```matlab
% Set up the Import Options and import the data
opts = spreadsheetImportOptions("NumVariables", 7);

% Specify sheet and range
opts.Sheet = "Tesla";
opts.DataRange = "A2:G266";

% Specify column names and types
opts.VariableNames = ["Date", "Open", "High", "Low", "Close", "AdjClose",
"Volume"];
opts.VariableTypes = ["datetime", "double", "double", "double", "double",
"double", "double"];

% Import the data
Tesla = readtimetable("/Users/jasonting/Desktop/Math Finance HW 2.xlsx",
opts, "UseExcel", false, "RowTimes", "Date");

% Clear temporary variables
clear opts

% Display results
Tesla
```

Tesla = 265×6 timetable

	Date	Open	High	Low	Close	AdjClose	Volume
1	03-Oct-2022	254.5000	255.1600	241.0100	242.4000	242.4000	98363500
2	04-Oct-2022	250.5200	257.5000	242.0100	249.4400	249.4400	109578500
3	05-Oct-2022	245.0100	246.6700	233.2700	240.8100	240.8100	86982700
4	06-Oct-2022	239.4400	244.5800	235.3500	238.1300	238.1300	69298400
5	07-Oct-2022	233.9400	234.5700	222.0200	223.0700	223.0700	83916800
6	10-Oct-2022	223.9300	226.9900	218.3600	222.9600	222.9600	67925000
7	11-Oct-2022	220.9500	225.7500	215	216.5000	216.5000	77013200
8	12-Oct-2022	215.3300	219.3000	211.5100	217.2400	217.2400	66860700
9	13-Oct-2022	208.3000	222.9900	206.2200	221.7200	221.7200	91483000
10	14-Oct-2022	224.0100	226.2600	204.1600	204.9900	204.9900	94124500
11	17-Oct-2022	210.0400	221.8600	209.4500	219.3500	219.3500	79428800
12	18-Oct-2022	229.5000	229.8200	217.2500	220.1900	220.1900	75891900
13	19-Oct-2022	219.8000	222.9300	217.7800	222.0400	222.0400	66571500
14	20-Oct-2022	208.2800	215.5500	202	207.2800	207.2800	117798100
15	21-Oct-2022	206.4200	214.6600	203.8000	214.4400	214.4400	75713800
16	24-Oct-2022	205.8200	213.5000	198.5900	211.2500	211.2500	100446800
17	25-Oct-2022	210.1000	224.3500	210	222.4200	222.4200	96507900

1

	Date	Open	High	Low	Close	AdjClose	Volume
18	26-Oct-2022	219.4000	230.6000	218.2000	224.6400	224.6400	85012500
19	27-Oct-2022	229.7700	233.8100	222.8500	225.0900	225.0900	61638800
20	28-Oct-2022	225.4000	228.8600	216.3500	228.5200	228.5200	69152400
21	31-Oct-2022	226.1900	229.8500	221.9400	227.5400	227.5400	61554300
22	01-Nov-2022	234.0500	237.4000	227.2800	227.8200	227.8200	62688800
23	02-Nov-2022	226.0400	227.8700	214.8200	214.9800	214.9800	63070300
24	03-Nov-2022	211.3600	221.2000	210.1400	215.3100	215.3100	56538800
25	04-Nov-2022	222.6000	223.8000	203.0800	207.4700	207.4700	98622200
26	07-Nov-2022	208.6500	208.9000	196.6600	197.0800	197.0800	93916500
27	08-Nov-2022	194.0200	195.2000	186.7500	191.3000	191.3000	128803400
28	09-Nov-2022	190.7800	195.8900	177.1200	177.5900	177.5900	127062700
29	10-Nov-2022	189.9000	191	180.0300	190.7200	190.7200	132703000
30	11-Nov-2022	186	196.5200	182.5900	195.9700	195.9700	114403600
31	14-Nov-2022	192.7700	195.7300	186.3400	190.9500	190.9500	92226600
32	15-Nov-2022	195.8800	200.8200	192.0600	194.4200	194.4200	91293800
33	16-Nov-2022	191.5100	192.5700	185.6600	186.9200	186.9200	66567600
34	17-Nov-2022	183.9600	186.1600	180.9000	183.1700	183.1700	64336000
35	18-Nov-2022	185.0500	185.1900	176.5500	180.1900	180.1900	76048900
36	21-Nov-2022	175.8500	176.7700	167.5400	167.8700	167.8700	92882700
37	22-Nov-2022	168.6300	170.9200	166.1900	169.9100	169.9100	78452300
38	23-Nov-2022	173.5700	183.6200	172.5000	183.2000	183.2000	109536700
39	25-Nov-2022	185.0600	185.2000	180.6300	182.8600	182.8600	50672700
40	28-Nov-2022	179.9600	188.5000	179	182.9200	182.9200	92905200
41	29-Nov-2022	184.9900	186.3800	178.7500	180.8300	180.8300	83357100
42	30-Nov-2022	182.4300	194.7600	180.6300	194.7000	194.7000	109186400
43	01-Dec-2022	197.0800	198.9200	191.8000	194.7000	194.7000	80046200
44	02-Dec-2022	191.7800	196.2500	191.1100	194.8600	194.8600	73645900
45	05-Dec-2022	189.4400	191.2700	180.5500	182.4500	182.4500	93122700
46	06-Dec-2022	181.2200	183.6500	175.3300	179.8200	179.8200	92150800
47	07-Dec-2022	175.0300	179.3800	172.2200	174.0400	174.0400	84213300
48	08-Dec-2022	172.2000	175.2000	169.0600	173.4400	173.4400	97624500
49	09-Dec-2022	173.8400	182.5000	173.3600	179.0500	179.0500	104872300
50	12-Dec-2022	176.1000	177.3700	167.5200	167.8200	167.8200	109794500

