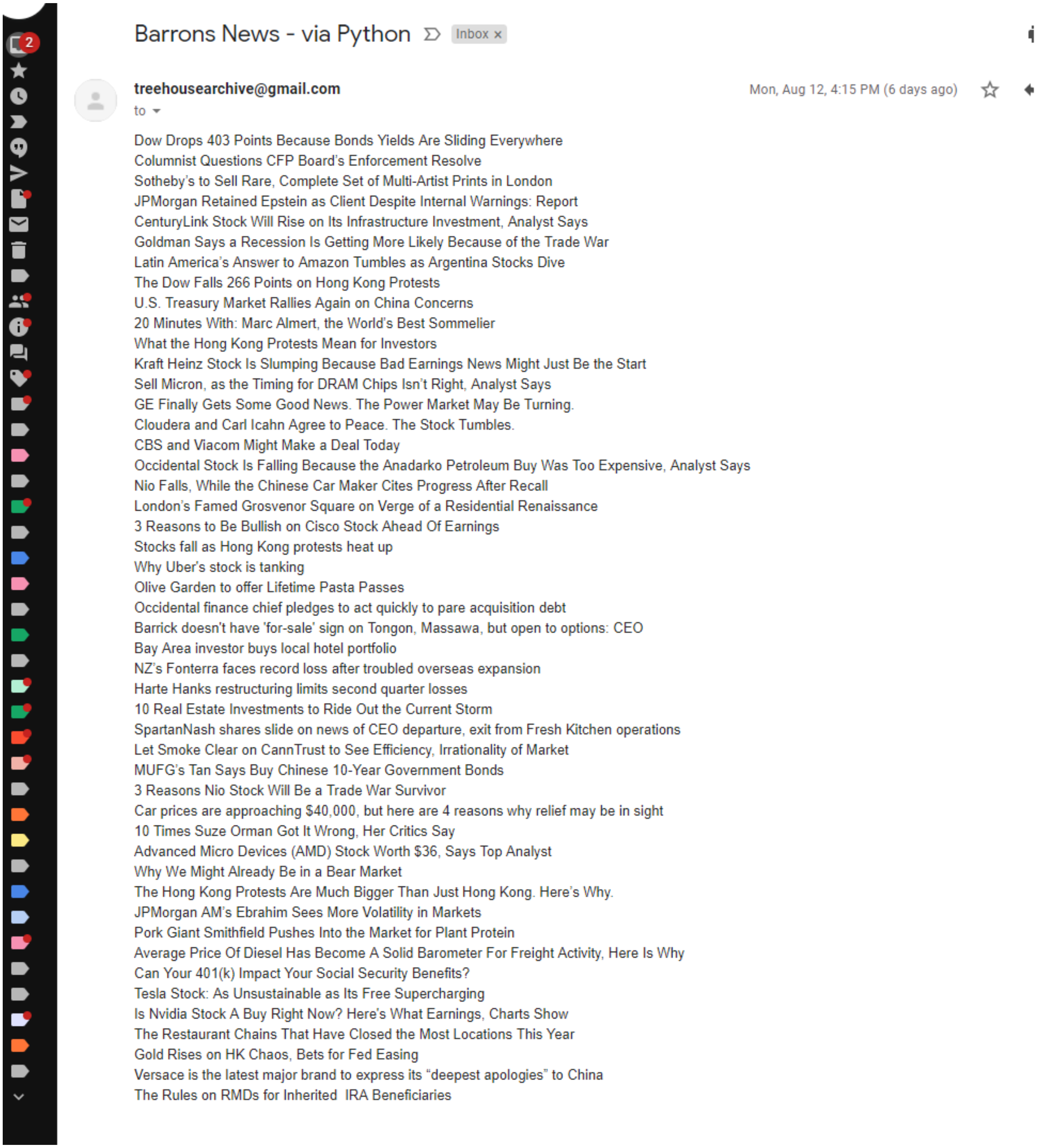
In [16]:

```
# -*- coding: utf-8 -*-
"""
Created on Mon Jan  7 18:30:25 2019

@author: bobtr
"""
import bs4 as bs
import urllib.request

save_path = ''
sauce = urllib.request.urlopen('https://www.barrons.com/real-time').read()
sauce2 = urllib.request.urlopen('https://finance.yahoo.com/').read()
soup = bs.BeautifulSoup(sauce, 'lxml')
soup2 = bs.BeautifulSoup(sauce2, 'lxml')
nav = soup.nav
nav2 = soup2.nav
body = soup.body
body2 = soup2.body
text = soup.text

for paragraph in body.find_all("h3"):
   print(paragraph.text)

for paragraph in body2.find_all("h3"):
   print(paragraph.text)

   filename = "BarronsDailynews.txt"
   f = open(filename, "w")
   body = soup.body
   text = soup.text
for paragraph in body.find_all('h3'):
    f.write(paragraph.text)
    f.write('\n')
       #f.write("")
for paragraph in body2.find_all('h3'):
    f.write(paragraph.text)
    f.write('\n')
f.close()
```

```
Home Depot, L Brands, Analog Devices and More Stocks to Watch
Retirement Reboot: How to Play Catchup After Being Out of Work
Yale Built a Large Stake in Slack Stock
The No. 1 Job in America with the ‘Best Career Opportunities’ Pays $112,000 a Year — and It’s Not in Tech
South Korea’s Sovereign-Wealth Fund Sold Tesla Stock — and Bought Uber and GM
What to Watch for in Baidu Earnings
Merger Arbitrage Fund Managers Share What They’re Seeing
PG&E Will Get to Steer Its Own Reorganization, Judge Rules
Tensions Over Huawei Are About to Hit the U.S.-China Trade War Again
Stanford Now Owns Stakes in Uber and Pinterest Stock
Harvard University Sold Apple and Facebook Stock — and Bought Alphabet
Oil and Gas Stocks to Love
Big IPOs, Like Beyond Meat, Have Had a Good Year. WeWork Wants In.
In the Lingo of a Trade War, Tariffs Are Just So 80s
Stocks Swing Wildly as Yield Curve Flips. Is There a Recession Out There?
When Defensive Stocks Are No Longer the Best Defense
Myriad Genetics Runs Into Trouble With the F.D.A.
ViacomCBS: We’ve Seen This Show Before
A Really Cool Plan: Cut Interest Rates and Buy Greenland
Letters to Barron’s
30 business leaders who have backed Trump
Jackson Hole — What to know in the week ahead
Soaring U.S. health care costs hit employer plans
Mark Cuban explains how to make a 16% guaranteed return
How to Use a P/E Ratio When Picking Stocks
Kevin O’Leary: This easy math trick helps you crush retirement goals
These 16 money wasters are why so many Americans can’t save for retirement
I built a nest egg of $1 million and I’m only 46 — so why do I still spend my waking hours worrying?
Senior rip-offs are soaring—and you won’t believe who the crooks are
The No. 1 Job in America with the ‘Best Career Opportunities’ Pays $112,000 a Year — and It’s Not in Tech
General Electric’s (GE) Biggest Bull Is Unfazed by Harry Markopolos’ Bearish Report
Hedge Fund Legend Jim Simons Pours Money Into Aurora Cannabis (ACB) and Aphria (APHA) Stocks
Recession watch: 6 financial moves to make when the economy slows down
Saudi Oil Fields Are in the Firing Line as Gulf Conflicts Rage
```

```
Here’s the game plan for U.S. stock investors if China retaliates against Trump
Copy insiders and buy these stocks — because they see no recession looming
The $4 billion time bomb ticking away inside the biggest marijuana companies
Briggs & Stratton stock falls to 44-year low after surprise loss, dividend cut and plant closure
Wall Street Has Abandoned Oil and Gas Stocks. You Shouldn’t.
This 31-year-old sold $700,000 of stuff online without buying any inventory and the one silver lining for th
e real-estate market in July
Door-to-door thieves are using DNA tests to scam you
These homeowners are putting a floor under house prices
Here’s what smart rich people really do with their nest egg
The new math of saving for retirement may boil down to this one, absurdly simple rule
Baidu Reports Earnings With Stock Holding a Value Level
San Francisco doesn't care about the stock market
What really helped Walmart clean up with earnings — robot ‘associates’
Why gold’s ‘strong undercurrent’ has some analysts eyeing $2,000 an ounce
```

In [25]:
```python
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "BarronsEndDayNewsAuto.png"))
```



Barrons News - via Python

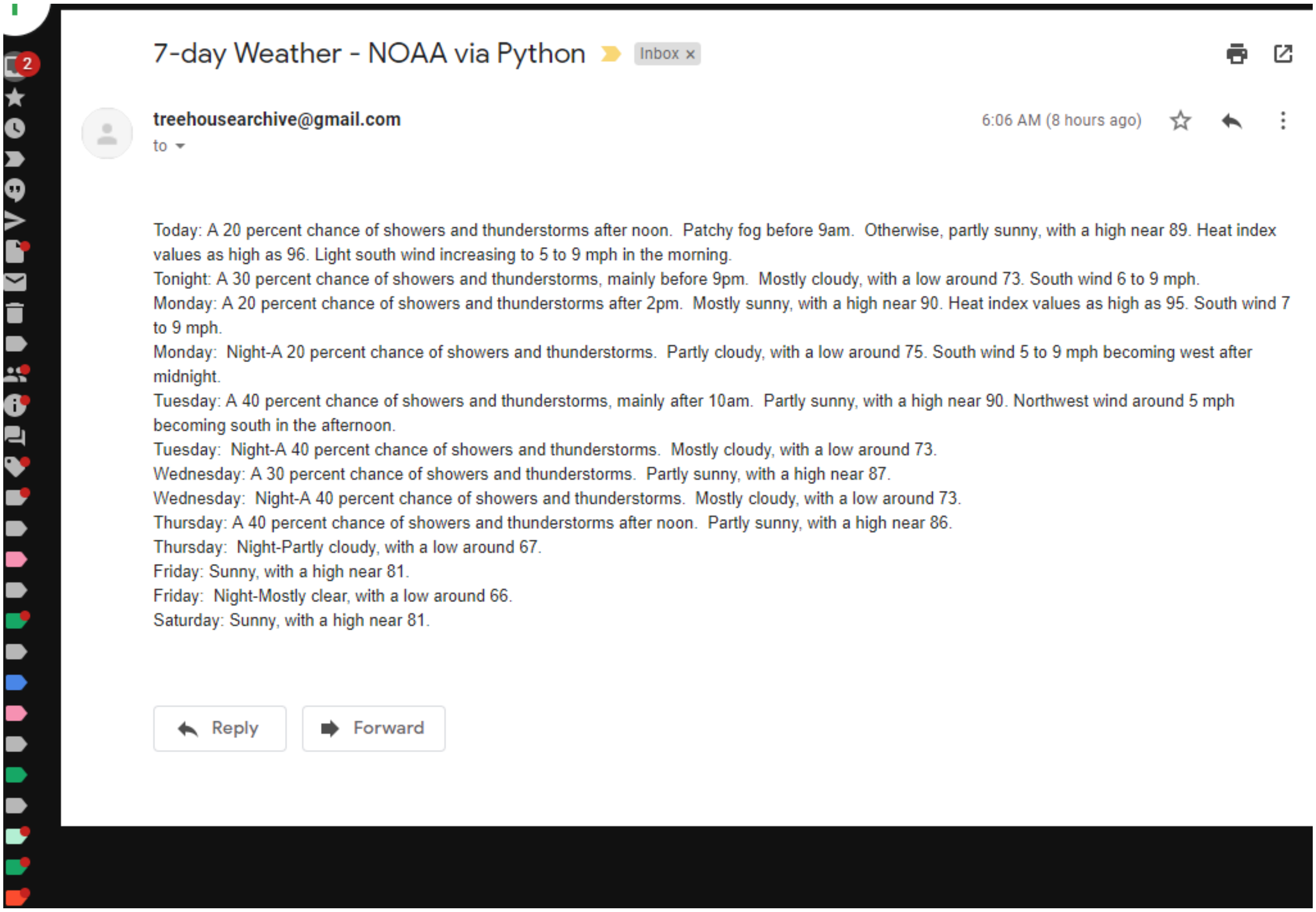
treehousearchive@gmail.com
to

Mon, Aug 12, 4:15 PM (6 days ago)

Dow Drops 403 Points Because Bonds Yields Are Sliding Everywhere
Columnist Questions CFP Board’s Enforcement Resolve
Sotheby’s to Sell Rare, Complete Set of Multi-Artist Prints in London
JPMorgan Retained Epstein as Client Despite Internal Warnings: Report
CenturyLink Stock Will Rise on Its Infrastructure Investment, Analyst Says
Goldman Says a Recession Is Getting More Likely Because of the Trade War
Latin America’s Answer to Amazon Tumbles as Argentina Stocks Dive
The Dow Falls 266 Points on Hong Kong Protests
U.S. Treasury Market Rallies Again on China Concerns
20 Minutes With: Marc Almert, the World’s Best Sommelier
What the Hong Kong Protests Mean for Investors
Kraft Heinz Stock Is Slumping Because Bad Earnings News Might Just Be the Start
Sell Micron, as the Timing for DRAM Chips Isn’t Right, Analyst Says
GE Finally Gets Some Good News. The Power Market May Be Turning.
Cloudera and Carl Icahn Agree to Peace. The Stock Tumbles.
CBS and Viacom Might Make a Deal Today
Occidental Stock Is Falling Because the Anadarko Petroleum Buy Was Too Expensive, Analyst Says
Nio Falls, While the Chinese Car Maker Cites Progress After Recall
London’s Famed Grosvenor Square on Verge of a Residential Renaissance
3 Reasons to Be Bullish on Cisco Stock Ahead Of Earnings
Stocks fall as Hong Kong protests heat up
Why Uber's stock is tanking
Olive Garden to offer Lifetime Pasta Passes
Occidental finance chief pledges to act quickly to pare acquisition debt
Barrick doesn't have 'for-sale' sign on Tongon, Massawa, but open to options: CEO
Bay Area investor buys local hotel portfolio
NZ’s Fonterra faces record loss after troubled overseas expansion
Harte Hanks restructuring limits second quarter losses
10 Real Estate Investments to Ride Out the Current Storm
SpartanNash shares slide on news of CEO departure, exit from Fresh Kitchen operations
Let Smoke Clear on CannTrust to See Efficiency, Irrationality of Market
MUFG’s Tan Says Buy Chinese 10-Year Government Bonds
3 Reasons Nio Stock Will Be a Trade War Survivor
Car prices are approaching $40,000, but here are 4 reasons why relief may be in sight
10 Times Suze Orman Got It Wrong, Her Critics Say
Advanced Micro Devices (AMD) Stock Worth $36, Says Top Analyst
Why We Might Already Be in a Bear Market
The Hong Kong Protests Are Much Bigger Than Just Hong Kong. Here’s Why.
JPMorgan AM’s Ebrahim Sees More Volatility in Markets
Pork Giant Smithfield Pushes Into the Market for Plant Protein
Average Price Of Diesel Has Become A Solid Barometer For Freight Activity, Here Is Why
Can Your 401(k) Impact Your Social Security Benefits?
Tesla Stock: As Unsustainable as Its Free Supercharging
Is Nvidia Stock A Buy Right Now? Here’s What Earnings, Charts Show
The Restaurant Chains That Have Closed the Most Locations This Year
Gold Rises on HK Chaos, Bets for Fed Easing
Versace is the latest major brand to express its “deepest apologies” to China
The Rules on RMDs for Inherited IRA Beneficiaries

