Is AccuWeather an accurate source for weather data up to 45 days??



Part I (data collection)

As you all are enjoying your summer break, I hope you are enjoying the warm weather. *Weather* you're at the beach or in the mountains it's impossible to avoid the heat of summer. Using statistics, we can determine weather patterns and make predictions for the future.

- 1. Visit accuweather.com . Accuweather boasts the ability to predict the weather more than 45 days into the future.
- 2. Choose a city or town in North Carolina (Rolesville, Wilmington, Raleigh, Greensboro, Asheville, Winston, etc) and type that into the search bar.
- 3. Click the extended forecast and view the 45 day forecast for your city or town.
- 4. Record the data of the 45 day prediction above in the chart
- 5. Download the AccuWeather app from http://downloads.accuweather.com/ And record the actual data in your table. This should only take a minute and you can do it before you go to bed every night.
- 6. In the notes column choose one of the following:
 - a. No Rain b. Some Rain c. Lots of rain

Date	Predicted High	Predicted Low	Actual High	Actual Low	Notes: (ie. Did it rain)
1					
2					
3					
4					
5					
6					
7					

Collect your predicted data ASAP!!!

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Part 2. Graphing our data

On separate sheets of paper, draw the following

- 1. Draw one box and whisker plot for the predicted highs and one box and whisker plot for the predicted lows
 - a. Be sure to include a 5 number summary of each data set.
- 2. Draw one box and whisker plot for actual highs and one box and whisker plot for actual lows.
 - a. Be sure to include a 5 number summary of each data set
- 3. Draw a residuals plot comparing the predicted highs and actual highs
- 4. Draw a second residuals plot comparing predicted lows and actual lows
- 5. Draw a normal distribution curve of the actual highs and a normal distribution curve of the actual lows and answer the following questions using the Empirical Rule.
 - a. What is the average high?
 - b. What is the average low?
 - c. What is the standard deviation of both data sets?
 - d. Between what two temperatures does 68% of the data lie?
 - e. Between what two temperatures does 95% of the data lie?

Part 3: Data analysis

Use your data to answer the following questions on a separate sheet

In each box, write the residual highs (Actual-Predicted) for all 45 days

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.
21.	22.	23.	24.	25.
26.	27.	28.	29.	30.
31.	32.	33.	34.	35.
36.	37.	38.	39.	40.
41.	42.	43.	44.	45.



- 1. Determine the average residual for days
 - a. 1-5
 - b. 1-10
 - c. 1-20
 - d. 1-45
- 2. Do you notice any patterns?
- 3. When is the AccuWeather forecast most accurate and least accurate?
- 4. How did rain affect the residual change in temperatures?
- 5. Were there any outliers in the actual highs or lows? (Remember or look up the 1.5 IQR rule!)
- 6. What may have caused those outliers or lack thereof?
- 7. Is this study an observation or an experiment?
- 8. List any challenges you face or potential flaws in the data.
- 9. Is AccuWeather 45 day forecast an accurate means of predicting weather?

Part 4. Putting it all together

- 1. Scan your data and graphs from part 1-2 and put them into a pdf file titled YOURLASTNAME_WeatherData.pdf
- 2. Write a 2 page double spaced 12 point font paper explaining your data and conclusions.
 - a) Paragraph 1 states the reasoning behind the study and a thesis statement
 - b) Body : Make key points based on your data. It's important to use actual data in this argument.
 - 1. Is AccuWeather an accurate source for all 45 days?
 - 2. How many days into the future is AccuWeather reliable?
 - c) Conclusion: Based off your data and supporting facts, Is AccuWeather an accurate source for weather?