	Date	Open	High	Low	Close	AdjClose	Volume
51	13-Dec-2022	174.8700	175.0500	156.9100	160.9500	160.9500	175862700
52	14-Dec-2022	159.2500	161.6200	155.3100	156.8000	156.8000	140682300
53	15-Dec-2022	153.4400	160.9300	153.2800	157.6700	157.6700	122334500
54	16-Dec-2022	159.6400	160.9900	150.0400	150.2300	150.2300	139032200
55	19-Dec-2022	154	155.2500	145.8200	149.8700	149.8700	139390600
56	20-Dec-2022	146.0500	148.4700	137.6600	137.8000	137.8000	159563300
57	21-Dec-2022	139.3400	141.2600	135.8900	137.5700	137.5700	145417400
58	22-Dec-2022	136	136.6300	122.2600	125.3500	125.3500	210090300
59	23-Dec-2022	126.3700	128.6200	121.0200	123.1500	123.1500	166989700
60	27-Dec-2022	117.5000	119.6700	108.7600	109.1000	109.1000	208643400
61	28-Dec-2022	110.3500	116.2700	108.2400	112.7100	112.7100	221070500
62	29-Dec-2022	120.3900	123.5700	117.5000	121.8200	121.8200	221923300
63	30-Dec-2022	119.9500	124.4800	119.7500	123.1800	123.1800	157777300
64	03-Jan-2023	118.4700	118.8000	104.6400	108.1000	108.1000	231402800
65	04-Jan-2023	109.1100	114.5900	107.5200	113.6400	113.6400	180389000
66	05-Jan-2023	110.5100	111.7500	107.1600	110.3400	110.3400	157986300
67	06-Jan-2023	103	114.3900	101.8100	113.0600	113.0600	220911100
68	09-Jan-2023	118.9600	123.5200	117.1100	119.7700	119.7700	190284000
69	10-Jan-2023	121.0700	122.7600	114.9200	118.8500	118.8500	167642500
70	11-Jan-2023	122.0900	125.9500	120.5100	123.2200	123.2200	183810800
71	12-Jan-2023	122.5600	124.1300	117	123.5600	123.5600	169400900
72	13-Jan-2023	116.5500	122.6300	115.6000	122.4000	122.4000	180714100
73	17-Jan-2023	125.7000	131.7000	125.0200	131.4900	131.4900	186477000
74	18-Jan-2023	136.5600	136.6800	127.0100	128.7800	128.7800	195680300
75	19-Jan-2023	127.2600	129.9900	124.3100	127.1700	127.1700	170291900
76	20-Jan-2023	128.6800	133.5100	127.3500	133.4200	133.4200	138858100
77	23-Jan-2023	135.8700	145.3800	134.2700	143.7500	143.7500	203119200
78	24-Jan-2023	143	146.5000	141.1000	143.8900	143.8900	158699100
79	25-Jan-2023	141.9100	146.4100	138.0700	144.4300	144.4300	192734300
80	26-Jan-2023	159.9700	161.4200	154.7600	160.2700	160.2700	234815100
81	27-Jan-2023	162.4300	180.6800	161.1700	177.9000	177.9000	306590600
82	30-Jan-2023	178.0500	179.7700	166.5000	166.6600	166.6600	230878800
83	31-Jan-2023	164.5700	174.3000	162.7800	173.2200	173.2200	196813500