In [26]:

```
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
<p><a name="java"></a></p>display(Image(filename = PATH + "WeatherEmailAuto.png"))
```



7-day Weather - NOAA via Python

treehousearchive@gmail.com

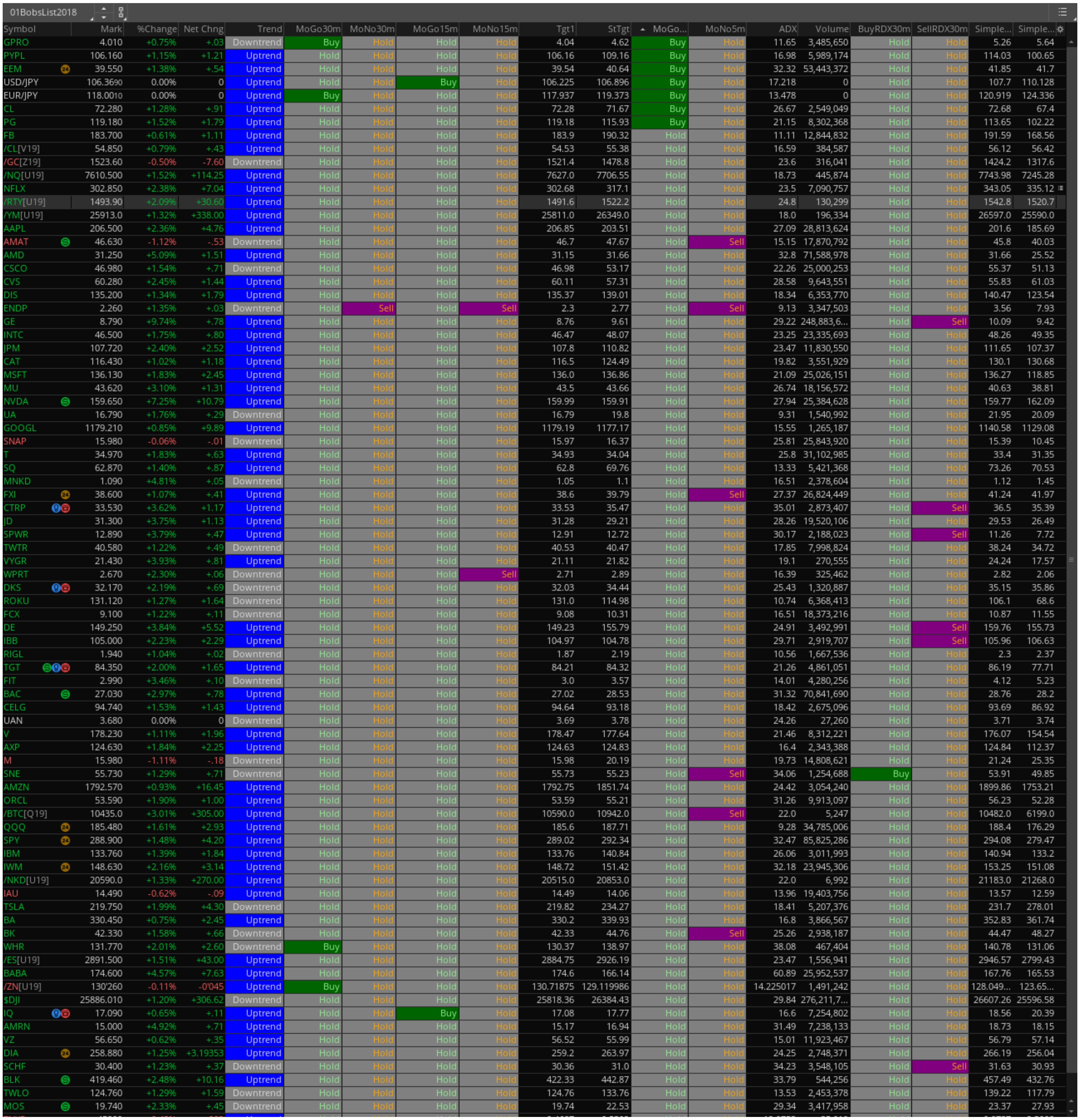
to

6:06 AM (8 hours ago)

Today: A 20 percent chance of showers and thunderstorms after noon. Patchy fog before 9am. Otherwise, partly sunny, with a high near 89. Heat index values as high as 96. Light south wind increasing to 5 to 9 mph in the morning.
Tonight: A 30 percent chance of showers and thunderstorms, mainly before 9pm. Mostly cloudy, with a low around 73. South wind 6 to 9 mph.
Monday: A 20 percent chance of showers and thunderstorms after 2pm. Mostly sunny, with a high near 90. Heat index values as high as 95. South wind 7 to 9 mph.
Monday: Night-A 20 percent chance of showers and thunderstorms. Partly cloudy, with a low around 75. South wind 5 to 9 mph becoming west after midnight.
Tuesday: A 40 percent chance of showers and thunderstorms, mainly after 10am. Partly sunny, with a high near 90. Northwest wind around 5 mph becoming south in the afternoon.
Tuesday: Night-A 40 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 73.
Wednesday: A 30 percent chance of showers and thunderstorms. Partly sunny, with a high near 87.
Wednesday: Night-A 40 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 73.
Thursday: A 40 percent chance of showers and thunderstorms after noon. Partly sunny, with a high near 86.
Thursday: Night-Partly cloudy, with a low around 67.
Friday: Sunny, with a high near 81.
Friday: Night-Mostly clear, with a low around 66.
Saturday: Sunny, with a high near 81.

Some custom watchlist screens built inside thinkorswim (TD Ameritrade) with "thinkscript" (python).

In [17]:
```
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "TOSmarketWatchCustomSort.png"))
```



