```
Python 3.6.3 |Anaconda custom (64-bit)| (default, Oct 15 2017, 03:27:45) [MSC v.1900 64 bit
(AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 6.1.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py', wdir='C:/
Users/Tawanda Vera/Econ_MIni_Project_2')
Traceback (most recent call last):

  File "<ipython-input-1-3f5e5101e811>", line 1, in <module>
    runfile('C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py', wdir='C:/Users/
Tawanda Vera/Econ_MIni_Project_2')

  File "C:\ProgramData\Anaconda3\lib\site-packages\spyder\utils\site\sitecustomize.py", line
705, in runfile
    execfile(filename, namespace)

  File "C:\ProgramData\Anaconda3\lib\site-packages\spyder\utils\site\sitecustomize.py", line
102, in execfile
    exec(compile(f.read(), filename, 'exec'), namespace)

  File "C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py", line 43, in <module>
    sp_ret = sm.add_constant(sp_ret)

NameError: name 'sm' is not defined


In [2]:

In [2]:

Removing all variables...
```

```
In [2]: runfile('C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py', wdir='C:/
Users/Tawanda Vera/Econ_MIni_Project_2')
Traceback (most recent call last):

  File "<ipython-input-2-3f5e5101e811>", line 1, in <module>
    runfile('C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py', wdir='C:/Users/
Tawanda Vera/Econ_MIni_Project_2')

  File "C:\ProgramData\Anaconda3\lib\site-packages\spyder\utils\site\sitecustomize.py", line
705, in runfile
    execfile(filename, namespace)

  File "C:\ProgramData\Anaconda3\lib\site-packages\spyder\utils\site\sitecustomize.py", line
102, in execfile
    exec(compile(f.read(), filename, 'exec'), namespace)

  File "C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py", line 47, in <module>
    beta, alpha, r_value, p_value, std_err = stats.linregress(orcl_ret, sp_ret)

  File "C:\ProgramData\Anaconda3\lib\site-packages\scipy\stats\_stats_mstats_common.py",
line 92, in linregress
    ssxm, ssxym, ssyxm, ssym = np.cov(x, y, bias=1).flat

ValueError: too many values to unpack (expected 4)
```

```
In [3]:

In [3]: runfile('C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py', wdir='C:/
Users/Tawanda Vera/Econ_MIni_Project_2')
C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\compat\pandas.py:56: FutureWarning:
The pandas.core.datetools module is deprecated and will be removed in a future version.
Please use the pandas.tseries module instead.
  from pandas.core import datetools
Traceback (most recent call last):

  File "<ipython-input-3-3f5e5101e811>", line 1, in <module>
    runfile('C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py', wdir='C:/Users/
Tawanda Vera/Econ_MIni_Project_2')

  File "C:\ProgramData\Anaconda3\lib\site-packages\spyder\utils\site\sitecustomize.py", line
705, in runfile
    execfile(filename, namespace)

  File "C:\ProgramData\Anaconda3\lib\site-packages\spyder\utils\site\sitecustomize.py", line
102, in execfile
    exec(compile(f.read(), filename, 'exec'), namespace)

  File "C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py", line 51, in <module>
    reg1 = sm.OLS(endog=orcl_ret, exog=sp_ret)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\regression\linear_model.py",
line 631, in __init__
    hasconst=hasconst, **kwargs)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\regression\linear_model.py",
line 526, in __init__
    weights=weights, hasconst=hasconst, **kwargs)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\regression\linear_model.py",
line 95, in __init__
    super(RegressionModel, self).__init__(endog, exog, **kwargs)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\base\model.py", line 212, in
__init__
    super(LikelihoodModel, self).__init__(endog, exog, **kwargs)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\base\model.py", line 63, in
__init__
    **kwargs)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\base\model.py", line 88, in
_handle_data
    data = handle_data(endog, exog, missing, hasconst, **kwargs)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\base\data.py", line 630, in
handle_data
    **kwargs)

  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\base\data.py", line 80, in
__init__
    self._check_integrity()
```

```
  File "C:\ProgramData\Anaconda3\lib\site-packages\statsmodels\base\data.py", line 495, in
_check_integrity
    raise ValueError("The indices for endog and exog are not aligned")

ValueError: The indices for endog and exog are not aligned


In [4]:

In [4]: runfile('C:/Users/Tawanda Vera/Econ_MIni_Project_2/Mini_Project_2.py', wdir='C:/
Users/Tawanda Vera/Econ_MIni_Project_2')
                            OLS Regression Results
==============================================================================
Dep. Variable:              Adj Close   R-squared:                       0.308
Model:                            OLS   Adj. R-squared:                  0.296
Method:                 Least Squares   F-statistic:                     27.55
Date:                Mon, 12 Mar 2018   Prob (F-statistic):           1.98e-06
Time:                        22:56:16   Log-Likelihood:                 200.57
No. Observations:                  64   AIC:                            -397.1
Df Residuals:                      62   BIC:                            -392.8
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const         -0.0010      0.001     -0.712      0.479      -0.004       0.002
Adj Close      1.1212      0.214      5.248      0.000       0.694       1.548
==============================================================================
Omnibus:                       59.442   Durbin-Watson:                   1.839
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              512.190
Skew:                          -2.406   Prob(JB):                    6.02e-112
Kurtosis:                      15.997   Cond. No.                         160.
==============================================================================

Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

In [5]: orcl_ret.mean()
Out[5]:
Adj Close   -0.000788
dtype: float64

In [6]: sp_ret.mean()
Out[6]:
const        1.000000
Adj Close    0.000147
dtype: float64

In [7]: sp_ret.mean()*12
Out[7]:
const        12.00000
Adj Close     0.00176
dtype: float64

In [8]: sp_ret.mean()*1200
Out[8]:
const        1200.000000
Adj Close       0.176048
dtype: float64
```

```
In [9]: sp_ret.mean()*1200
```