	Date	Open	High	Low	Close	AdjClose	Volume
84	01-Feb-2023	173.8900	183.8100	169.9300	181.4100	181.4100	213806300
85	02-Feb-2023	187.3300	196.7500	182.6100	188.2700	188.2700	217448300
86	03-Feb-2023	183.9500	199	183.6900	189.9800	189.9800	232662000
87	06-Feb-2023	193.0100	198.1700	189.9200	194.7600	194.7600	186188100
88	07-Feb-2023	196.4300	197.5000	189.5500	196.8100	196.8100	186010300
89	08-Feb-2023	196.1000	203	194.3100	201.2900	201.2900	180673600
90	09-Feb-2023	207.7800	214	204.7700	207.3200	207.3200	215431400
91	10-Feb-2023	202.2300	206.2000	192.8900	196.8900	196.8900	204754100
92	13-Feb-2023	194.4200	196.3000	187.6100	194.6400	194.6400	172475500
93	14-Feb-2023	191.9400	209.8200	189.4400	209.2500	209.2500	216455700
94	15-Feb-2023	211.7600	214.6600	206.1100	214.2400	214.2400	181006400
95	16-Feb-2023	210.7800	217.6500	201.8400	202.0400	202.0400	229586500
96	17-Feb-2023	199.9900	208.4400	197.5000	208.3100	208.3100	213738500
97	21-Feb-2023	204.9900	209.7100	197.2200	197.3700	197.3700	180018600
98	22-Feb-2023	197.9300	201.9900	191.7800	200.8600	200.8600	191828500
99	23-Feb-2023	203.9100	205.1400	196.3300	202.0700	202.0700	146360000
100	24-Feb-2023	196.3300	197.6700	192.8000	196.8800	196.8800	142228100

⋮

```
%Calculate Descriptive Statistics [Using Adj Close]
Cl_P = Tesla.AdjClose
```

```
Cl_P = 265×1
   242.4000
   249.4400
   240.8100
   238.1300
   223.0700
   222.9600
   216.5000
   217.2400
   221.7200
   204.9900
      ⋮
```

```
Op_P = Tesla.Open
```

```
Op_P = 265×1
   254.5000
   250.5200
   245.0100
   239.4400
   233.9400
   223.9300
```

```
  220.9500
  215.3300
  208.3000
  224.0100
      :
      :
```

```
%Calculate Numerator
Price_Diff = Cl_P−Op_P
```

```
Price_Diff = 265×1
  −12.1000
   −1.0800
   −4.2000
   −1.3100
  −10.8700
   −0.9700
   −4.4500
    1.9100
   13.4200
  −19.0200
      :
      :
```

```
%Element−Wise Division
Tesla_Returns = Price_Diff./Op_P
```

```
Tesla_Returns = 265×1
  −0.0475
  −0.0043
  −0.0171
  −0.0055
  −0.0465
  −0.0043
  −0.0201
   0.0089
   0.0644
  −0.0849
      :
      :
```

```
%Variance
Std_Tes = std(Tesla_Returns)
```

```
Std_Tes = 0.0318
```

```
Var_Tes = Std_Tes*Std_Tes
```

```
Var_Tes = 0.0010
```

```
%Skew
Skew_Tes = skewness(Tesla_Returns)
```

```
Skew_Tes = 0.0171
```

```
%Kurtosis
Tes_Kurt = kurtosis(Tesla_Returns)
```

```
Tes_Kurt = 3.4079
```

```matlab
%Moving Average
MovingA_Tesla = movmean(Cl_P,20)
```

```
MovingA_Tesla = 265×1
  227.7260
  226.9645
  226.4000
  226.0646
  224.7229
  224.0373
  223.2381
  223.1900
  223.2706
  223.3663
     ⋮
     ⋮
```

```matlab
%Plot Returns & Moving Average
plot(Tesla.Date, MovingA_Tesla)
hold on
plot(Tesla.Date, Tesla_Returns)
% Set up the Import Options and import the data
opts2 = spreadsheetImportOptions("NumVariables", 7);

% Specify sheet and range
opts2.Sheet = "Airbnb";
opts2.DataRange = "A2:G266";

% Specify column names and types
opts2.VariableNames = ["Date", "Open", "High", "Low", "Close", "AdjClose",
"Volume"];
opts2.VariableTypes = ["datetime", "double", "double", "double", "double",
"double", "double"];

% Import the data
Airbnb = readtimetable("/Users/jasonting/Desktop/Math Finance HW 2.xlsx",
opts2, "UseExcel", false, "RowTimes", "Date");

% Clear temporary variables
clear opts2

% Display results
Airbnb
```

Airbnb = 265×6 timetable

	Date	Open	High	Low	Close	AdjClose	Volume
1	03-Oct-2022	105.4900	106.3500	102.1800	105	105	6208900
2	04-Oct-2022	109.1400	111.6100	108.6800	110.8100	110.8100	4835000