01BobsList2018

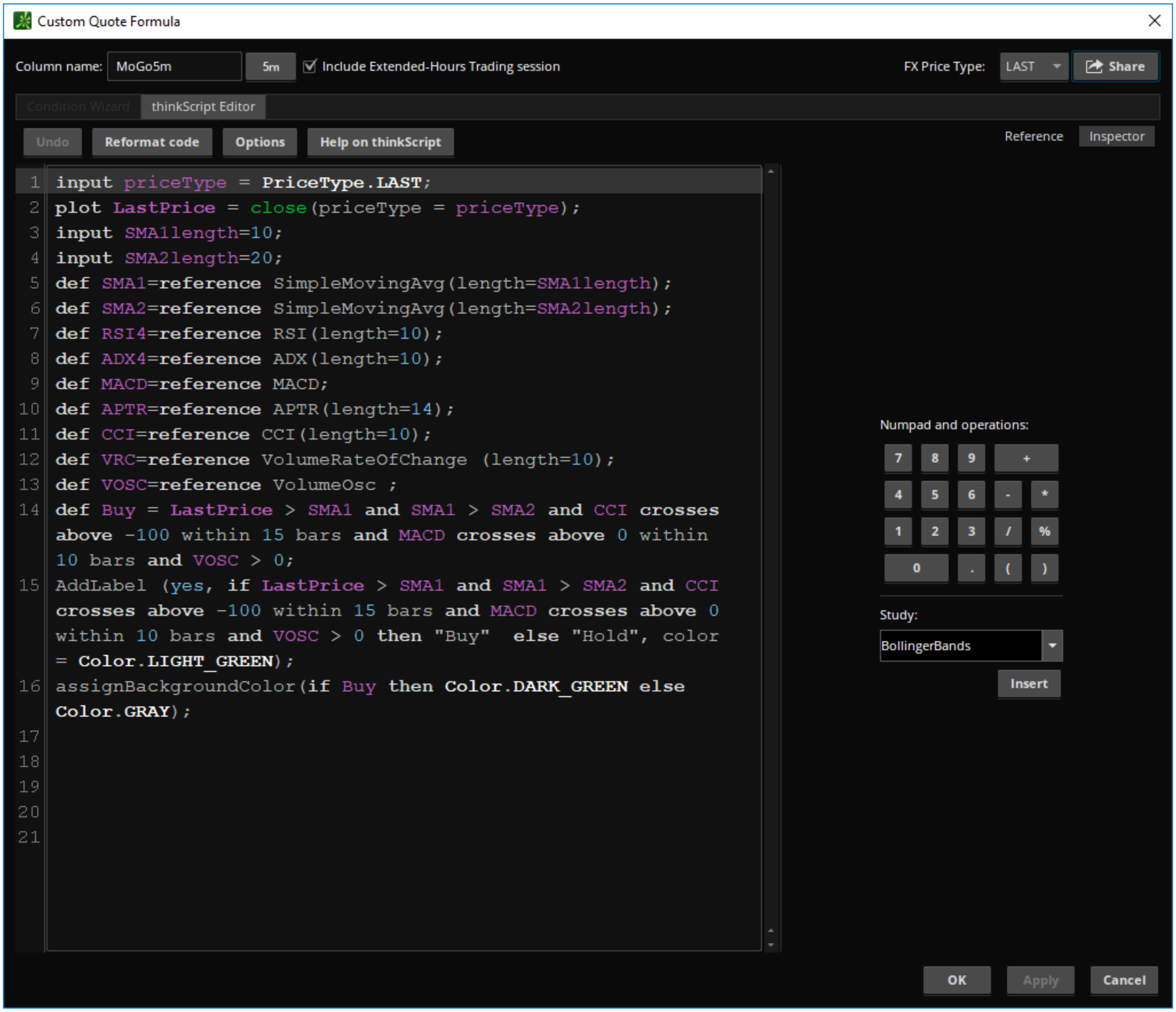
Symbol	Mark	%Change	Net Chng	Trend	MoGo30m	MoNo30m	MoGo15m	MoNo15m	Tgt1	StTgt	MoGo...	MoNo5m	ADX	Volume	BuyRDX30m	SellRDX30m	Simple...	Simple...
GPRO	4.010	+0.75%	+.03	Downtrend	Buy	Hold	Hold	Hold	4.04	4.62	Buy	Hold	11.65	3,485,650	Hold	Hold	5.26	5.64
PYPL	106.160	+1.15%	+1.21	Uptrend	Hold	Hold	Hold	Hold	106.16	109.16	Buy	Hold	16.98	5,989,174	Hold	Hold	114.03	100.65
EEM	39.550	+1.38%	+.54	Uptrend	Hold	Hold	Hold	Hold	39.54	40.64	Buy	Hold	32.32	53,443,372	Hold	Hold	41.85	41.7
USD/JPY	106.3690	0.00%	0	Uptrend	Hold	Hold	Buy	Hold	106.225	106.896	Buy	Hold	17.218	0	Hold	Hold	107.7	110.128
EUR/JPY	118.0010	0.00%	0	Uptrend	Buy	Hold	Hold	Hold	117.937	119.373	Buy	Hold	13.478	0	Hold	Hold	120.919	124.336
CL	72.280	+1.28%	+.91	Uptrend	Hold	Hold	Hold	Hold	72.28	71.67	Buy	Hold	26.67	2,549,049	Hold	Hold	72.68	67.4
PG	119.180	+1.52%	+1.79	Uptrend	Hold	Hold	Hold	Hold	119.18	115.93	Buy	Hold	21.15	8,302,368	Hold	Hold	113.65	102.22
FB	183.700	+0.61%	+1.11	Uptrend	Hold	Hold	Hold	Hold	183.9	190.32	Hold	Hold	11.11	12,844,832	Hold	Hold	191.59	168.56
/CL[V19]	54.850	+0.79%	+.43	Uptrend	Hold	Hold	Hold	Hold	54.53	55.38	Hold	Hold	16.59	384,587	Hold	Hold	56.12	56.42
/GC[Z19]	1523.60	-0.50%	-7.60	Downtrend	Hold	Hold	Hold	Hold	1521.4	1478.8	Hold	Hold	23.6	316,041	Hold	Hold	1424.2	1317.6
/NQ[U19]	7610.500	+1.52%	+114.25	Uptrend	Hold	Hold	Hold	Hold	7627.0	7706.55	Hold	Hold	18.73	445,874	Hold	Hold	7743.98	7245.28
NFLX	302.850	+2.38%	+7.04	Uptrend	Hold	Hold	Hold	Hold	302.68	317.1	Hold	Hold	23.5	7,090,757	Hold	Hold	343.05	335.12
/RTY[U19]	1493.90	+2.09%	+30.60	Uptrend	Hold	Hold	Hold	Hold	1491.6	1522.2	Hold	Hold	24.8	130,299	Hold	Hold	1542.8	1520.7
/YM[U19]	25913.0	+1.32%	+338.00	Uptrend	Hold	Hold	Hold	Hold	25811.0	26349.0	Hold	Hold	18.0	196,334	Hold	Hold	26597.0	25590.0
AAPL	206.500	+2.36%	+4.76	Uptrend	Hold	Hold	Hold	Hold	206.85	203.51	Hold	Hold	27.09	28,813,624	Hold	Hold	201.6	185.69
AMAT	46.630	-1.12%	-.53	Downtrend	Hold	Hold	Hold	Hold	46.7	47.67	Hold	Sell	15.15	17,870,792	Hold	Hold	45.8	40.03
AMD	31.250	+5.09%	+1.51	Uptrend	Hold	Hold	Hold	Hold	31.15	31.66	Hold	Hold	32.8	71,588,978	Hold	Hold	31.66	25.52
CSCO	46.980	+1.54%	+.71	Downtrend	Hold	Hold	Hold	Hold	46.98	53.17	Hold	Hold	22.26	25,000,253	Hold	Hold	55.37	51.13
CVS	60.280	+2.45%	+1.44	Uptrend	Hold	Hold	Hold	Hold	60.11	57.31	Hold	Hold	28.58	9,643,551	Hold	Hold	55.83	61.03
DIS	135.200	+1.34%	+1.79	Uptrend	Hold	Hold	Hold	Hold	135.37	139.01	Hold	Hold	18.34	6,353,770	Hold	Hold	140.47	123.54
ENDP	2.260	+1.35%	+.03	Downtrend	Hold	Sell	Hold	Sell	2.3	2.77	Hold	Sell	9.13	3,347,503	Hold	Hold	3.56	7.93
GE	8.790	+9.74%	+.78	Uptrend	Hold	Hold	Hold	Hold	8.76	9.61	Hold	Hold	29.22	248,883,6...	Hold	Sell	10.09	9.42
INTC	46.500	+1.75%	+.80	Uptrend	Hold	Hold	Hold	Hold	46.47	48.07	Hold	Hold	23.25	23,335,693	Hold	Hold	48.26	49.35
JPM	107.720	+2.40%	+2.52	Uptrend	Hold	Hold	Hold	Hold	107.8	110.82	Hold	Hold	23.47	11,830,550	Hold	Hold	111.65	107.37
CAT	116.430	+1.02%	+1.18	Uptrend	Hold	Hold	Hold	Hold	116.5	124.49	Hold	Hold	19.82	3,551,929	Hold	Hold	130.1	130.68
MSFT	136.130	+1.83%	+2.45	Uptrend	Hold	Hold	Hold	Hold	136.0	136.86	Hold	Hold	21.09	25,026,151	Hold	Hold	136.27	118.85
MU	43.620	+3.10%	+1.31	Uptrend	Hold	Hold	Hold	Hold	43.5	43.66	Hold	Hold	26.74	18,156,572	Hold	Hold	40.63	38.81
NVDA	159.650	+7.25%	+10.79	Uptrend	Hold	Hold	Hold	Hold	159.99	159.91	Hold	Hold	27.94	25,384,628	Hold	Hold	159.77	162.09
UA	16.790	+1.76%	+.29	Downtrend	Hold	Hold	Hold	Hold	16.79	19.8	Hold	Hold	9.31	1,540,992	Hold	Hold	21.95	20.09
GOOGL	1179.210	+0.85%	+9.89	Uptrend	Hold	Hold	Hold	Hold	1179.19	1177.17	Hold	Hold	15.55	1,265,187	Hold	Hold	1140.58	1129.08
SNAP	15.980	-0.06%	-.01	Downtrend	Hold	Hold	Hold	Hold	15.97	16.37	Hold	Hold	25.81	25,843,920	Hold	Hold	15.39	10.45
T	34.970	+1.83%	+.63	Uptrend	Hold	Hold	Hold	Hold	34.93	34.04	Hold	Hold	25.8	31,102,985	Hold	Hold	33.4	31.35
SQ	62.870	+1.40%	+.87	Uptrend	Hold	Hold	Hold	Hold	62.8	69.76	Hold	Hold	13.33	5,421,368	Hold	Hold	73.26	70.53
MNKD	1.090	+4.81%	+.05	Downtrend	Hold	Hold	Hold	Hold	1.05	1.1	Hold	Hold	16.51	2,378,604	Hold	Hold	1.12	1.45
FXI	38.600	+1.07%	+.41	Uptrend	Hold	Hold	Hold	Hold	38.6	39.79	Hold	Sell	27.37	26,824,449	Hold	Hold	41.24	41.97
CTRP	33.530	+3.62%	+1.17	Uptrend	Hold	Hold	Hold	Hold	33.53	35.47	Hold	Hold	35.01	2,873,407	Hold	Sell	36.5	35.39
JD	31.300	+3.75%	+1.13	Uptrend	Hold	Hold	Hold	Hold	31.28	29.21	Hold	Hold	28.26	19,520,106	Hold	Hold	29.53	26.49
SPWR	12.890	+3.79%	+.47	Uptrend	Hold	Hold	Hold	Hold	12.91	12.72	Hold	Hold	30.17	2,188,023	Hold	Sell	11.26	7.72
TWTR	40.580	+1.22%	+.49	Downtrend	Hold	Hold	Hold	Hold	40.53	40.47	Hold	Hold	17.85	7,998,824	Hold	Hold	38.24	34.72
VYGR	21.430	+3.93%	+.81	Uptrend	Hold	Hold	Hold	Hold	21.11	21.82	Hold	Hold	19.1	270,555	Hold	Hold	24.24	17.57
WPRT	2.670	+2.30%	+.06	Downtrend	Hold	Hold	Hold	Sell	2.71	2.89	Hold	Hold	16.39	325,462	Hold	Hold	2.82	2.06
DKS	32.170	+2.19%	+.69	Downtrend	Hold	Hold	Hold	Hold	32.03	34.44	Hold	Hold	25.43	1,320,887	Hold	Hold	35.15	35.86
ROKU	131.120	+1.27%	+1.64	Downtrend	Hold	Hold	Hold	Hold	131.0	114.98	Hold	Hold	10.74	6,368,413	Hold	Hold	106.1	68.6
FCX	9.100	+1.22%	+.11	Downtrend	Hold	Hold	Hold	Hold	9.08	10.31	Hold	Hold	16.51	18,373,216	Hold	Hold	10.87	11.55
DE	149.250	+3.84%	+5.52	Uptrend	Hold	Hold	Hold	Hold	149.23	155.79	Hold	Hold	24.91	3,492,991	Hold	Sell	159.76	155.73
IBB	105.000	+2.23%	+2.29	Uptrend	Hold	Hold	Hold	Hold	104.97	104.78	Hold	Hold	29.71	2,919,707	Hold	Sell	105.96	106.63
RIGL	1.940	+1.04%	+.02	Downtrend	Hold	Hold	Hold	Hold	1.87	2.19	Hold	Hold	10.56	1,667,536	Hold	Hold	2.3	2.37
TGT	84.350	+2.00%	+1.65	Uptrend	Hold	Hold	Hold	Hold	84.21	84.32	Hold	Hold	21.26	4,861,051	Hold	Hold	86.19	77.71
FIT	2.990	+3.46%	+.10	Downtrend	Hold	Hold	Hold	Hold	3.0	3.57	Hold	Hold	14.01	4,280,256	Hold	Hold	4.12	5.23
BAC	27.030	+2.97%	+.78	Uptrend	Hold	Hold	Hold	Hold	27.02	28.53	Hold	Hold	31.32	70,841,690	Hold	Hold	28.76	28.2
CELG	94.740	+1.53%	+1.43	Uptrend	Hold	Hold	Hold	Hold	94.64	93.18	Hold	Hold	18.42	2,675,096	Hold	Hold	93.69	86.92
UAN	3.680	0.00%	0	Downtrend	Hold	Hold	Hold	Hold	3.69	3.78	Hold	Hold	24.26	27,260	Hold	Hold	3.71	3.74
V	178.230	+1.11%	+1.96	Uptrend	Hold	Hold	Hold	Hold	178.47	177.64	Hold	Hold	21.46	8,312,221	Hold	Hold	176.07	154.54
AXP	124.630	+1.84%	+2.25	Uptrend	Hold	Hold	Hold	Hold	124.63	124.83	Hold	Hold	16.4	2,343,388	Hold	Hold	124.84	112.37
M	15.980	-1.11%	-.18	Downtrend	Hold	Hold	Hold	Hold	15.98	20.19	Hold	Hold	19.73	14,808,621	Hold	Hold	21.24	25.35
SNE	55.730	+1.29%	+.71	Downtrend	Hold	Hold	Hold	Hold	55.73	55.23	Hold	Sell	34.06	1,254,688	Buy	Hold	53.91	49.85
AMZN	1792.570	+0.93%	+16.45	Uptrend	Hold	Hold	Hold	Hold	1792.75	1851.74	Hold	Hold	24.42	3,054,240	Hold	Hold	1899.86	1753.21
ORCL	53.590	+1.90%	+1.00	Uptrend	Hold	Hold	Hold	Hold	53.59	55.21	Hold	Hold	31.26	9,913,097	Hold	Hold	56.23	52.28
/BTC[Q19]	10435.0	+3.01%	+305.00	Uptrend	Hold	Hold	Hold	Hold	10590.0	10942.0	Hold	Sell	22.0	5,247	Hold	Hold	10482.0	6199.0
QQQ	185.480	+1.61%	+2.93	Uptrend	Hold	Hold	Hold	Hold	185.6	187.71	Hold	Hold	9.28	34,785,006	Hold	Hold	188.4	176.29
SPY	288.900	+1.48%	+4.20	Uptrend	Hold	Hold	Hold	Hold	289.02	292.34	Hold	Hold	32.47	85,825,286	Hold	Hold	294.08	279.47
IBM	133.760	+1.39%	+1.84	Uptrend	Hold	Hold	Hold	Hold	133.76	140.84	Hold	Hold	26.06	3,011,993	Hold	Hold	140.94	133.2
IWM	148.630	+2.16%	+3.14	Uptrend	Hold	Hold	Hold	Hold	148.72	151.42	Hold	Hold	32.18	23,945,306	Hold	Hold	153.25	151.08
/NKD[U19]	20590.0	+1.33%	+270.00	Uptrend	Hold	Hold	Hold	Hold	20515.0	20853.0	Hold	Hold	22.0	6,992	Hold	Hold	21183.0	21268.0
IAU	14.490	-0.62%	-.09	Uptrend	Hold	Hold	Hold	Hold	14.49	14.06	Hold	Hold	13.96	19,403,756	Hold	Hold	13.57	12.59
TSLA	219.750	+1.99%	+4.30	Downtrend	Hold	Hold	Hold	Hold	219.82	234.27	Hold	Hold	18.41	5,207,376	Hold	Hold	231.7	278.01
BA	330.450	+0.75%	+2.45	Uptrend	Hold	Hold	Hold	Hold	330.2	339.93	Hold	Hold	16.8	3,866,567	Hold	Hold	352.83	361.74
BK	42.330	+1.58%	+.66	Downtrend	Hold	Hold	Hold	Hold	42.33	44.76	Hold	Sell	25.26	2,938,187	Hold	Hold	44.47	48.27
WHR	131.770	+2.01%	+2.60	Downtrend	Buy	Hold	Hold	Hold	130.37	138.97	Hold	Hold	38.08	467,404	Hold	Hold	140.78	131.06
/ES[U19]	2891.500	+1.51%	+43.00	Uptrend	Hold	Hold	Hold	Hold	2884.75	2926.19	Hold	Hold	23.47	1,556,941	Hold	Hold	2946.57	2799.43
BABA	174.600	+4.57%	+7.63	Uptrend	Hold	Hold	Hold	Hold	174.6	166.14	Hold	Hold	60.89	25,952,537	Hold	Hold	167.76	165.53
/ZN[U19]	130'260	-0.11%	-0'045	Uptrend	Buy	Hold	Hold	Hold	130.71875	129.119986	Hold	Hold	14.225017	1,491,242	Hold	Hold	128.049...	123.65...
$DJI	25886.010	+1.20%	+306.62	Downtrend	Hold	Hold	Hold	Hold	25818.36	26384.43	Hold	Hold	29.84	276,211,7...	Hold	Hold	26607.26	25596.58
IQ	17.090	+0.65%	+.11	Uptrend	Hold	Hold	Buy	Hold	17.08	17.77	Hold	Hold	16.6	7,254,802	Hold	Hold	18.56	20.39
AMRN	15.000	+4.92%	+.71	Uptrend	Hold	Hold	Hold	Hold	15.17	16.94	Hold	Hold	31.49	7,238,133	Hold	Hold	18.73	18.15
VZ	56.650	+0.62%	+.35	Uptrend	Hold	Hold	Hold	Hold	56.52	55.99	Hold	Hold	15.01	11,923,467	Hold	Hold	56.79	57.14
DIA	258.880	+1.25%	+3.19353	Uptrend	Hold	Hold	Hold	Hold	259.2	263.97	Hold	Hold	24.25	2,748,371	Hold	Hold	266.19	256.04
SCHF	30.400	+1.23%	+.37	Downtrend	Hold	Hold	Hold	Hold	30.36	31.0	Hold	Hold	34.23	3,548,105	Hold	Sell	31.63	30.93
BLK	419.460	+2.48%	+10.16	Uptrend	Hold	Hold	Hold	Hold	422.33	442.87	Hold	Hold	33.79	544,256	Hold	Hold	457.49	432.76
TWLO	124.760	+1.29%	+1.59	Downtrend	Hold	Hold	Hold	Hold	124.76	133.76	Hold	Hold	13.53	2,453,378	Hold	Hold	139.22	117.79
MOS	19.740	+2.33%	+.45	Downtrend	Hold	Hold	Hold	Hold	19.74	22.53	Hold	Hold	29.34	3,417,958	Hold	Hold	23.37	27.93

the above watchlist updated dynamically with live pricing and can be sorted from any column.

the code behind the scenes (example of a "momentum screen").

