Question: Please do some Internet research about the various types of "analytics" and determine what they mean.  Compare and contrast these activities. Second, discuss where you think there is a difference between the terms "analytics" and "analysis."

Please report on this in the discussion forum, start a thread with your name in it, and comment on what other people in the class find.

**Bryan’s Answer:**

Regarding Big Data, there are four types of analytics that I will discuss:

1. Descriptive
2. Diagnostic
3. Predictive
4. Prescriptive

Descriptive analytics are what I primarily deal with in my job – lists. These lists could be used to answer a question (Business Intelligence). Essentially, it is reading data, and showing some easily-computed calculations such as sums, averages, percentages, min, max etc. The purpose of descriptive analytics is to show what has happened. In example of my work in higher education - How many students enrolled in a class? How many dollars of financial aid were offered/accepted/received? These are descriptive analytics. You could dive deeper and derive the average financial aid per student.

Diagnostics answer why the descriptive analytics happened. This is where business intelligence comes in. We try to answer questions. Diagnostics can help develop strategic plans and answer questions such as “Where do we get the best results”, albeit a bit more specifically. “When do we best get results from an email blast?”

Predictive analytics are a means to forecast what might happen in the future. A model of current data is built, then that model is used to predict data which does not exist. An example from my current work would of forecasting class enrollment counts for future terms’ courses. We base this on historical enrollment of similar classes and use this data to predict the future; this is done through the use of a trend line.

Prescriptive analytics combine several *validated* predictive models and “prescribe” a specific course of action for the outcome the analysis predicts. Prescriptive analytics are made up of actionable components & feedback. The predictive models within prescriptive analytics should be able to learn the relationship of the actions taken and the adjustments made once the actual future data is received.

Descriptive analytics only require data, but predictive & prescriptive require a model & the model’s validation (to verify that it works). Descriptive models are quite common, while prescriptive models are used much less.

Sources:

<http://community.lithium.com/t5/Science-of-Social-blog/Big-Data-Reduction-1-Descriptive-Analytics/ba-p/77766>

<http://community.lithium.com/t5/Science-of-Social-blog/Big-Data-Reduction-2-Understanding-Predictive-Analytics/ba-p/79616>

http://community.lithium.com/t5/Science-of-Social-blog/Big-Data-Reduction-3-From-Descriptive-to-Prescriptive/ba-p/81556