	Date	Open	High	Low	Close	AdjClose	Volume
3	05-Oct-2022	110.5200	112.3400	107.8400	111.7600	111.7600	4008700
4	06-Oct-2022	112	114.4100	110.2000	111.5800	111.5800	3446500
5	07-Oct-2022	108.8700	109.5320	107.1000	108.5400	108.5400	3352700
6	10-Oct-2022	108.5500	111.6200	107.4100	110.9900	110.9900	3945200
7	11-Oct-2022	110.9880	111	103.5950	106.8200	106.8200	5696700
8	12-Oct-2022	107.4700	112.9800	106.1100	112.3500	112.3500	5547500
9	13-Oct-2022	107.3000	113.1300	105.3000	112.6500	112.6500	6172500
10	14-Oct-2022	115	116.4480	109.0100	109.1600	109.1600	5001700
11	17-Oct-2022	112.3300	116.7600	111.0300	116.5000	116.5000	5423900
12	18-Oct-2022	120.0300	120.7100	115.7000	117.9400	117.9400	5580000
13	19-Oct-2022	116.2350	118.8400	115.3000	116.8700	116.8700	3408900
14	20-Oct-2022	116.3500	120.5600	116	117	117	3962200
15	21-Oct-2022	116.7600	120.3400	114.6400	119.9500	119.9500	4146100
16	24-Oct-2022	118.3300	119.0700	112.8240	116.3900	116.3900	4452800
17	25-Oct-2022	115.3700	119.3800	112.6300	118.4500	118.4500	6278900
18	26-Oct-2022	117	119.9100	114.9700	115.3100	115.3100	4263100
19	27-Oct-2022	116.0500	116.3700	111.9250	112.0600	112.0600	4594000
20	28-Oct-2022	111.1900	115.2500	110.3900	115.2100	115.2100	4757300
21	31-Oct-2022	113.0600	113.8000	106.6700	106.9100	106.9100	10733800
22	01-Nov-2022	110.9650	113.1000	108	109.0500	109.0500	15979800
23	02-Nov-2022	102.6450	104.9800	94.2500	94.4100	94.4100	29191400
24	03-Nov-2022	94.0800	95.3100	91.2720	92.0200	92.0200	10099300
25	04-Nov-2022	94.9950	96.1600	92.0100	96.0900	96.0900	9717400
26	07-Nov-2022	96.7600	97.2500	93.2800	95.4600	95.4600	7972700
27	08-Nov-2022	95.5300	101.9190	94.2700	98.9000	98.9000	7829400
28	09-Nov-2022	97.7500	99.0900	95.1500	95.7900	95.7900	4650900
29	10-Nov-2022	100.9100	102.5000	99.0400	102.4000	102.4000	7343000
30	11-Nov-2022	103.4500	109.7700	102.1600	109.5700	109.5700	6864400
31	14-Nov-2022	107.7400	108.6900	105.0400	105.1600	105.1600	4951400
32	15-Nov-2022	109.2700	111.2350	106.6000	107.0100	107.0100	5357400
33	16-Nov-2022	107.7000	107.7000	104.3800	104.4300	104.4300	3681800
34	17-Nov-2022	101.8300	101.9800	98.8500	99.3000	99.3000	5181200
35	18-Nov-2022	100.8400	100.8400	96.6000	97.7700	97.7700	5913100

	Date	Open	High	Low	Close	AdjClose	Volume
36	21-Nov-2022	97.0100	97.8500	93.9200	95.7100	95.7100	5145700
37	22-Nov-2022	93.5300	95.3700	92.9800	95.2800	95.2800	5951600
38	23-Nov-2022	95.5600	97.0500	94.3400	96.6300	96.6300	4337600
39	25-Nov-2022	96.9700	98.8300	96.7600	97.6700	97.6700	2245100
40	28-Nov-2022	97	98.3200	94.8100	95.3000	95.3000	5133900
41	29-Nov-2022	96.1000	97.2600	95.3000	95.3800	95.3800	3694000
42	30-Nov-2022	95.8600	102.2500	95.7200	102.1400	102.1400	8387500
43	01-Dec-2022	101.4900	102.7600	99.5500	101.2700	101.2700	5040300
44	02-Dec-2022	99.2500	101.7400	98.9700	101	101	4128600
45	05-Dec-2022	100	101.1700	98.0400	98.5100	98.5100	3601500
46	06-Dec-2022	98.2500	98.5000	91.9000	93.1200	93.1200	8380900
47	07-Dec-2022	88.8050	91.6700	86.8800	91.5000	91.5000	12640500
48	08-Dec-2022	92.9700	95.6100	91.7500	94.8300	94.8300	6115700
49	09-Dec-2022	93.8400	96.6680	93.2400	94.7000	94.7000	4405800
50	12-Dec-2022	93.7600	95.9600	93.4900	95.5800	95.5800	4664100
51	13-Dec-2022	100.3700	100.6500	93.1200	93.3400	93.3400	7378900
52	14-Dec-2022	93.5400	95.2600	91.2100	93.9300	93.9300	6737800
53	15-Dec-2022	91.5200	92.7100	89.5200	90.6100	90.6100	5332000
54	16-Dec-2022	89.8600	91.2900	88.5600	89.5700	89.5700	6830200
55	19-Dec-2022	89.5100	89.7600	85.4000	85.9300	85.9300	4717100
56	20-Dec-2022	86.7100	90.8600	86.5200	87.6200	87.6200	7325800
57	21-Dec-2022	87.4900	88.7900	86.5900	87.0700	87.0700	5594800
58	22-Dec-2022	85.5400	86.0900	82.5800	84.8700	84.8700	5643100
59	23-Dec-2022	84.7000	85.5100	83.5000	85.2500	85.2500	3057700
60	27-Dec-2022	84.7800	84.9300	82.8300	83.4900	83.4900	3982400
61	28-Dec-2022	83.2500	84.2500	81.9100	82.4900	82.4900	4931700
62	29-Dec-2022	82.9700	85.5600	82.2900	85.2300	85.2300	4031300
63	30-Dec-2022	83.6100	86.0600	83.6000	85.5000	85.5000	3372500
64	03-Jan-2023	87.3850	88.1400	84.3000	84.9000	84.9000	3901200
65	04-Jan-2023	85.8900	88.8400	84.7900	88.7200	88.7200	4817100
66	05-Jan-2023	88.4800	88.5000	86.7500	87.7100	87.7100	3419000
67	06-Jan-2023	88.5200	88.7400	85.7100	88.5200	88.5200	4348400
68	09-Jan-2023	90.2550	92.0500	88.8800	89.2400	89.2400	4319400