In [19]:

```python
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "TOScustomMomoSignal.png"))
```



Column name: MoGo5m

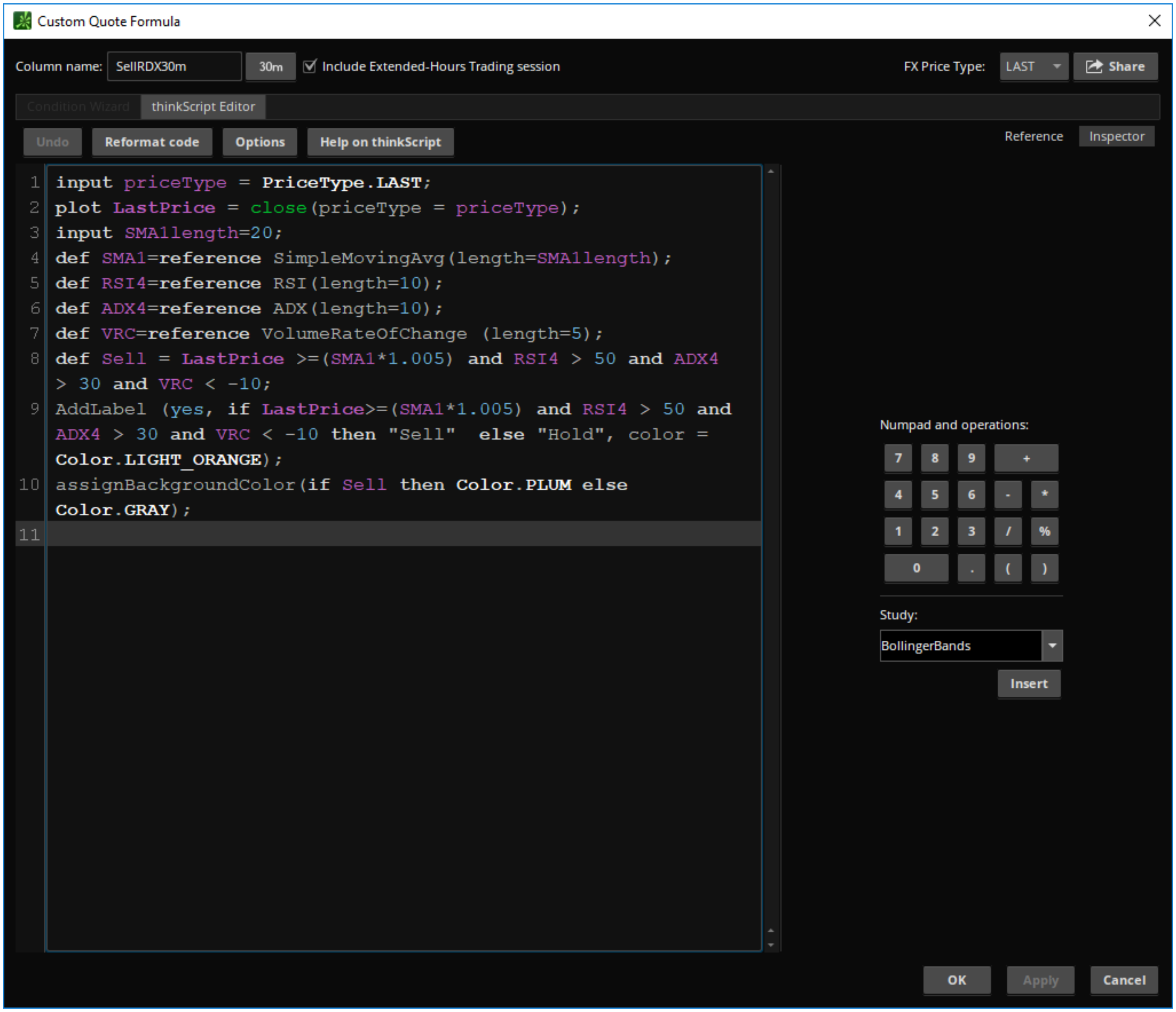
FX Price Type: LAST

Study: BollingerBands

```
input priceType = PriceType.LAST;
plot LastPrice = close(priceType = priceType);
input SMA1length=10;
input SMA2length=20;
def SMA1=reference SimpleMovingAvg(length=SMA1length);
def SMA2=reference SimpleMovingAvg(length=SMA2length);
def RSI4=reference RSI(length=10);
def ADX4=reference ADX(length=10);
def MACD=reference MACD;
def APTR=reference APTR(length=14);
def CCI=reference CCI(length=10);
def VRC=reference VolumeRateOfChange (length=10);
def VOSC=reference VolumeOsc ;
def Buy = LastPrice > SMA1 and SMA1 > SMA2 and CCI crosses above -100 within 15 bars and MACD crosses above 0 within 10 bars and VOSC > 0;
AddLabel (yes, if LastPrice > SMA1 and SMA1 > SMA2 and CCI crosses above -100 within 15 bars and MACD crosses above 0 within 10 bars and VOSC > 0 then "Buy"  else "Hold", color = Color.LIGHT_GREEN);
assignBackgroundColor(if Buy then Color.DARK_GREEN else Color.GRAY);
```

another screen and with a mean-reverting signal...

In [22]:
```
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "TOScustomMeanRevertSignal.png"))
```



Column name: SellRDX30m 30m ☑ Include Extended-Hours Trading session

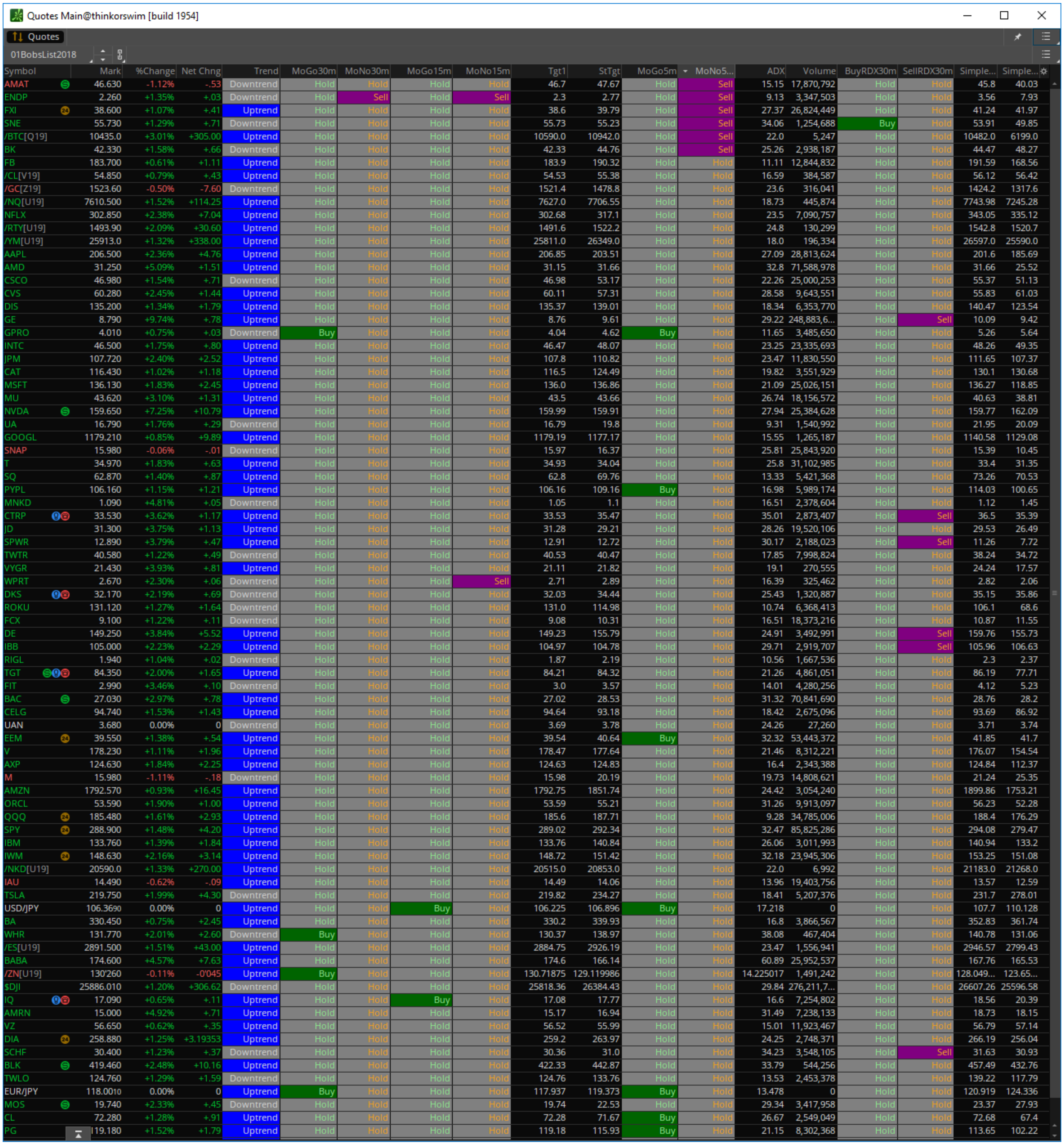
FX Price Type: LAST

Study: BollingerBands

```
input priceType = PriceType.LAST;
plot LastPrice = close(priceType = priceType);
input SMA1length=20;
def SMA1=reference SimpleMovingAvg(length=SMA1length);
def RSI4=reference RSI(length=10);
def ADX4=reference ADX(length=10);
def VRC=reference VolumeRateOfChange (length=5);
def Sell = LastPrice >=(SMA1*1.005) and RSI4 > 50 and ADX4 > 30 and VRC < -10;
AddLabel (yes, if LastPrice>=(SMA1*1.005) and RSI4 > 50 and ADX4 > 30 and VRC < -10 then "Sell"  else "Hold", color = Color.LIGHT_ORANGE);
assignBackgroundColor(if Sell then Color.PLUM else Color.GRAY);
```

In [23]:

```
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "TOSmarketWatchCustomSort2CustomSort.png"))
```



Quotes Main@thinkorswim [build 1954]

