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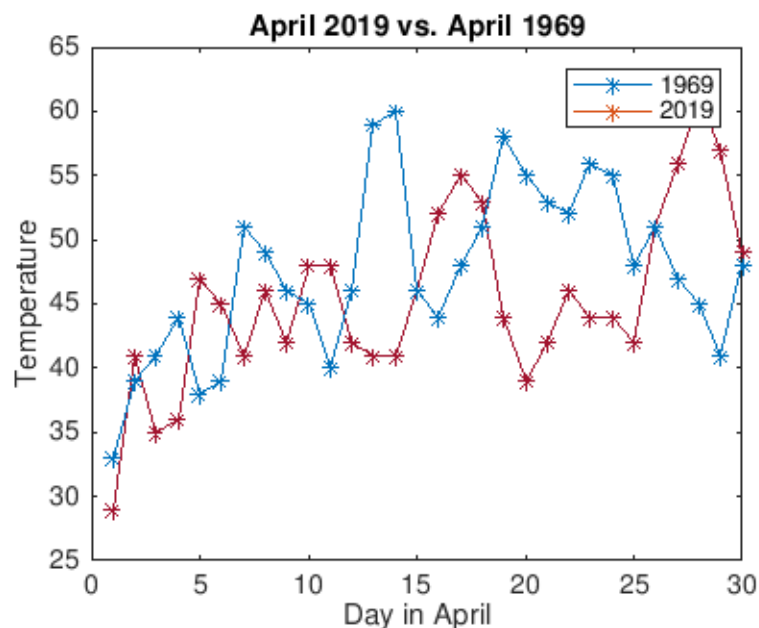
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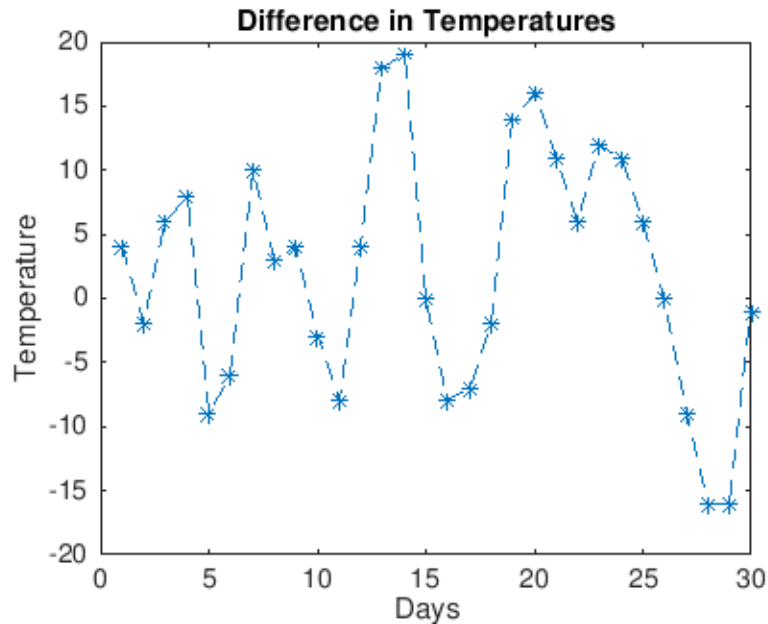
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```
%Option 4
tempApril1969 = [29 41 35 36 47 45 41 46 42 48 48 42 41 41 46 52 55 53
  44 39 42 46 44 44 42 51 56 61 57 49];
tempApril2019 = [33 39 41 44 38 39 51 49 46 45 40 46 59 60 46 44 48 51
  58 55 53 52 56 55 48 51 47 45 41 48];
days = 1:30;
tempDiff = tempApril2019 - tempApril1969;

figure(1)
title('April 2019 vs. April 1969');
plot(days,[tempApril1969',tempApril2019'],'-*');
legend('1969','2019')
hold on
xlabel('Day in April');
ylabel('Temperature')

figure(2)
plot(days,tempDiff, '--*');
title('Difference in Temperatures');
xlabel('Days');
ylabel('Temperature');
```





**Calculate the mean of each year's data set and the difference of the means.**

```
N = length(days);
mean2019 = sum(tempApril2019)/N;
mean1969 = sum(tempApril1969)/N;

difference_of_mean = mean2019 - mean1969;
```

**Calculate the standard deviation of the data sets for both years.**

```
variance2019 = ((tempApril2019-mean2019)*(tempApril2019-mean2019)')/N;
variance1969 = ((tempApril1969-mean1969)*(tempApril1969-mean1969)')/N;

sd2019 = sqrt(variance2019);
sd1969 = sqrt(variance1969);
```

**Calculate the correlation coefficient for the two years.**

```
covariance = (tempApril2019-mean2019)*(tempApril1969-mean1969)';
correlationCoeff = covariance/(sd2019*sd1969);
```

**Display**

```
msg = sprintf("The mean of temperature\nin 1969: %f\nThe mean of temperature in
```

---

```
2019: %f\nDifference of mean: %f\nStandard
deviation in 1969: %f\nStandard deviation in
2019: %f\nCorrelation Coefficient:
%f",mean1969,mean2019,difference_of_mean,sd1969,sd2019,correlationCoeff);
disp(msg)
```

```
The mean of temperature in 1969: 45.433333
The mean of temperature in 2019: 47.600000
Difference of mean: 2.166667
Standard deviation in 1969: 6.785688
Standard deviation in 2019: 6.590903
Correlation Coefficient: 0.764693
```

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