	Date	Open	High	Low	Close	AdjClose	Volume
69	10-Jan-2023	88.8600	89.6200	86.7500	88.5400	88.5400	4165600
70	11-Jan-2023	89	94.8300	88.8640	94.4400	94.4400	7718900
71	12-Jan-2023	95.3100	98.9500	94.0200	98.4900	98.4900	7695200
72	13-Jan-2023	97.5000	100.7000	97.4200	100.3700	100.3700	6529000
73	17-Jan-2023	99.9150	102.7350	99.1000	101.2700	101.2700	5496200
74	18-Jan-2023	101.4100	103.8000	100.3200	101.1100	101.1100	6062200
75	19-Jan-2023	99.8400	100.5200	97.5700	99.1000	99.1000	4996700
76	20-Jan-2023	99.0100	101.3700	98.1110	101.2800	101.2800	5104000
77	23-Jan-2023	101.9900	105.3800	101.3500	105.2200	105.2200	4442700
78	24-Jan-2023	104.7000	106.3900	103.8200	104.1300	104.1300	3514700
79	25-Jan-2023	100.3600	104.6750	99.8410	104.4400	104.4400	5169300
80	26-Jan-2023	106.3000	109.4900	105.6750	109.4200	109.4200	5196600
81	27-Jan-2023	108.8600	117.1200	108.7350	115.9400	115.9400	9548500
82	30-Jan-2023	114.1300	115.0800	109.2750	109.4800	109.4800	5469900
83	31-Jan-2023	109.4800	111.2300	108.8200	111.1100	111.1100	3867200
84	01-Feb-2023	111.1100	114.8900	109.8300	113.9900	113.9900	4053600
85	02-Feb-2023	116.2500	119.8500	116.2400	118.5200	118.5200	7166900
86	03-Feb-2023	116.0400	121.4000	115.8500	118.7000	118.7000	6130700
87	06-Feb-2023	117.4100	119.3340	116.8100	118.3500	118.3500	3204100
88	07-Feb-2023	117.9100	120.2100	115.1380	119.6900	119.6900	4397700
89	08-Feb-2023	119.3900	119.8100	115.5700	116.3600	116.3600	3605400
90	09-Feb-2023	118	119.2800	114.5200	114.9400	114.9400	4508700
91	10-Feb-2023	112.2500	113.3600	106.5380	108.8700	108.8700	6463500
92	13-Feb-2023	110	116.9000	109.8100	116.4200	116.4200	7657200
93	14-Feb-2023	116.2900	121.3200	115.2000	120.8700	120.8700	17145000
94	15-Feb-2023	130	138.7500	129.8500	137.0100	137.0100	32481900
95	16-Feb-2023	135.6500	144.6300	134.7300	139.4200	139.4200	18705800
96	17-Feb-2023	137.4350	138.4000	130.7300	131.6000	131.6000	11386700
97	21-Feb-2023	129.7700	132.8500	128.1450	128.7800	128.7800	6618700
98	22-Feb-2023	128.1400	128.8800	124.5500	127.2100	127.2100	5759000
99	23-Feb-2023	128.2100	128.8500	121.9200	125.5200	125.5200	7013500
100	24-Feb-2023	123.0400	124.8500	120.1910	122.7800	122.7800	5119800

:
:
:

```
%Calculate Descriptive Statistics [Using Adj Close]
Cl_P_Airbnb = Airbnb.AdjClose
```

```
Cl_P_Airbnb = 265×1
   105.0000
   110.8100
   111.7600
   111.5800
   108.5400
   110.9900
   106.8200
   112.3500
   112.6500
   109.1600
      :
      :
```

```
Op_P_Airbnb = Airbnb.Open
```

```
Op_P_Airbnb = 265×1
   105.4900
   109.1400
   110.5200
   112.0000
   108.8700
   108.5500
   110.9880
   107.4700
   107.3000
   115.0000
      :
      :
```

```
%Calculate Numerator
Price_Diff_A = Cl_P_Airbnb−Op_P_Airbnb
```

```
Price_Diff_A = 265×1
   −0.4900
    1.6700
    1.2400
   −0.4200
   −0.3300
    2.4400
   −4.1680
    4.8800
    5.3500
   −5.8400
      :
      :
```

```
%Element−Wise Division
Airbnb_Returns = Price_Diff_A./Op_P
```

```
Airbnb_Returns = 265×1
   −0.0019
    0.0067
    0.0051
   −0.0018
   −0.0014
```

```
    0.0109
   -0.0189
    0.0227
    0.0257
   -0.0261
      :
      :
```

```
%Calculate Std.Dev
Std_Airbnb_Returns =std(Airbnb_Returns)
```