Quotes

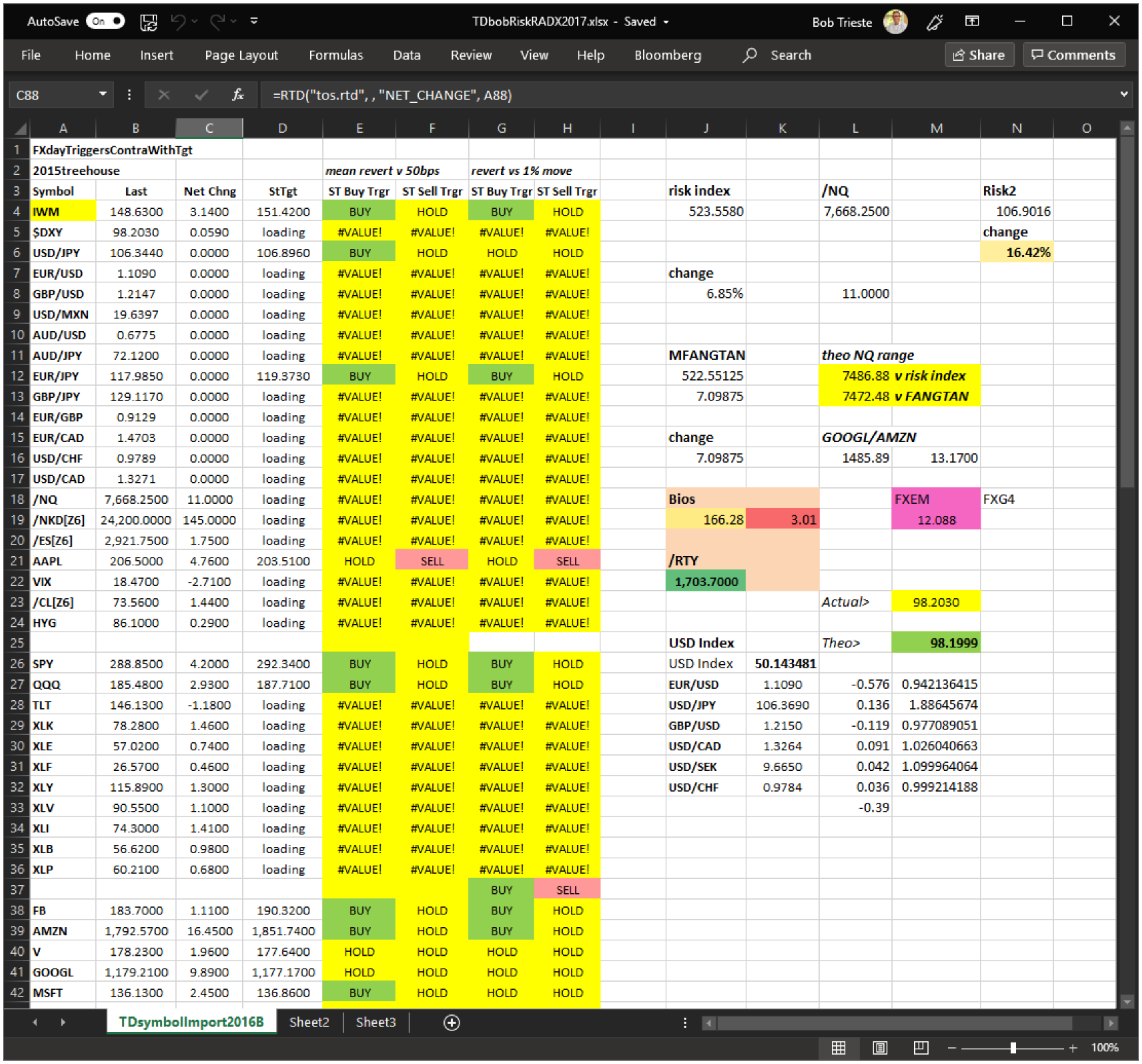
01BobsList2018

Symbol	Mark	%Change	Net Chng	Trend	MoGo30m	MoNo30m	MoGo15m	MoNo15m	Tgt1	StTgt	MoGo5m	MoNo5...	ADX	Volume	BuyRDX30m	SellRDX30m	Simple...	Simple...
AMAT	46.630	-1.12%	-.53	Downtrend	Hold	Hold	Hold	Hold	46.7	47.67	Hold	Sell	15.15	17,870,792	Hold	Hold	45.8	40.03
ENDP	2.260	+1.35%	+.03	Downtrend	Hold	Sell	Hold	Sell	2.3	2.77	Hold	Sell	9.13	3,347,503	Hold	Hold	3.56	7.93
FXI	38.600	+1.07%	+.41	Uptrend	Hold	Hold	Hold	Hold	38.6	39.79	Hold	Sell	27.37	26,824,449	Hold	Hold	41.24	41.97
SNE	55.730	+1.29%	+.71	Downtrend	Hold	Hold	Hold	Hold	55.73	55.23	Hold	Sell	34.06	1,254,688	Buy	Hold	53.91	49.85
/BTC[Q19]	10435.0	+3.01%	+305.00	Uptrend	Hold	Hold	Hold	Hold	10590.0	10942.0	Hold	Sell	22.0	5,247	Hold	Hold	10482.0	6199.0
BK	42.330	+1.58%	+.66	Downtrend	Hold	Hold	Hold	Hold	42.33	44.76	Hold	Sell	25.26	2,938,187	Hold	Hold	44.47	48.27
FB	183.700	+0.61%	+1.11	Uptrend	Hold	Hold	Hold	Hold	183.9	190.32	Hold	Hold	11.11	12,844,832	Hold	Hold	191.59	168.56
/CL[V19]	54.850	+0.79%	+.43	Uptrend	Hold	Hold	Hold	Hold	54.53	55.38	Hold	Hold	16.59	384,587	Hold	Hold	56.12	56.42
/GC[Z19]	1523.60	-0.50%	-7.60	Downtrend	Hold	Hold	Hold	Hold	1521.4	1478.8	Hold	Hold	23.6	316,041	Hold	Hold	1424.2	1317.6
/NQ[U19]	7610.500	+1.52%	+114.25	Uptrend	Hold	Hold	Hold	Hold	7627.0	7706.55	Hold	Hold	18.73	445,874	Hold	Hold	7743.98	7245.28
NFLX	302.850	+2.38%	+7.04	Uptrend	Hold	Hold	Hold	Hold	302.68	317.1	Hold	Hold	23.5	7,090,757	Hold	Hold	343.05	335.12
/RTY[U19]	1493.90	+2.09%	+30.60	Uptrend	Hold	Hold	Hold	Hold	1491.6	1522.2	Hold	Hold	24.8	130,299	Hold	Hold	1542.8	1520.7
/YM[U19]	25913.0	+1.32%	+338.00	Uptrend	Hold	Hold	Hold	Hold	25811.0	26349.0	Hold	Hold	18.0	196,334	Hold	Hold	26597.0	25590.0
AAPL	206.500	+2.36%	+4.76	Uptrend	Hold	Hold	Hold	Hold	206.85	203.51	Hold	Hold	27.09	28,813,624	Hold	Hold	201.6	185.69
AMD	31.250	+5.09%	+1.51	Uptrend	Hold	Hold	Hold	Hold	31.15	31.66	Hold	Hold	32.8	71,588,978	Hold	Hold	31.66	25.52
CSCO	46.980	+1.54%	+.71	Downtrend	Hold	Hold	Hold	Hold	46.98	53.17	Hold	Hold	22.26	25,000,253	Hold	Hold	55.37	51.13
CVS	60.280	+2.45%	+1.44	Uptrend	Hold	Hold	Hold	Hold	60.11	57.31	Hold	Hold	28.58	9,643,551	Hold	Hold	55.83	61.03
DIS	135.200	+1.34%	+1.79	Uptrend	Hold	Hold	Hold	Hold	135.37	139.01	Hold	Hold	18.34	6,353,770	Hold	Hold	140.47	123.54
GE	8.790	+9.74%	+.78	Uptrend	Hold	Hold	Hold	Hold	8.76	9.61	Hold	Hold	29.22	248,883,6...	Hold	Sell	10.09	9.42
GPRO	4.010	+0.75%	+.03	Downtrend	Buy	Hold	Hold	Hold	4.04	4.62	Buy	Hold	11.65	3,485,650	Hold	Hold	5.26	5.64
INTC	46.500	+1.75%	+.80	Uptrend	Hold	Hold	Hold	Hold	46.47	48.07	Hold	Hold	23.25	23,335,693	Hold	Hold	48.26	49.35
JPM	107.720	+2.40%	+2.52	Uptrend	Hold	Hold	Hold	Hold	107.8	110.82	Hold	Hold	23.47	11,830,550	Hold	Hold	111.65	107.37
CAT	116.430	+1.02%	+1.18	Uptrend	Hold	Hold	Hold	Hold	116.5	124.49	Hold	Hold	19.82	3,551,929	Hold	Hold	130.1	130.68
MSFT	136.130	+1.83%	+2.45	Uptrend	Hold	Hold	Hold	Hold	136.0	136.86	Hold	Hold	21.09	25,026,151	Hold	Hold	136.27	118.85
MU	43.620	+3.10%	+1.31	Uptrend	Hold	Hold	Hold	Hold	43.5	43.66	Hold	Hold	26.74	18,156,572	Hold	Hold	40.63	38.81
NVDA	159.650	+7.25%	+10.79	Uptrend	Hold	Hold	Hold	Hold	159.99	159.91	Hold	Hold	27.94	25,384,628	Hold	Hold	159.77	162.09
UA	16.790	+1.76%	+.29	Downtrend	Hold	Hold	Hold	Hold	16.79	19.8	Hold	Hold	9.31	1,540,992	Hold	Hold	21.95	20.09
GOOGL	1179.210	+0.85%	+9.89	Uptrend	Hold	Hold	Hold	Hold	1179.19	1177.17	Hold	Hold	15.55	1,265,187	Hold	Hold	1140.58	1129.08
SNAP	15.980	-0.06%	-.01	Downtrend	Hold	Hold	Hold	Hold	15.97	16.37	Hold	Hold	25.81	25,843,920	Hold	Hold	15.39	10.45
T	34.970	+1.83%	+.63	Uptrend	Hold	Hold	Hold	Hold	34.93	34.04	Hold	Hold	25.8	31,102,985	Hold	Hold	33.4	31.35
SQ	62.870	+1.40%	+.87	Uptrend	Hold	Hold	Hold	Hold	62.8	69.76	Hold	Hold	13.33	5,421,368	Hold	Hold	73.26	70.53
PYPL	106.160	+1.15%	+1.21	Uptrend	Hold	Hold	Hold	Hold	106.16	109.16	Buy	Hold	16.98	5,989,174	Hold	Hold	114.03	100.65
MNKD	1.090	+4.81%	+.05	Downtrend	Hold	Hold	Hold	Hold	1.05	1.1	Hold	Hold	16.51	2,378,604	Hold	Hold	1.12	1.45
CTRP	33.530	+3.62%	+1.17	Uptrend	Hold	Hold	Hold	Hold	33.53	35.47	Hold	Hold	35.01	2,873,407	Hold	Sell	36.5	35.39
JD	31.300	+3.75%	+1.13	Uptrend	Hold	Hold	Hold	Hold	31.28	29.21	Hold	Hold	28.26	19,520,106	Hold	Hold	29.53	26.49
SPWR	12.890	+3.79%	+.47	Uptrend	Hold	Hold	Hold	Hold	12.91	12.72	Hold	Hold	30.17	2,188,023	Hold	Sell	11.26	7.72
TWTR	40.580	+1.22%	+.49	Downtrend	Hold	Hold	Hold	Hold	40.53	40.47	Hold	Hold	17.85	7,998,824	Hold	Hold	38.24	34.72
VYGR	21.430	+3.93%	+.81	Uptrend	Hold	Hold	Hold	Hold	21.11	21.82	Hold	Hold	19.1	270,555	Hold	Hold	24.24	17.57
WPRT	2.670	+2.30%	+.06	Downtrend	Hold	Hold	Hold	Sell	2.71	2.89	Hold	Hold	16.39	325,462	Hold	Hold	2.82	2.06
DKS	32.170	+2.19%	+.69	Downtrend	Hold	Hold	Hold	Hold	32.03	34.44	Hold	Hold	25.43	1,320,887	Hold	Hold	35.15	35.86
ROKU	131.120	+1.27%	+1.64	Downtrend	Hold	Hold	Hold	Hold	131.0	114.98	Hold	Hold	10.74	6,368,413	Hold	Hold	106.1	68.6
FCX	9.100	+1.22%	+.11	Downtrend	Hold	Hold	Hold	Hold	9.08	10.31	Hold	Hold	16.51	18,373,216	Hold	Hold	10.87	11.55
DE	149.250	+3.84%	+5.52	Uptrend	Hold	Hold	Hold	Hold	149.23	155.79	Hold	Hold	24.91	3,492,991	Hold	Sell	159.76	155.73
IBB	105.000	+2.23%	+2.29	Uptrend	Hold	Hold	Hold	Hold	104.97	104.78	Hold	Hold	29.71	2,919,707	Hold	Sell	105.96	106.63
RIGL	1.940	+1.04%	+.02	Downtrend	Hold	Hold	Hold	Hold	1.87	2.19	Hold	Hold	10.56	1,667,536	Hold	Hold	2.3	2.37
TGT	84.350	+2.00%	+1.65	Uptrend	Hold	Hold	Hold	Hold	84.21	84.32	Hold	Hold	21.26	4,861,051	Hold	Hold	86.19	77.71
FIT	2.990	+3.46%	+.10	Downtrend	Hold	Hold	Hold	Hold	3.0	3.57	Hold	Hold	14.01	4,280,256	Hold	Hold	4.12	5.23
BAC	27.030	+2.97%	+.78	Uptrend	Hold	Hold	Hold	Hold	27.02	28.53	Hold	Hold	31.32	70,841,690	Hold	Hold	28.76	28.2
CELG	94.740	+1.53%	+1.43	Uptrend	Hold	Hold	Hold	Hold	94.64	93.18	Hold	Hold	18.42	2,675,096	Hold	Hold	93.69	86.92
UAN	3.680	0.00%	0	Downtrend	Hold	Hold	Hold	Hold	3.69	3.78	Hold	Hold	24.26	27,260	Hold	Hold	3.71	3.74
EEM	39.550	+1.38%	+.54	Uptrend	Hold	Hold	Hold	Hold	39.54	40.64	Buy	Hold	32.32	53,443,372	Hold	Hold	41.85	41.7
V	178.230	+1.11%	+1.96	Uptrend	Hold	Hold	Hold	Hold	178.47	177.64	Hold	Hold	21.46	8,312,221	Hold	Hold	176.07	154.54
AXP	124.630	+1.84%	+2.25	Uptrend	Hold	Hold	Hold	Hold	124.63	124.83	Hold	Hold	16.4	2,343,388	Hold	Hold	124.84	112.37
M	15.980	-1.11%	-.18	Downtrend	Hold	Hold	Hold	Hold	15.98	20.19	Hold	Hold	19.73	14,808,621	Hold	Hold	21.24	25.35
AMZN	1792.570	+0.93%	+16.45	Uptrend	Hold	Hold	Hold	Hold	1792.75	1851.74	Hold	Hold	24.42	3,054,240	Hold	Hold	1899.86	1753.21
ORCL	53.590	+1.90%	+1.00	Uptrend	Hold	Hold	Hold	Hold	53.59	55.21	Hold	Hold	31.26	9,913,097	Hold	Hold	56.23	52.28
QQQ	185.480	+1.61%	+2.93	Uptrend	Hold	Hold	Hold	Hold	185.6	187.71	Hold	Hold	9.28	34,785,006	Hold	Hold	188.4	176.29
SPY	288.900	+1.48%	+4.20	Uptrend	Hold	Hold	Hold	Hold	289.02	292.34	Hold	Hold	32.47	85,825,286	Hold	Hold	294.08	279.47
IBM	133.760	+1.39%	+1.84	Uptrend	Hold	Hold	Hold	Hold	133.76	140.84	Hold	Hold	26.06	3,011,993	Hold	Hold	140.94	133.2
IWM	148.630	+2.16%	+3.14	Uptrend	Hold	Hold	Hold	Hold	148.72	151.42	Hold	Hold	32.18	23,945,306	Hold	Hold	153.25	151.08
/NKD[U19]	20590.0	+1.33%	+270.00	Uptrend	Hold	Hold	Hold	Hold	20515.0	20853.0	Hold	Hold	22.0	6,992	Hold	Hold	21183.0	21268.0
IAU	14.490	-0.62%	-.09	Uptrend	Hold	Hold	Hold	Hold	14.49	14.06	Hold	Hold	13.96	19,403,756	Hold	Hold	13.57	12.59
TSLA	219.750	+1.99%	+4.30	Downtrend	Hold	Hold	Hold	Hold	219.82	234.27	Hold	Hold	18.41	5,207,376	Hold	Hold	231.7	278.01
USD/JPY	106.3690	0.00%	0	Uptrend	Hold	Hold	Buy	Hold	106.225	106.896	Buy	Hold	17.218	0	Hold	Hold	107.7	110.128
BA	330.450	+0.75%	+2.45	Uptrend	Hold	Hold	Hold	Hold	330.2	339.93	Hold	Hold	16.8	3,866,567	Hold	Hold	352.83	361.74
WHR	131.770	+2.01%	+2.60	Downtrend	Buy	Hold	Hold	Hold	130.37	138.97	Hold	Hold	38.08	467,404	Hold	Hold	140.78	131.06
/ES[U19]	2891.500	+1.51%	+43.00	Uptrend	Hold	Hold	Hold	Hold	2884.75	2926.19	Hold	Hold	23.47	1,556,941	Hold	Hold	2946.57	2799.43
BABA	174.600	+4.57%	+7.63	Uptrend	Hold	Hold	Hold	Hold	174.6	166.14	Hold	Hold	60.89	25,952,537	Hold	Hold	167.76	165.53
/ZN[U19]	130'260	-0.11%	-0'045	Uptrend	Buy	Hold	Hold	Hold	130.71875	129.119986	Hold	Hold	14.225017	1,491,242	Hold	Hold	128.049...	123.65...
$DJI	25886.010	+1.20%	+306.62	Downtrend	Hold	Hold	Hold	Hold	25818.36	26384.43	Hold	Hold	29.84	276,211,7...	Hold	Hold	26607.26	25596.58
IQ	17.090	+0.65%	+.11	Uptrend	Hold	Hold	Buy	Hold	17.08	17.77	Hold	Hold	16.6	7,254,802	Hold	Hold	18.56	20.39
AMRN	15.000	+4.92%	+.71	Uptrend	Hold	Hold	Hold	Hold	15.17	16.94	Hold	Hold	31.49	7,238,133	Hold	Hold	18.73	18.15
VZ	56.650	+0.62%	+.35	Uptrend	Hold	Hold	Hold	Hold	56.52	55.99	Hold	Hold	15.01	11,923,467	Hold	Hold	56.79	57.14
DIA	258.880	+1.25%	+3.19353	Uptrend	Hold	Hold	Hold	Hold	259.2	263.97	Hold	Hold	24.25	2,748,371	Hold	Hold	266.19	256.04
SCHF	30.400	+1.23%	+.37	Downtrend	Hold	Hold	Hold	Hold	30.36	31.0	Hold	Hold	34.23	3,548,105	Hold	Sell	31.63	30.93
BLK	419.460	+2.48%	+10.16	Uptrend	Hold	Hold	Hold	Hold	422.33	442.87	Hold	Hold	33.79	544,256	Hold	Hold	457.49	432.76
TWLO	124.760	+1.29%	+1.59	Downtrend	Hold	Hold	Hold	Hold	124.76	133.76	Hold	Hold	13.53	2,453,378	Hold	Hold	139.22	117.79
EUR/JPY	118.0010	0.00%	0	Uptrend	Buy	Hold	Hold	Hold	117.937	119.373	Buy	Hold	13.478	0	Hold	Hold	120.919	124.336
MOS	19.740	+2.33%	+.45	Downtrend	Hold	Hold	Hold	Hold	19.74	22.53	Hold	Hold	29.34	3,417,958	Hold	Hold	23.37	27.93
CL	72.280	+1.28%	+.91	Uptrend	Hold	Hold	Hold	Hold	72.28	71.67	Buy	Hold	26.67	2,549,049	Hold	Hold	72.68	67.4
PG	119.180	+1.52%	+1.79	Uptrend	Hold	Hold	Hold	Hold	119.18	115.93	Buy	Hold	21.15	8,302,368	Hold	Hold	113.65	102.22

thinkorswim (TD Ameritrade) realtime data can be imported into dynamic Excel sheets (similar to Bloomberg DDE server).

those cells can then have logic applied to build out custom indicies.

