Generate Sample data and save as csv

**Python**

**import** numpy **as** np  
import pandas **as** pd  
tx = np.linspace(0,1,8); x = np.cos(tx)  
dx = pd.DataFrame({'Time':tx,'x':x})  
dx.to\_csv('dx.csv',index=False)  
print(dx)

**ChatGPT MATLAB**

*tx = linspace(0, 1, 8);*

*x = cos(tx);*

*T = table(tx', x', 'VariableNames', {'Time', 'x'});*

*writetable(T, 'dx.csv', 'Delimiter', ',');*

*disp(T)*

**Working MATLAB**

**The above code works.**

load data from local file, online source

**Python**

# local source  
 pd.read\_csv('dx.csv')

# online source  
 pd.read\_csv('http://apmonitor.com/pds/uploads/Main/dx.txt')

**ChatGPT MATLAB**

*% local source*

*T1 = readtable('dx.csv');*

*% online source*

*T2 = readtable('*[*http://apmonitor.com/pds/uploads/Main/dx.txt*](http://apmonitor.com/pds/uploads/Main/dx.txt)*');*

**Working Code**

**The above code works.**

Load data with more control

**Python**

f = open('dx.csv', 'r')

for x in f:

print(x)

f.close()

f = open('dx.csv', 'r')

x = f.read(4); print(x)

f.close()

f = open('dx.csv', 'r')

print(f.readline())

print(f.readline())

print(f.readline())

f.close()

**ChatGPT MATLAB**

*% Open the file*

*fid = fopen('dx.csv', 'r');*

*% Read and display each line*

*while ~feof(fid) line = fgetl(fid); disp(line) end*

*% Close the file*

*fclose(fid);*

% Open the file

fid = fopen('dx.csv', 'r');

% Read the first 4 characters

x = fread(fid, 4, 'char=>char'); disp(x)

% Close the file

fclose(fid);

% Open the file

fid = fopen('dx.csv', 'r');

% Read and display the first line

line = fgetl(fid); disp(line)

% Read and display the second line

line = fgetl(fid); disp(line)

% Read and display the third line

line = fgetl(fid); disp(line)

% Close the file

fclose(fid);

**Working MATLAB**

**The above code works.**

join data,

**Python**

import numpy as np  
 import pandas as pd  
   
tx = np.linspace(0,1,4); x = np.cos(tx)  
 dx = pd.DataFrame({'Time':tx,'x':x})  
   
ty = np.linspace(0,1,3); y = np.sin(ty)  
 dy = pd.DataFrame({'Time':ty,'y':y})

dx = dx.set\_index('Time')

dy = dy.set\_index('Time')

z = dx.join(dy)

z = dx.join(dy,how='right')

z = dx.join(dy,how='inner')

z = dx.join(dy,how='outer',sort=True)

**ChatGPT MATLAB**

tx = linspace(0,1,4);   
x = cos(tx);  
dx = table(tx,x,'VariableNames',{'Time','x'});  
  
ty = linspace(0,1,3);   
y = sin(ty);  
dy = table(ty,y,'VariableNames',{'Time','y'});  
  
dx = removevars(dx,'Time');  
dy = removevars(dy,'Time');  
  
dx.Time = categorical(dx.Time);  
dy.Time = categorical(dy.Time);  
  
z = outerjoin(dx,dy,'MergeKeys',1);  
z = innerjoin(dx,dy,'MergeKeys',1);  
z = rightjoin(dx,dy,'MergeKeys',1);  
z = leftjoin(dx,dy,'MergeKeys',1,'Sort',true);

**Working MATLAB**

Hannah is making progress with this

Append data

**Python**

import numpy as np  
 import pandas as pd  
 tx = np.linspace(0,1,4); x = np.cos(tx)  
 dx = pd.DataFrame({'Time':tx,'x':x})  
 tx = np.linspace(0,1,3)  
 x = np.cos(tx)  
 dy = pd.DataFrame({'Time':tx,'x':x})

dx.append(dy)\

.sort\_values(by='Time')\

.drop\_duplicates(subset='Time')\

.reset\_index(drop=True)

**ChatGPT MATLAB**

tx = linspace(0,1,4);

x = cos(tx);

dx = table(tx',x','VariableNames',{'Time','x'});

tx = linspace(0,1,3);

x = cos(tx);

dy = table(tx',x','VariableNames',{'Time','x'});

vertcat(dx,dy); result = sortrows(ans,'Time');

result = unique(result,'rows','stable');

result(:,:) = result;

**Working MATLAB**

tx = linspace(0,1,4);

x = cos(tx);

dx = table(tx',x','VariableNames',{'Time','x'});

tx = linspace(0,1,3);

x = cos(tx);

dy = table(tx',x','VariableNames',{'Time','x'});

Full= vertcat(dx,dy);

result = sortrows(Full,'Time');

result = unique(result,'rows','stable');

result(:,:) = result;

result

Activity

**Python**

**import** pandas **as** pd  
import matplotlib.pyplot **as** plt  
import seaborn **as** sns  
  
# stock ticker symbol  
url = 'http://apmonitor.com/pds/uploads/Main/goog.txt'  
  
# import data with pandas  
data = pd.read\_csv(url)  
print(data.describe())  
  
# calculate change and volatility  
data['Change'] = data['Close']-data['Open']  
data['Volatility'] = data['High']-data['Low']  
analysis = ['Open','Volume','Volatility','Change']  
sns.heatmap(data[analysis].corr())  
plt.show()

**ChatGPT MATLAB**

% stock ticker symbol

url = 'http://apmonitor.com/pds/uploads/Main/goog.txt';

% import data with readtable

data = readtable(url); disp(varfun(@mean,data))

% calculate change and volatility

data.Change = data.Close-data.Open;

data.Volatility = data.High-data.Low;

analysis = {'Open','Volume','Volatility','Change'}; corrplot(corrcoef(table2array(data(:,analysis))),'varNames',analysis)

**Working MATLAB**

% stock ticker symbol

url = 'http://apmonitor.com/pds/uploads/Main/goog.txt';

% import data with readtable

data = readtable(url,'VariableNamingRule','preserve');

disp(data);

% calculate change and volatility

data.Change = data.Close-data.Open;

data.Volatility = data.High-data.Low;

analysis = {'Open','Volume','Volatility','Change'};

corr\_data = corr(table2array(data(:,analysis)));

% Plot heatmap

heatmap(corr\_data, 'Colormap', hot);

colorbar;

title('Correlation between columns');