Std_Airbnb_Returns = 0.0138

```
%Variance
Var_Airbnb = Std_Airbnb_Returns * Std_Airbnb_Returns
```

Var_Airbnb = 1.9092e-04

```
%Skew
Skew_Air = skewness(Airbnb_Returns)
```

Skew_Air = 0.1966

```
%Kurtosis
Air_Kurt = kurtosis(Airbnb_Returns)
```

Air_Kurt = 3.5156

```
%Import
% Set up the Import Options and import the data
opts4 = spreadsheetImportOptions("NumVariables", 7);

% Specify sheet and range
opts4.Sheet = "Airbnb";
opts4.DataRange = "A2:G266";

% Specify column names and types
opts4.VariableNames = ["Date", "Open", "High", "Low", "Close", "AdjClose",
"Volume"];
opts4.VariableTypes = ["double", "double", "double", "double", "double",
"double", "double"];

% Import the data
Airbnb_Array = readtable("/Users/jasonting/Desktop/Math Finance HW 2.xlsx",
opts4, "UseExcel", false);

% Convert to output type
Airbnb_Array = table2array(Airbnb_Array);

% Clear temporary variables
clear opts4

% Display results
```

```
Airbnb_Array
```

```
Airbnb_Array = 265×7
10⁷ ×
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.6209
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.4835
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.4009
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.3447
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.3353
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.3945
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.5697
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.5547
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.6172
    0.0045    0.0000    0.0000    0.0000    0.0000    0.0000    0.5002
       :
       :
```

```matlab
%Moving Average (20-Day Window)
MovingA_Air = movmean(Cl_P_Airbnb,20)
```

```
MovingA_Air = 265×1
   109.9660
   110.5600
   111.1750
   111.6131
   111.9979
   112.5280
   112.7694
   113.1035
   113.2261
   113.1647
       :
       :
```

```matlab
%Plot Returns & Moving Average
plot(Airbnb.Date, MovingA_Air)
title("Moving Average")

plot(Airbnb.Date, Airbnb_Returns)
```

Problem A3

```matlab
%Need data type array to create Histogram
%Indexing to obtain array columns
AdjClose_Array_Air = Airbnb_Array(:, 6)
```

```
AdjClose_Array_Air = 265×1
   105.0000
   110.8100
   111.7600
   111.5800
   108.5400
   110.9900
   106.8200
   112.3500
```

```
   112.6500
   109.1600
      ⋮
```

```
Open_Air = Airbnb_Array(:,2)
```

```
Open_Air = 265×1
   105.4900
   109.1400
   110.5200
   112.0000
   108.8700
   108.5500
   110.9880
   107.4700
   107.3000
   115.0000
      ⋮
```

```
%Calculate return using Array class-type
Price_Diff_Air_Array =AdjClose_Array_Air - Open_Air
```

```
Price_Diff_Air_Array = 265×1
    -0.4900
     1.6700
     1.2400
    -0.4200
    -0.3300
     2.4400
    -4.1680
     4.8800
     5.3500
    -5.8400
      ⋮
```

```
return_array_air = Price_Diff_Air_Array./Open_Air
```

```
return_array_air = 265×1
    -0.0046
     0.0153
     0.0112
    -0.0037
    -0.0030
     0.0225
    -0.0376
     0.0454
     0.0499
    -0.0508
      ⋮
```

```
histogram(return_array_air)
```

Problem A4

```
% Set up the Import Options and import the data
```

```
opts3 = spreadsheetImportOptions("NumVariables", 7);

% Specify sheet and range
opts3.Sheet = "Airbnb";
opts3.DataRange = "A2:G266";

% Specify column names and types
opts3.VariableNames = ["Date", "Open", "High", "Low", "Close", "AdjClose",
"Volume"];
opts3.VariableTypes = ["datetime", "double", "double", "double", "double",
"double", "double"];

% Import the data
MathFinanceHW22 = readtimetable("/Users/jasonting/Desktop/Math Finance HW
2.xlsx", opts3, "UseExcel", false, "RowTimes", "Date");

% Clear temporary variables
clear opts3

% Display results
MathFinanceHW22
```