In [29]:
```python
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "TOSdataExcelCustom.png"))
```



C88 | =RTD("tos.rtd", , "NET_CHANGE", A88)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	FXdayTriggersContraWithTgt														
2	2015treehouse				*mean revert v 50bps*		*revert vs 1% move*								
3	Symbol	Last	Net Chng	StTgt	ST Buy Trgr	ST Sell Trgr	ST Buy Trgr	ST Sell Trgr		risk index		/NQ		Risk2	
4	IWM	148.6300	3.1400	151.4200	BUY	HOLD	BUY	HOLD		523.5580		7,668.2500		106.9016	
5	$DXY	98.2030	0.0590	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!						change	
6	USD/JPY	106.3440	0.0000	106.8960	BUY	HOLD	HOLD	HOLD						16.42%	
7	EUR/USD	1.1090	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		change					
8	GBP/USD	1.2147	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		6.85%		11.0000			
9	USD/MXN	19.6397	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
10	AUD/USD	0.6775	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
11	AUD/JPY	72.1200	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		MFANGTAN		*theo NQ range*			
12	EUR/JPY	117.9850	0.0000	119.3730	BUY	HOLD	BUY	HOLD		522.55125		7486.88	*v risk index*		
13	GBP/JPY	129.1170	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		7.09875		7472.48	*v FANGTAN*		
14	EUR/GBP	0.9129	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
15	EUR/CAD	1.4703	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		change		*GOOGL/AMZN*			
16	USD/CHF	0.9789	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		7.09875		1485.89	13.1700		
17	USD/CAD	1.3271	0.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
18	/NQ	7,668.2500	11.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		Bios			FXEM	FXG4	
19	/NKD[Z6]	24,200.0000	145.0000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		166.28	3.01		12.088		
20	/ES[Z6]	2,921.7500	1.7500	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
21	AAPL	206.5000	4.7600	203.5100	HOLD	SELL	HOLD	SELL		/RTY					
22	VIX	18.4700	-2.7100	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		1,703.7000					
23	/CL[Z6]	73.5600	1.4400	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!				*Actual>*	98.2030		
24	HYG	86.1000	0.2900	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
25										USD Index		*Theo>*	98.1999		
26	SPY	288.8500	4.2000	292.3400	BUY	HOLD	BUY	HOLD		USD Index	50.143481				
27	QQQ	185.4800	2.9300	187.7100	BUY	HOLD	BUY	HOLD		EUR/USD	1.1090	-0.576	0.942136415		
28	TLT	146.1300	-1.1800	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		USD/JPY	106.3690	0.136	1.88645674		
29	XLK	78.2800	1.4600	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		GBP/USD	1.2150	-0.119	0.977089051		
30	XLE	57.0200	0.7400	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		USD/CAD	1.3264	0.091	1.026040663		
31	XLF	26.5700	0.4600	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		USD/SEK	9.6650	0.042	1.099964064		
32	XLY	115.8900	1.3000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!		USD/CHF	0.9784	0.036	0.999214188		
33	XLV	90.5500	1.1000	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!				-0.39			
34	XLI	74.3000	1.4100	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
35	XLB	56.6200	0.9800	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
36	XLP	60.2100	0.6800	loading	#VALUE!	#VALUE!	#VALUE!	#VALUE!							
37							BUY	SELL							
38	FB	183.7000	1.1100	190.3200	BUY	HOLD	BUY	HOLD							
39	AMZN	1,792.5700	16.4500	1,851.7400	BUY	HOLD	BUY	HOLD							
40	V	178.2300	1.9600	177.6400	HOLD	HOLD	HOLD	HOLD							
41	GOOGL	1,179.2100	9.8900	1,177.1700	HOLD	HOLD	HOLD	HOLD							
42	MSFT	136.1300	2.4500	136.8600	BUY	HOLD	HOLD	HOLD							

In [ ]:

Some samples of Python logic below

Python datetime module for generating a world-time clock

In [33]:

```
import sys
import os
from tkinter import *
import time
import datetime
import pytz
from time import gmtime
from datetime import timedelta
one_hour = timedelta(hours=+1)
tz = pytz.timezone('US/Eastern')
altzone = time.altzone

dt_Japan = datetime.datetime.now(tz=pytz.timezone('Japan'))
dt_UCT = datetime.datetime.now(tz=pytz.timezone('UCT'))
dt_NYC = datetime.datetime.now(tz=pytz.timezone('US/Eastern'))
dt_GMT = datetime.datetime.now(tz=pytz.timezone('GMT'))
dt_UTC = datetime.datetime.now(tz=pytz.timezone('UTC'))
dt_LDN = datetime.datetime.now(tz=pytz.timezone('Europe/London'))
dt_NZ = datetime.datetime.now(tz=pytz.timezone('NZ'))
dt_SYD = datetime.datetime.now(tz=pytz.timezone('Australia/Sydney'))
dt_HK = datetime.datetime.now(tz=pytz.timezone('Hongkong'))
dt_CNH = datetime.datetime.now(tz=pytz.timezone('Asia/Shanghai'))
dt_ZUR = datetime.datetime.now(tz=pytz.timezone('Europe/Zurich'))

print("NYC", dt_NYC.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("GMT", dt_GMT.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("UTC", dt_UTC.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("LDN", dt_LDN.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("ZUR", dt_ZUR.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("China", dt_CNH.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("HK", dt_HK.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("Tokyo", dt_Japan.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("SYD", dt_SYD.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
print("NZ", dt_NZ.strftime('%a %b %d, %Y: %I:%M:%S:%p '))
```

```
NYC Sun Aug 18, 2019: 05:42:13:PM
GMT Sun Aug 18, 2019: 09:42:13:PM
UTC Sun Aug 18, 2019: 09:42:13:PM
LDN Sun Aug 18, 2019: 10:42:13:PM
ZUR Sun Aug 18, 2019: 11:42:13:PM
China Mon Aug 19, 2019: 05:42:13:AM
HK Mon Aug 19, 2019: 05:42:13:AM
Tokyo Mon Aug 19, 2019: 06:42:13:AM
SYD Mon Aug 19, 2019: 07:42:13:AM
NZ Mon Aug 19, 2019: 09:42:13:AM
```

Exercise

Use a while loop to produce a list of all the prime numbers between 2 and 100. Remember a prime number is only divisibe by itself and one.

In [34]:

```
import math
```

In [35]:

```
primes=[]
N=2
while N<=100:
    is_prime=True
    for num in primes:
        if N%num==0:
            is_prime=False
            break
    if is_prime:
        primes.append(N)
    N=N+1
print(primes)
```

```
[2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97]
```

Find the sum of all the multiples of 3 or 5 below 1000.

In [37]:

```
x = 3
y = 5
x_list = []
y_list = []

while x < 1000:
    x_list.append(x)
    x += 3

while y < 1000:
    y_list.append(y)
    y += 5

numsum = sum(set(x_list + y_list))
print(numsum)
```

```
233168
```

Let's plot the change in outstanding revolving HELOC loans for the past two years from Fed data.

In [38]:

```
import pandas as pd
```

In [39]:

```
from matplotlib import pyplot as plt
```

In [40]:

```
x = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]
```

In [41]:

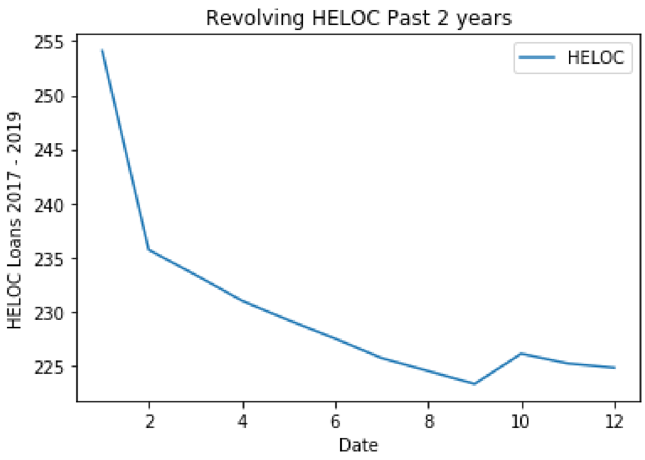
```
y = [254.1, 235.7, 233.4, 231.0, 229.2, 227.5, 225.7, 224.5, 223.3, 226.1, 225.2, 224.8]
```

In [42]:

```
z = [659.9, 663.8, 663.6, 657.6, 659.2, 661.3, 660.9, 659.2, 658.8, 659.6, 659.8, 660.5]
```

In [43]:

```
plt.plot(x,y)
plt.title("Revolving HELOC Past 2 years")
plt.xlabel("Date")
plt.ylabel("HELOC Loans 2017 - 2019")
plt.legend(["HELOC", "Time"])
plt.show()
```



In [44]:

```
Fed_data = pd.read_csv('FedDataLargeBank_2.csv')
```

```
In [45]: Fed_data
```

Out[45]:

	Type	2017	2018	2018.1	2018.2	2018.3	2018.4	2018.5	2018.6	2018.7	2019	2019.1	2019.2
0	NaN	Dec	Jun	Jul	Aug	Sep	Oct	Nov	Dec	26-Dec	2-Jan	9-Jan	16-Jan
1	Bank credit	7,327.3	7,299.9	7,319.8	7,331.5	7,345.2	7,381.7	7,437.4	7,537.7	7,580.6	7,602.2	7,570.7	7,578.2
2	Securities in bank credit 2	2,256.1	2,206.3	2,220.2	2,231.4	2,230.7	2,239.3	2,269.0	2,307.1	2,314.3	2,332.0	2,329.2	2,347.6
3	Treasury and agency securities 3	1,724.8	1,717.5	1,728.7	1,736.9	1,740.1	1,752.0	1,785.4	1,836.3	1,845.6	1,863.1	1,859.3	1,878.1
4	Mortgage-backed securities (MBS) 4	1,297.4	1,294.9	1,302.3	1,309.9	1,309.6	1,312.8	1,335.5	1,360.2	1,360.1	1,376.0	1,368.7	1,397.0
5	Non-MBS 5	427.4	422.6	426.4	427.0	430.6	439.2	449.9	476.1	485.5	487.1	490.6	481.1
6	Other securities	531.3	488.8	491.5	494.5	490.6	487.3	483.6	470.8	468.7	468.9	469.9	469.4
7	Mortgage-backed securities (MBS) 6	66.2	61.8	60.4	58.8	58.4	57.8	56.9	55.2	54.7	55.5	55.5	55.4
8	Non-MBS 7	465.1	427.0	431.1	435.7	432.2	429.5	426.7	415.7	414.0	413.4	414.4	414.0
9	Loans and leases in bank credit 8	5,071.2	5,093.6	5,099.7	5,100.0	5,114.5	5,142.3	5,168.4	5,230.6	5,266.2	5,270.2	5,241.5	5,230.7
10	Commercial and industrial loans	1,145.8	1,185.4	1,185.2	1,181.0	1,185.3	1,204.4	1,226.8	1,248.5	1,267.7	1,270.1	1,257.2	1,258.8
11	Real estate loans	2,064.9	2,048.7	2,051.4	2,051.4	2,053.5	2,055.1	2,050.6	2,043.5	2,036.1	2,044.9	2,047.5	2,044.5
12	Residential real estate loans	1,405.0	1,385.0	1,387.8	1,393.9	1,394.2	1,393.8	1,389.8	1,384.3	1,377.3	1,385.4	1,387.7	1,384.0
13	Revolving home equity loans	254.1	235.7	233.4	231.0	229.2	227.5	225.7	224.5	223.3	226.1	225.2	224.8
14	Closed-end residential loans 9	1,150.9	1,149.3	1,154.4	1,162.8	1,165.0	1,166.3	1,164.1	1,159.8	1,154.0	1,159.3	1,162.5	1,159.2
15	Commercial real estate loans	659.9	663.8	663.6	657.6	659.2	661.3	660.9	659.2	658.8	659.6	659.8	660.5
16	Construction and land development loans 10	100.8	100.9	100.7	100.5	100.6	99.4	99.0	97.7	96.8	97.6	97.1	96.9
17	Secured by farmland 11	8.6	8.3	8.2	8.3	8.3	8.2	8.1	8.1	8.2	8.2	8.2	8.2
18	Secured by multifamily properties 12	139.5	141.5	142.3	142.1	143.8	146.6	146.9	146.9	147.3	144.7	145.0	144.8
19	Secured by nonfarm nonresidential properties 13	411.0	413.0	412.3	406.7	406.5	407.0	406.8	406.4	406.6	409.0	409.5	410.6
20	Consumer loans	1,098.4	1,083.2	1,084.4	1,090.4	1,095.1	1,098.9	1,108.3	1,128.0	1,135.1	1,135.3	1,128.0	1,120.3
21	Credit cards and other revolving plans	656.1	639.4	640.1	644.8	647.2	648.6	657.1	676.2	683.4	680.9	672.8	664.8
22	Other consumer loans	442.3	443.7	444.4	445.6	447.9	450.3	451.2	451.8	451.7	454.3	455.2	455.4
23	Automobile loans 14	340.3	339.8	340.0	340.6	341.3	341.5	341.3	341.5	341.5	342.2	343.0	343.0
24	All other consumer loans 15	102.0	104.0	104.3	105.0	106.6	108.7	109.9	110.3	110.2	112.1	112.2	112.4
25	All other loans and leases	762.1	776.2	778.6	777.1	780.5	784.0	782.7	810.6	827.3	819.9	808.8	807.1
26	Loans to nondepository financial institutions 16	282.3	295.6	302.6	306.9	312.3	319.3	321.1	332.3	336.9	334.9	335.8	334.5
27	All loans not elsewhere classified 17	479.8	480.7	476.1	470.2	468.3	464.7	461.6	478.4	490.4	485.1	473.1	472.7
28	LESS: Allowance for loan and lease losses	69.6	68.4	68.6	68.3	68.4	67.8	67.9	68.0	67.7	68.1	68.6	68.5

We can analysze data right from a web URL.

```
In [46]: import pandas as pd
```

```
In [47]: movies = pd.read_csv('http://bit.ly/imdbratings')
In [48]: movies.head()
```

Out[48]:

	star_rating	title	content_rating	genre	duration	actors_list
0	9.3	The Shawshank Redemption	R	Crime	142	[u'Tim Robbins', u'Morgan Freeman', u'Bob Gunt...
1	9.2	The Godfather	R	Crime	175	[u'Marlon Brando', u'Al Pacino', u'James Caan']
2	9.1	The Godfather: Part II	R	Crime	200	[u'Al Pacino', u'Robert De Niro', u'Robert Duv...
3	9.0	The Dark Knight	PG-13	Action	152	[u'Christian Bale', u'Heath Ledger', u'Aaron E...
4	8.9	Pulp Fiction	R	Crime	154	[u'John Travolta', u'Uma Thurman', u'Samuel L....

```
In [49]: movies.shape
```

```
Out[49]: (979, 6)
```

booleans = [] for length in movies.duration: if length >= 200: booleans.append(True) else: booleans.append(False)

```
In [51]: booleans[0:5]
```

```
Out[51]: [False, False, True, False, False]
```

Only "The Godfather: Pat II" is 200 minutes or more out of the above sample !

