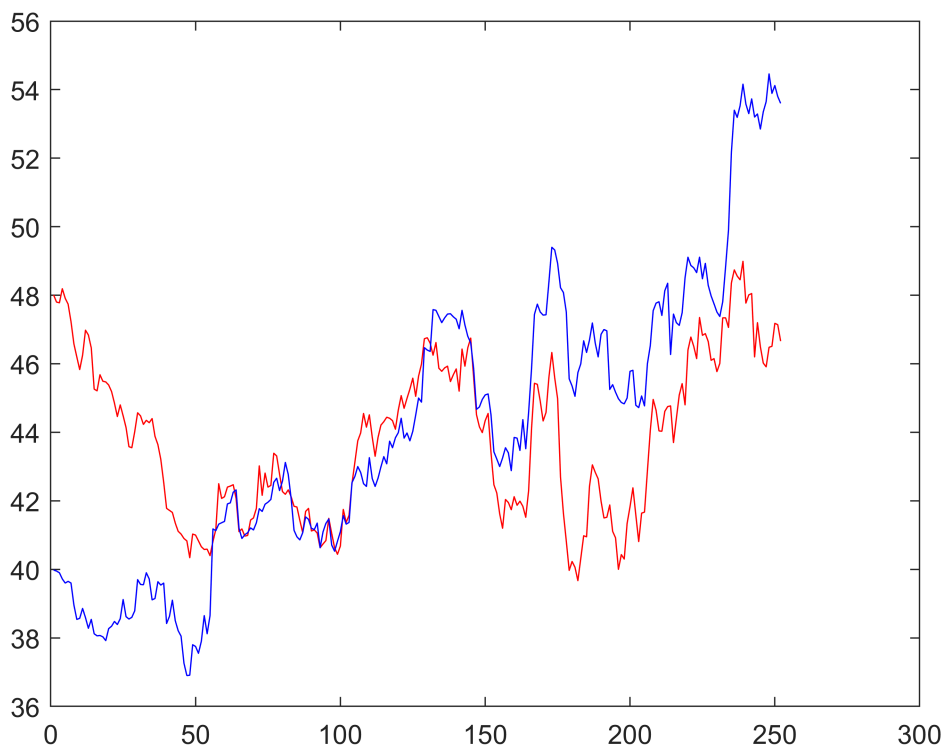# ECE 2409

Fall 2020

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Homework 5

This preliminary bit creates a plot of the two stocks based on days, ford in red.

```
clc;clear;close all
c=datetime;
fprintf('Last run was %s\n',c)
```

```
Last run was 03-Feb-2021 20:16:38
```

```
load fordstock
load gmstock
plot(ford,"Color","R")
hold on
plot(gm,"Color","B")
```


Question 1 - This code creates a logical array based on the gm stock, where 1's are days when the stock closed above $45 or below $40, and all other days are zeros. It stores the amount of these days in variable a1, then prints.

```
gmp1=(gm>45 | gm<40);
a1=sum(gmp1);
fprintf("There were %i days where the GM stock closed above $45 or below $40",a1)
```

There were 155 days where the GM stock closed above $45 or below $40

Question 2 - This code creates a logical array based on the gm stock, where 1's are days when the stock closed at or between $40 and $45, and all other days are zeros. It stores the amount of these days in variable a2, then prints.

```
gmp2=(gm<=45 & gm>=40);
gmp2
```

```
gmp2 = 252×1 logical array
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0
      :
      :
```

```
a2=sum(gmp2);
fprintf("There were %i days where the GM stock closed between $40 and $45, inclusive",a2)
```

    There were 97 days where the GM stock closed between $40 and $45, inclusive

Question 3 - This code creates a logical array where 1's are days when ford stock closed at a higher price than gm. It stores the amount of these days in variable a3, then prints.

```
ford;
gm;
fordogm=(ford>gm);
a3=sum(fordogm);
fprintf("There were %i days where the Ford stock closed higher than GM",a3)
```

    There were 114 days where the Ford stock closed higher than GM

Question 4 - This code creates a logical array where 1's are days when gm stock closed at a higher price than ford. It then finds the location of the first 1 in this array, the first day which gm stock closed higher than ford, then prints.

```
gmoford=(ford<gm);
a4=find(gmoford,1,'first');
find(gmoford)
```

```
ans = 136×1
    56
    64
    65
    67
    68
    80
    81
    82
    90
    91
```

:
:

```
fprintf("The Ford stock fell below GM for the first time on day %i",a4)
```

The Ford stock fell below GM for the first time on day 56

Question 5 - This code finds the location of the last 1 in the array from question 3, determining the day when gm stock closed higher than ford and never fell back below, then prints.

```
a5=find(fordogm,1,'last');
fprintf("The GM stock closed higher than Ford and never fell back on day %i",a5)
```

The GM stock closed higher than Ford and never fell back on day 145