MathFinanceHW22 = 265×6 timetable

	Date	Open	High	Low	Close	AdjClose	Volume
1	03-Oct-2022	105.4900	106.3500	102.1800	105	105	6208900
2	04-Oct-2022	109.1400	111.6100	108.6800	110.8100	110.8100	4835000
3	05-Oct-2022	110.5200	112.3400	107.8400	111.7600	111.7600	4008700
4	06-Oct-2022	112	114.4100	110.2000	111.5800	111.5800	3446500
5	07-Oct-2022	108.8700	109.5320	107.1000	108.5400	108.5400	3352700
6	10-Oct-2022	108.5500	111.6200	107.4100	110.9900	110.9900	3945200
7	11-Oct-2022	110.9880	111	103.5950	106.8200	106.8200	5696700
8	12-Oct-2022	107.4700	112.9800	106.1100	112.3500	112.3500	5547500
9	13-Oct-2022	107.3000	113.1300	105.3000	112.6500	112.6500	6172500
10	14-Oct-2022	115	116.4480	109.0100	109.1600	109.1600	5001700
11	17-Oct-2022	112.3300	116.7600	111.0300	116.5000	116.5000	5423900
12	18-Oct-2022	120.0300	120.7100	115.7000	117.9400	117.9400	5580000
13	19-Oct-2022	116.2350	118.8400	115.3000	116.8700	116.8700	3408900
14	20-Oct-2022	116.3500	120.5600	116	117	117	3962200
15	21-Oct-2022	116.7600	120.3400	114.6400	119.9500	119.9500	4146100
16	24-Oct-2022	118.3300	119.0700	112.8240	116.3900	116.3900	4452800
17	25-Oct-2022	115.3700	119.3800	112.6300	118.4500	118.4500	6278900
18	26-Oct-2022	117	119.9100	114.9700	115.3100	115.3100	4263100

	Date	Open	High	Low	Close	AdjClose	Volume
19	27-Oct-2022	116.0500	116.3700	111.9250	112.0600	112.0600	4594000
20	28-Oct-2022	111.1900	115.2500	110.3900	115.2100	115.2100	4757300
21	31-Oct-2022	113.0600	113.8000	106.6700	106.9100	106.9100	10733800
22	01-Nov-2022	110.9650	113.1000	108	109.0500	109.0500	15979800
23	02-Nov-2022	102.6450	104.9800	94.2500	94.4100	94.4100	29191400
24	03-Nov-2022	94.0800	95.3100	91.2720	92.0200	92.0200	10099300
25	04-Nov-2022	94.9950	96.1600	92.0100	96.0900	96.0900	9717400
26	07-Nov-2022	96.7600	97.2500	93.2800	95.4600	95.4600	7972700
27	08-Nov-2022	95.5300	101.9190	94.2700	98.9000	98.9000	7829400
28	09-Nov-2022	97.7500	99.0900	95.1500	95.7900	95.7900	4650900
29	10-Nov-2022	100.9100	102.5000	99.0400	102.4000	102.4000	7343000
30	11-Nov-2022	103.4500	109.7700	102.1600	109.5700	109.5700	6864400
31	14-Nov-2022	107.7400	108.6900	105.0400	105.1600	105.1600	4951400
32	15-Nov-2022	109.2700	111.2350	106.6000	107.0100	107.0100	5357400
33	16-Nov-2022	107.7000	107.7000	104.3800	104.4300	104.4300	3681800
34	17-Nov-2022	101.8300	101.9800	98.8500	99.3000	99.3000	5181200
35	18-Nov-2022	100.8400	100.8400	96.6000	97.7700	97.7700	5913100
36	21-Nov-2022	97.0100	97.8500	93.9200	95.7100	95.7100	5145700
37	22-Nov-2022	93.5300	95.3700	92.9800	95.2800	95.2800	5951600
38	23-Nov-2022	95.5600	97.0500	94.3400	96.6300	96.6300	4337600
39	25-Nov-2022	96.9700	98.8300	96.7600	97.6700	97.6700	2245100
40	28-Nov-2022	97	98.3200	94.8100	95.3000	95.3000	5133900
41	29-Nov-2022	96.1000	97.2600	95.3000	95.3800	95.3800	3694000
42	30-Nov-2022	95.8600	102.2500	95.7200	102.1400	102.1400	8387500
43	01-Dec-2022	101.4900	102.7600	99.5500	101.2700	101.2700	5040300
44	02-Dec-2022	99.2500	101.7400	98.9700	101	101	4128600
45	05-Dec-2022	100	101.1700	98.0400	98.5100	98.5100	3601500
46	06-Dec-2022	98.2500	98.5000	91.9000	93.1200	93.1200	8380900
47	07-Dec-2022	88.8050	91.6700	86.8800	91.5000	91.5000	12640500
48	08-Dec-2022	92.9700	95.6100	91.7500	94.8300	94.8300	6115700
49	09-Dec-2022	93.8400	96.6680	93.2400	94.7000	94.7000	4405800
50	12-Dec-2022	93.7600	95.9600	93.4900	95.5800	95.5800	4664100
51	13-Dec-2022	100.3700	100.6500	93.1200	93.3400	93.3400	7378900