Sample code below to clean and parse text and perform word counts

- One example of a use case for this would be to compare and contrast FOMC statements for keyowrd differences.

```
In [53]: def text_cleaner(in_name,out_name,punc=list('!"#$%&\'()*+,-./:;<=>?@[\\]^_`{|}~')):
             f_in=open(in_name,'r')
             f_out=open(out_name,'w')
             lines=f_in.readlines()
             f_in.close()
             for line in lines:
                 line=line.lower()
                 for mark in punc:
                     line=line.replace(mark,'')
                 f_out.write(line)
             f_out.close()
             print(out_name,'has been written')
```

punc=list('!"#$%&'()*+,-./:;<=>?@[\]^_`{|}~')

```
In [55]: def wordCounter(in_name):
             f_in=open(in_name,'r',encoding="ISO-8859-1")
             lines=f_in.readlines()
             f_in.close()

             D={}

             for line in lines:
                 line=line.strip()
                 line=line.lower()
                 for mark in '!"#$%&\'()*+,-./:;<=>?@[\\]^_`{|}~':
                     line=line.replace(mark,'')
                 words=line.split()
                 for word in words:
                     if word in D:
                         D[word]+=1
                     else:
                         D[word]=1


             L=list(D.items())
             return sorted(L,key=lambda x:x[1],reverse=True)
```

would generate the below once stopwords were removed:

In [ ]:

```
[('rate', 125),
 ('participants', 105),
 ('federal', 98),
 ('inflation', 89),
 ('economic', 86),
 ('projections', 71),
 ('growth', 70),
 ('market', 67),
 ('percent', 61),
 ('funds', 57),
 ('would', 57),
 ('policy', 55),
 ('board', 47),
 ('risks', 46),
 ('monetary', 43),
 ('outlook', 43),
 ('real', 41),
 ('financial', 40),
 ('conditions', 40),]
```

In [ ]:

Java

Java code samples

Some logic to handle command line input for numbers that correspond to days of week:

In [ ]:

```
import java.util.Scanner;
public class DaysWeek {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter 1 to 7 digit for days:");
        String userInput = scan.nextLine();
        int userInputDigit = Integer.parseInt(userInput);
        if (userInputDigit == 1) {
            System.out.println("Monday");
        } else if (userInputDigit == 2) {
            System.out.println("Tuesday");
        } else if (userInputDigit == 3) {
            System.out.println("Wednesday");
        } else if (userInputDigit == 4) {
            System.out.println("Thursday");
        } else if (userInputDigit == 5) {
            System.out.println("Friday");
        } else if (userInputDigit == 6) {
            System.out.println("Saturday");
        } else if (userInputDigit == 7) {
            System.out.println("Sunday");
        }
        else {
            System.out.println("Wrong entry");
        }
    }
}
```

Iterate through List and Arrays

In [ ]:

```
import java.util.ArrayList;
import java.util.List;


public class Collections2Test {

        public static void main(String[] args) {
            List<String> myList = new ArrayList<String>();

            System.out.println("Size of myList = " + myList.size());

            myList.add("billy");
            myList.add("sal");
            myList.add("sal");
            myList.add("bob");
            myList.add("tommy");


            List<Integer> index = new ArrayList<Integer>();

          for(int i = 0; i<myList.size(); i++){
              if(myList.get(i).equals("sal")) {
                  //index.add(i);
                  System.out.println("index sal at = " +i);
              }

          }
            System.out.println("size before remove " + myList.size());
          myList.remove("sal");
            System.out.println("size after remove " + myList.size());
        }
    }
            /*
            now we can use "clear" and "remove"
            instantiate a list;
            loop through / display  / add parts to list
             */
```

Finding Min and Max numbers from Arrays

In [ ]:

```
import java.util.Scanner;

public class MinMaxArray {

    public static void main(String[] args) {
        // get array from user
        // getArrayInput()
        int[] arr = getArrayInput();
        System.out.println("Min number");
        System.out.println("Max number => " + getMaxNumber(arr));
    }

    public static int getMaxNumber(int [] arr){
        int maxNumnber = arr[0];
        for(int element : arr) {
            if(element > maxNumnber) {
                maxNumnber = element;
            }
        }
        return maxNumnber;
    }

    public static int getMinNumber(int [] arr){
        int maxNumnber = arr[0];
        for(int element : arr) {
            if(element > maxNumnber) {
                maxNumnber = element;
            }
        }
        return maxNumnber;
    }



    //[] will return an array in a method
    public static int[] getArrayInput(){
        Scanner myScanner =  new Scanner(System.in);

        System.out.println("Enter number of inputs : ");
        int arraySize = Integer.parseInt(myScanner.nextLine());

        int[] arrayInput = new int[arraySize];

        for(int i = 0; i < arrayInput.length; i++) {
            System.out.println("Enter your number : (" + (i+1) + ")");
            arrayInput[i] = Integer.parseInt(myScanner.nextLine());
        }
        return arrayInput;
    }
}
```

Implementing Switch Statements.

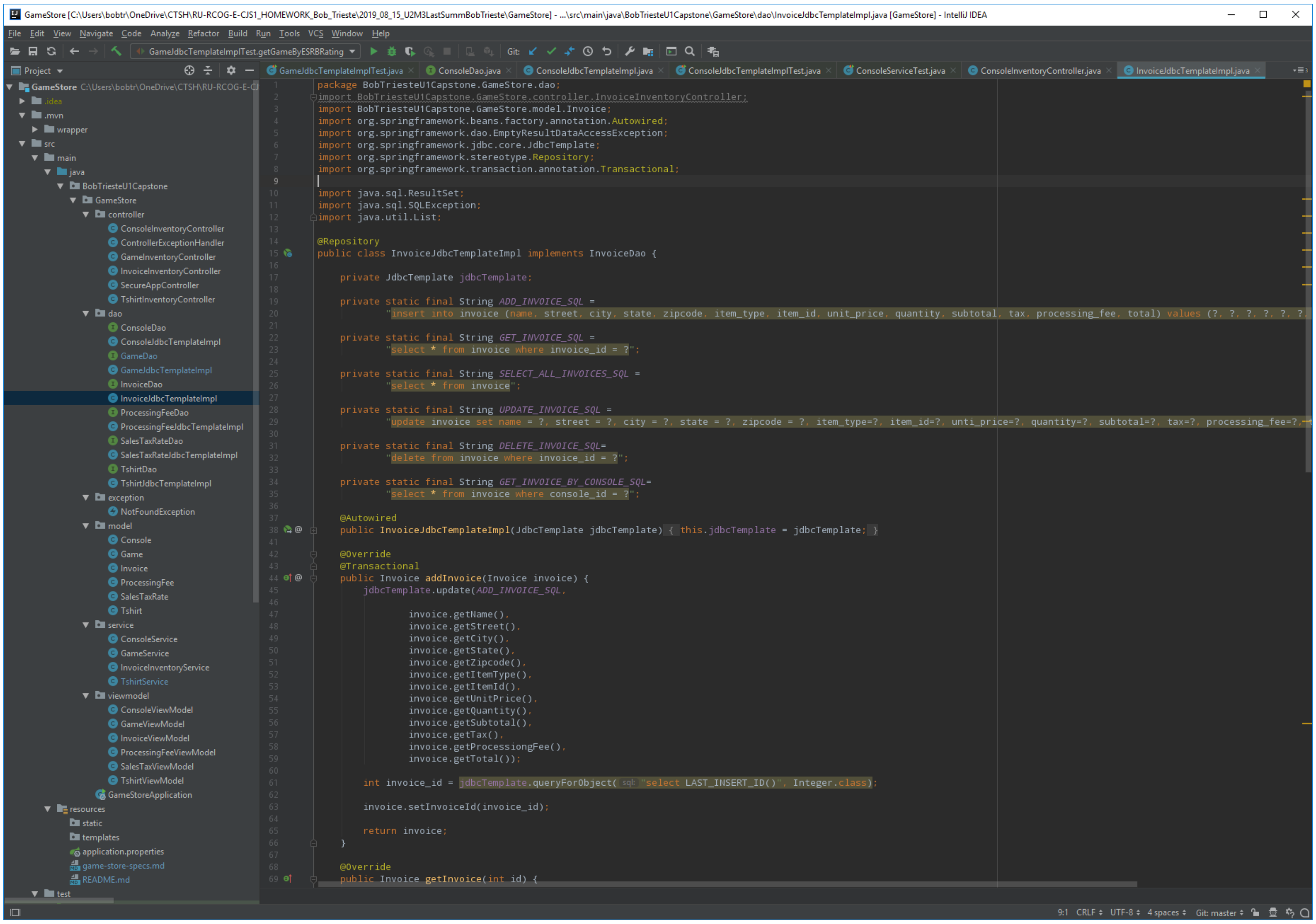
In [ ]:

```java
import java.util.Scanner;

public class MonthConverterSwitch {

    public static void main(String[] args) {

        Scanner myScanner = new Scanner(System.in);

        System.out.println("Please enter a number between 1 and 12 for the month: ");
        String userInput = myScanner.nextLine();
        int userInputDigit = Integer.parseInt(userInput);

        int switchValue = userInputDigit;

        switch (switchValue) {
            case 1:
                System.out.println("January");
                break;
            case 2:
                System.out.println("February");
                break;
            case 3:
                System.out.println("March");
                break;
            case 4:
                System.out.println("April");
                break;
            case 5:
                System.out.println("May");
                break;
            case 6:
                System.out.println("June");
                break;
            case 7:
                System.out.println("July");
                break;
            case 8:
                System.out.println("August");
                break;
            case 9:
                System.out.println("September");
                break;
            case 10:
                System.out.println("October");
                break;
            case 11:
                System.out.println("November");
                break;
            case 12:
                System.out.println("December");
                break;

            default:
                System.out.println("You have entered an invalid number. You must enter a number between 1 and 12
                break;
        }
    }
}
```

Coding larger projects in IntelliJ IDE with multiple Classes and Interfaces, Service Layer,

Controllers, JDBC, testing, etc. (below is screenshot. actual program in source folder).

In [59]:
```
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "JavaMavenINtelliJ.png"))
```

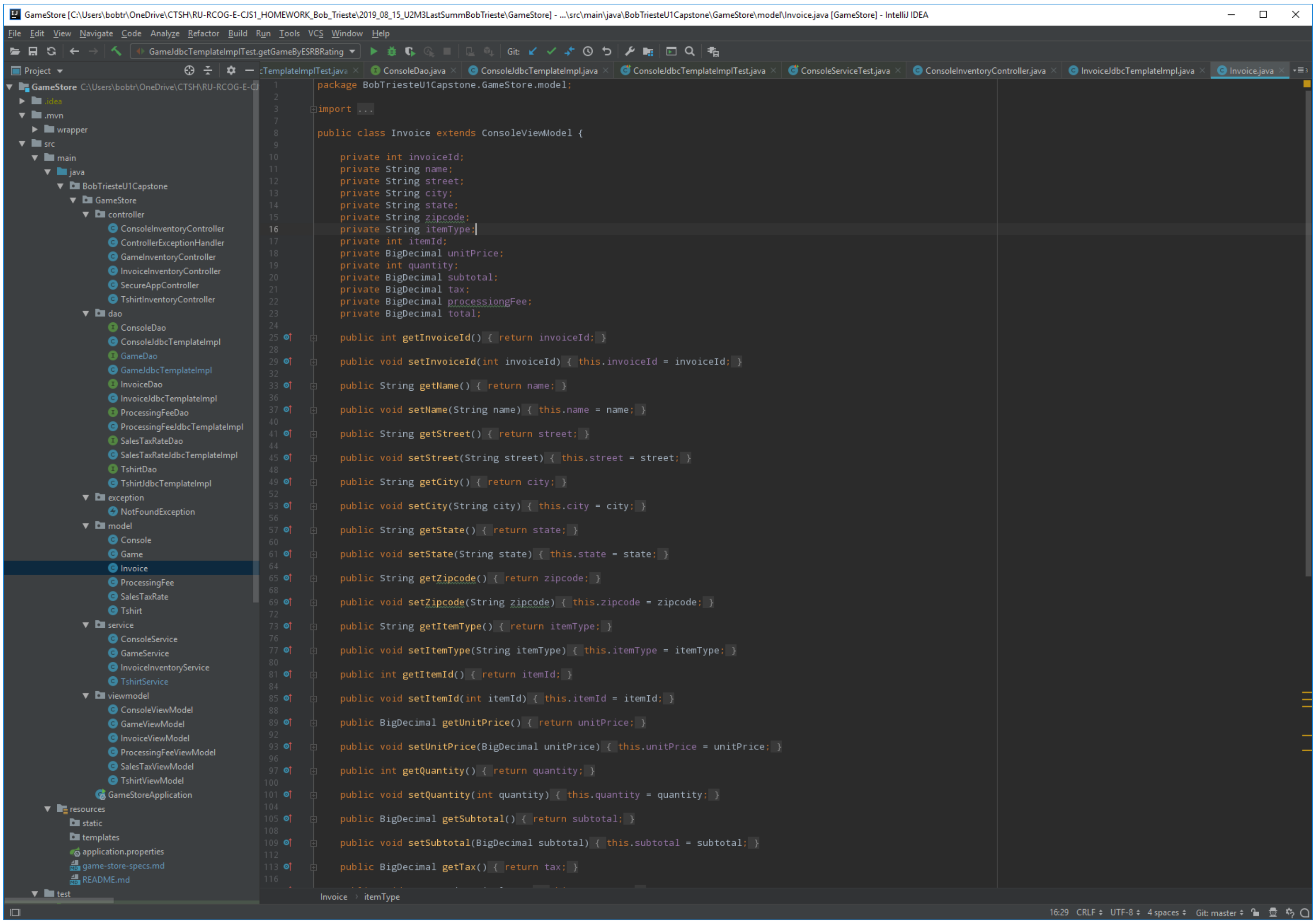

GameStore [C:\Users\bobtr\OneDrive\CTSH\RU-RCOG-E-CJS1_HOMEWORK_Bob_Trieste\2019_08_15_U2M3LastSummBobTrieste\GameStore] - ...\src\main\java\BobTriesteU1Capstone\GameStore\dao\InvoiceJdbcTemplateImpl.java [GameStore] - IntelliJ IDEA
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
GameJdbcTemplateImplTest.getGameByESRBRating
Git:
Project
GameJdbcTemplateImplTest.java
ConsoleDao.java
ConsoleJdbcTemplateImpl.java
ConsoleJdbcTemplateImplTest.java
ConsoleServiceTest.java
ConsoleInventoryController.java
InvoiceJdbcTemplateImpl.java
9:1 CRLF ÷ UTF-8 ÷ 4 spaces ÷ Git: master ÷

```
▼ GameStore C:\Users\bobtr\OneDrive\CTSH\RU-RCOG-E-CJ
  ▶ .idea
  ▼ .mvn
    ▶ wrapper
  ▼ src
    ▼ main
      ▼ java
        ▼ BobTriesteU1Capstone
          ▼ GameStore
            ▼ controller
                ConsoleInventoryController
                ControllerExceptionHandler
                GameInventoryController
                InvoiceInventoryController
                SecureAppController
                TshirtInventoryController
            ▼ dao
                ConsoleDao
                ConsoleJdbcTemplateImpl
                GameDao
                GameJdbcTemplateImpl
                InvoiceDao
                InvoiceJdbcTemplateImpl
                ProcessingFeeDao
                ProcessingFeeJdbcTemplateImpl
                SalesTaxRateDao
                SalesTaxRateJdbcTemplateImpl
                TshirtDao
                TshirtJdbcTemplateImpl
            ▼ exception
                NotFoundException
            ▼ model
                Console
                Game
                Invoice
                ProcessingFee
                SalesTaxRate
                Tshirt
            ▼ service
                ConsoleService
                GameService
                InvoiceInventoryService
                TshirtService
            ▼ viewmodel
                ConsoleViewModel
                GameViewModel
                InvoiceViewModel
                ProcessingFeeViewModel
                SalesTaxViewModel
                TshirtViewModel
              GameStoreApplication
      ▼ resources
          static
          templates
          application.properties
          game-store-specs.md
          README.md
    ▼ test
```

```
package BobTriesteU1Capstone.GameStore.dao;
import BobTriesteU1Capstone.GameStore.controller.InvoiceInventoryController;
import BobTriesteU1Capstone.GameStore.model.Invoice;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.dao.EmptyResultDataAccessException;
import org.springframework.jdbc.core.JdbcTemplate;
import org.springframework.stereotype.Repository;
import org.springframework.transaction.annotation.Transactional;

import java.sql.ResultSet;
import java.sql.SQLException;
import java.util.List;

@Repository
public class InvoiceJdbcTemplateImpl implements InvoiceDao {

    private JdbcTemplate jdbcTemplate;

    private static final String ADD_INVOICE_SQL =
            "insert into invoice (name, street, city, state, zipcode, item_type, item_id, unit_price, quantity, subtotal, tax, processing_fee, total) values (?, ?, ?, ?, ?, ?,

    private static final String GET_INVOICE_SQL =
            "select * from invoice where invoice_id = ?";

    private static final String SELECT_ALL_INVOICES_SQL =
            "select * from invoice";

    private static final String UPDATE_INVOICE_SQL =
            "update invoice set name = ?, street = ?, city = ?, state = ?, zipcode = ?, item_type=?, item_id=?, unti_price=?, quantity=?, subtotal=?, tax=?, processing_fee=?,

    private static final String DELETE_INVOICE_SQL=
            "delete from invoice where invoice_id = ?";

    private static final String GET_INVOICE_BY_CONSOLE_SQL=
            "select * from invoice where console_id = ?";

    @Autowired
    public InvoiceJdbcTemplateImpl(JdbcTemplate jdbcTemplate) { this.jdbcTemplate = jdbcTemplate; }

    @Override
    @Transactional
    public Invoice addInvoice(Invoice invoice) {
        jdbcTemplate.update(ADD_INVOICE_SQL,

                invoice.getName(),
                invoice.getStreet(),
                invoice.getCity(),
                invoice.getState(),
                invoice.getZipcode(),
                invoice.getItemType(),
                invoice.getItemId(),
                invoice.getUnitPrice(),
                invoice.getQuantity(),
                invoice.getSubtotal(),
                invoice.getTax(),
                invoice.getProcessingFee(),
                invoice.getTotal());

        int invoice_id = jdbcTemplate.queryForObject( sql: "select LAST_INSERT_ID()", Integer.class);

        invoice.setInvoiceId(invoice_id);

        return invoice;
    }

    @Override
    public Invoice getInvoice(int id) {
```

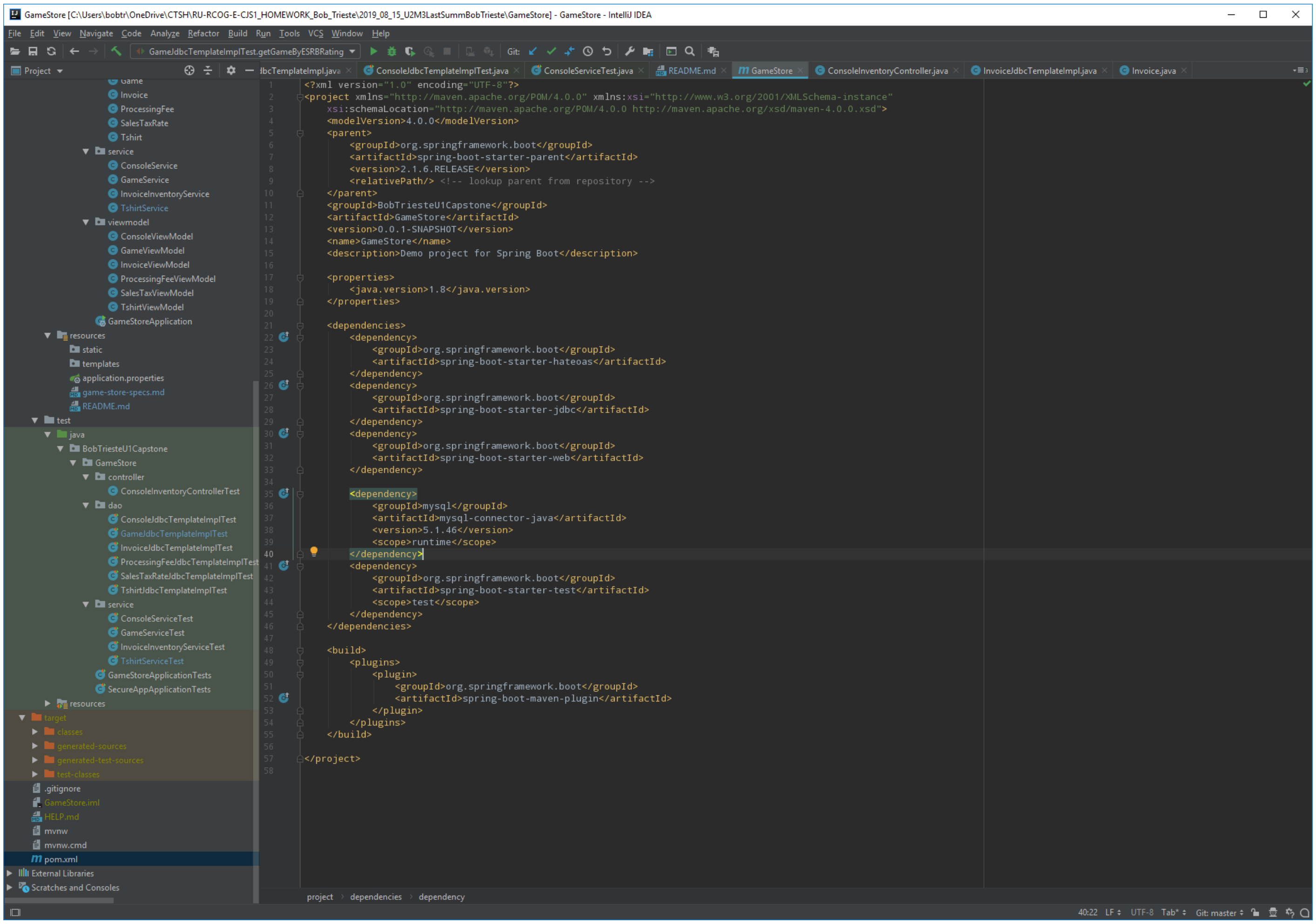
In [60]:

```
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "IntelliJSample2.png"))
```



```
package BobTriesteU1Capstone.GameStore.model;

import ...

public class Invoice extends ConsoleViewModel {

    private int invoiceId;
    private String name;
    private String street;
    private String city;
    private String state;
    private String zipcode;
    private String itemType;
    private int itemId;
    private BigDecimal unitPrice;
    private int quantity;
    private BigDecimal subtotal;
    private BigDecimal tax;
    private BigDecimal processiongFee;
    private BigDecimal total;

    public int getInvoiceId() { return invoiceId; }

    public void setInvoiceId(int invoiceId) { this.invoiceId = invoiceId; }

    public String getName() { return name; }

    public void setName(String name) { this.name = name; }

    public String getStreet() { return street; }

    public void setStreet(String street) { this.street = street; }

    public String getCity() { return city; }

    public void setCity(String city) { this.city = city; }

    public String getState() { return state; }

    public void setState(String state) { this.state = state; }

    public String getZipcode() { return zipcode; }

    public void setZipcode(String zipcode) { this.zipcode = zipcode; }

    public String getItemType() { return itemType; }

    public void setItemType(String itemType) { this.itemType = itemType; }

    public int getItemId() { return itemId; }

    public void setItemId(int itemId) { this.itemId = itemId; }

    public BigDecimal getUnitPrice() { return unitPrice; }

    public void setUnitPrice(BigDecimal unitPrice) { this.unitPrice = unitPrice; }

    public int getQuantity() { return quantity; }

    public void setQuantity(int quantity) { this.quantity = quantity; }

    public BigDecimal getSubtotal() { return subtotal; }

    public void setSubtotal(BigDecimal subtotal) { this.subtotal = subtotal; }

    public BigDecimal getTax() { return tax; }
```

In [61]:
```python
from IPython.core.display import Image, display
PATH = "C:/Users/bobtr/OneDrive/GitProjectFolder/JavaPython2019/ScreenShots/"
display(Image(filename = PATH + "POMxmlFile.png"))
```



```xml
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.1.6.RELEASE</version>
        <relativePath/> <!-- lookup parent from repository -->
    </parent>
    <groupId>BobTriesteU1Capstone</groupId>
    <artifactId>GameStore</artifactId>
    <version>0.0.1-SNAPSHOT</version>
    <name>GameStore</name>
    <description>Demo project for Spring Boot</description>

    <properties>
        <java.version>1.8</java.version>
    </properties>

    <dependencies>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-hateoas</artifactId>
        </dependency>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-jdbc</artifactId>
        </dependency>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-web</artifactId>
        </dependency>

        <dependency>
            <groupId>mysql</groupId>
            <artifactId>mysql-connector-java</artifactId>
            <version>5.1.46</version>
            <scope>runtime</scope>
        </dependency>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-test</artifactId>
            <scope>test</scope>
        </dependency>
    </dependencies>

    <build>
        <plugins>
            <plugin>
                <groupId>org.springframework.boot</groupId>
                <artifactId>spring-boot-maven-plugin</artifactId>
            </plugin>
        </plugins>
    </build>

</project>
```

FizzBuzz in Java.

- "FizzBuzz" the famous coding interview question to check the logical skills of developers:
- We will print positive integers from 1 to 100.
- When a number is a multiple of 3 we will print "Fizz".
- When a number is a multiple of 5 we will print "Buzz".
- When a number is a multiple of 3 AND 5 we will print "FizzBuzz".
- We will make use of "if/else" statements and the "modulo" operation (%) which finds the remainder of the Euclidian division of two positive integers.

In [ ]:
```java
public class FizzBuzz {

    public static void main(String[] args) {


        for (int i = 1; i <= 100; i++)
            if (i % 3 == 0 && i % 5 == 0) {
                System.out.println("FizzBuzz");
            } else if (i % 3 == 0) {
                System.out.println("Fizz");
            } else if (i % 5 == 0) {
                System.out.println("Buzz");
            } else {
                System.out.println(i);
            }
    }
}
```

FizzBuzz in Python.

- `"FizzBuzz"` the famous coding interview question to check the logical skills of developers:
- We will print positive integers from 1 to 100.
- When a number is a multiple of 3 we will print "Fizz".
- When a number is a multiple of 5 we will print "Buzz".
- When a number is a multiple of 3 AND 5 we will print "FizzBuzz".
- We will make use of "if/else" statements and the "modulo" operation (%) which finds the remainder of the Euclidian division of two positive integers.

In [ ]:

```python
for num in range (1,101):
    if num % 3 == 0 and num % 5 == 0:
        print('FizzBuzz')
    elif num % 3 == 0:
        print('Fizz')
    elif num % 5 == 0:
        print('Buzz')
    else:
        print(num)
```

FizzBuzz in C#.

- `"FizzBuzz"` the famous coding interview question to check the logical skills of developers:
- We will print positive integers from 1 to 100.
- When a number is a multiple of 3 we will print "Fizz".
- When a number is a multiple of 5 we will print "Buzz".
- When a number is a multiple of 3 AND 5 we will print "FizzBuzz".
- We will make use of "if/else" statements and the "modulo" operation (%) which finds the remainder of the Euclidian division of two positive integers.

In [ ]:

```csharp
using System;

namespace FizzBuzzCsharp
{
    class Program
    {
        static void Main(string[] args)
        {
            for (int i = 1; i <= 100; i++)
            {
                if (i % 3 == 0 && i % 5 == 0)
                {
                    Console.WriteLine("FizzBuzz");
                }
                else if (i % 3 == 0)
                {
                    Console.WriteLine("Fizz");
                }
                else if (i % 5 == 0)
                {
                    Console.WriteLine("Buzz");
                }
                else
                {
                    Console.WriteLine(i);
                }
            }

        }

    }
}
```

In each case above the output will be the same:

```
1 2 Fizz 4 Buzz Fizz 7 8 Fizz Buzz 11 Fizz 13 14 FizzBuzz 16 17 Fizz 19 Buzz Fizz 22 23 Fizz Buzz 26 Fizz 28 29 FizzBuzz 31 32 Fizz
34 Buzz Fizz 37 38 Fizz Buzz 41 Fizz 43 44 FizzBuzz 46 47 Fizz 49 Buzz Fizz 52 53 Fizz Buzz 56 Fizz 58 59 FizzBuzz 61 62 Fizz 64
Buzz Fizz 67 68 Fizz Buzz 71 Fizz 73 74 FizzBuzz 76 77 Fizz 79 Buzz Fizz 82 83 Fizz Buzz 86 Fizz 88 89 FizzBuzz 91 92 Fizz 94 Buzz
Fizz 97 98 Fizz Buzz
```

Several full programs are available in the root folder of this repository to inspect further.

Additionally you can search through other public repositories of mine.

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Bob's resume (https://github.com/bobtreehouse/JavaPython2019/blob/master/RobertTriesteCV.pdf)

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