	Date	Open	High	Low	Close	AdjClose	Volume
52	14-Dec-2022	93.5400	95.2600	91.2100	93.9300	93.9300	6737800
53	15-Dec-2022	91.5200	92.7100	89.5200	90.6100	90.6100	5332000
54	16-Dec-2022	89.8600	91.2900	88.5600	89.5700	89.5700	6830200
55	19-Dec-2022	89.5100	89.7600	85.4000	85.9300	85.9300	4717100
56	20-Dec-2022	86.7100	90.8600	86.5200	87.6200	87.6200	7325800
57	21-Dec-2022	87.4900	88.7900	86.5900	87.0700	87.0700	5594800
58	22-Dec-2022	85.5400	86.0900	82.5800	84.8700	84.8700	5643100
59	23-Dec-2022	84.7000	85.5100	83.5000	85.2500	85.2500	3057700
60	27-Dec-2022	84.7800	84.9300	82.8300	83.4900	83.4900	3982400
61	28-Dec-2022	83.2500	84.2500	81.9100	82.4900	82.4900	4931700
62	29-Dec-2022	82.9700	85.5600	82.2900	85.2300	85.2300	4031300
63	30-Dec-2022	83.6100	86.0600	83.6000	85.5000	85.5000	3372500
64	03-Jan-2023	87.3850	88.1400	84.3000	84.9000	84.9000	3901200
65	04-Jan-2023	85.8900	88.8400	84.7900	88.7200	88.7200	4817100
66	05-Jan-2023	88.4800	88.5000	86.7500	87.7100	87.7100	3419000
67	06-Jan-2023	88.5200	88.7400	85.7100	88.5200	88.5200	4348400
68	09-Jan-2023	90.2550	92.0500	88.8800	89.2400	89.2400	4319400
69	10-Jan-2023	88.8600	89.6200	86.7500	88.5400	88.5400	4165600
70	11-Jan-2023	89	94.8300	88.8640	94.4400	94.4400	7718900
71	12-Jan-2023	95.3100	98.9500	94.0200	98.4900	98.4900	7695200
72	13-Jan-2023	97.5000	100.7000	97.4200	100.3700	100.3700	6529000
73	17-Jan-2023	99.9150	102.7350	99.1000	101.2700	101.2700	5496200
74	18-Jan-2023	101.4100	103.8000	100.3200	101.1100	101.1100	6062200
75	19-Jan-2023	99.8400	100.5200	97.5700	99.1000	99.1000	4996700
76	20-Jan-2023	99.0100	101.3700	98.1110	101.2800	101.2800	5104000
77	23-Jan-2023	101.9900	105.3800	101.3500	105.2200	105.2200	4442700
78	24-Jan-2023	104.7000	106.3900	103.8200	104.1300	104.1300	3514700
79	25-Jan-2023	100.3600	104.6750	99.8410	104.4400	104.4400	5169300
80	26-Jan-2023	106.3000	109.4900	105.6750	109.4200	109.4200	5196600
81	27-Jan-2023	108.8600	117.1200	108.7350	115.9400	115.9400	9548500
82	30-Jan-2023	114.1300	115.0800	109.2750	109.4800	109.4800	5469900
83	31-Jan-2023	109.4800	111.2300	108.8200	111.1100	111.1100	3867200
84	01-Feb-2023	111.1100	114.8900	109.8300	113.9900	113.9900	4053600

	Date	Open	High	Low	Close	AdjClose	Volume
85	02-Feb-2023	116.2500	119.8500	116.2400	118.5200	118.5200	7166900
86	03-Feb-2023	116.0400	121.4000	115.8500	118.7000	118.7000	6130700
87	06-Feb-2023	117.4100	119.3340	116.8100	118.3500	118.3500	3204100
88	07-Feb-2023	117.9100	120.2100	115.1380	119.6900	119.6900	4397700
89	08-Feb-2023	119.3900	119.8100	115.5700	116.3600	116.3600	3605400
90	09-Feb-2023	118	119.2800	114.5200	114.9400	114.9400	4508700
91	10-Feb-2023	112.2500	113.3600	106.5380	108.8700	108.8700	6463500
92	13-Feb-2023	110	116.9000	109.8100	116.4200	116.4200	7657200
93	14-Feb-2023	116.2900	121.3200	115.2000	120.8700	120.8700	17145000
94	15-Feb-2023	130	138.7500	129.8500	137.0100	137.0100	32481900
95	16-Feb-2023	135.6500	144.6300	134.7300	139.4200	139.4200	18705800
96	17-Feb-2023	137.4350	138.4000	130.7300	131.6000	131.6000	11386700
97	21-Feb-2023	129.7700	132.8500	128.1450	128.7800	128.7800	6618700
98	22-Feb-2023	128.1400	128.8800	124.5500	127.2100	127.2100	5759000
99	23-Feb-2023	128.2100	128.8500	121.9200	125.5200	125.5200	7013500
100	24-Feb-2023	123.0400	124.8500	120.1910	122.7800	122.7800	5119800

:
:

```
publish('HW 2 Ting, Jason','pdf')
```

Error using publish
Unable to find "HW 2 Ting, Jason".