Data Visualization: Interpreting and Presenting Meaningful Data

1. What is Big Data (15 mins)
   a. Brief history
      i. Storage costs over time
      ii. How has it has changed/influenced business and technology
         1. Machine learning
         2. Predictive analysis
         3. Data Science boom
      iii. Accessibility of data
         1. Courthouse
         2. MLS Books
         3. Paid MLS subscriptions
         4. MLS Exports
         5. Real-time streaming data available to everyone
   b. How are Lenders/FMNA/and consumers using Big Data to check our work
      i. Avm’s
      ii. Collateral Underwriter
      iii. Zillow/Trulia/Realtor.com

2. How has this lead to a change in Lender expectations (10 mins)
   a. Discuss what appraisal specific tools are currently available to us
      i. Are those tools cutting it?
      ii. Do we understand what they are doing?
      iii. Pros/cons/limits of these tools
   b. What tools can we adopt from the greater BI (Business Intelligence) community for use in our industry

   Part 2- How to build interactive Data Visualizations

3. Start thinking like a Data Analyst (15 mins)
   a. Data analysts translate numbers into plain English. Every business collects data, whether it’s sales figures, market research, logistics, or transportation costs. A data analyst's job is to take that data and use it to help companies make better business decisions.
   b. What metrics are important to our clients and what metrics are useful in our analysis
   c. 5 step process
      1. Ask a question
      2. Get the data
      3. Explore the data
      4. Model the data
      5. Communicate and visualize the results
   d. What is data visualization
i. **Data visualization** is the graphical display of abstract information for two purposes: sense-making (also called data analysis) and communication. Important stories live in our data and data visualization is a powerful means to discover and understand these stories, and then to present them to others.

### 4. Data visualization tools (20 mins)

i. Brief overview

ii. Products available

iii. How to connect to MLS exports

iv. Basic functions

v. Example- finished dashboard that tells a data story

### 5. Neighborhood Section (20 mins)

a. What is the purpose of that section

   i. Discuss how it benefits the client to see and understand the neighborhood mix and where/how the subject fits within the neighborhood

   ii. Boilerplate junk vs meaningful information

b. Build neighborhood histogram

   i. Building re-usable models is how we can do this on a consistent basis

### 6. 1004MC / market conditions (20 mins)

a. What is the purpose

   i. Can you understand the market conditions by looking at the current 1004mc

   ii. Is it enough to just fill it out

   iii. Example from a report with a written paragraph stating numerous prices points from the past year vs scatter plot with trend line.

   iv. Charts and graphs **better communicate** the data

b. Build market conditions viz

   i. What types of charts/graphs are appropriate for your data

   ii. How different views can skewing the story

   iii. Present enough information in the graph to make it useful

   iv. Keep it simple, no chart junk!

### 7. Supporting adjustments (20 mins)

i. Discuss why Lenders are asking for more support

ii. How exploring the data will tell you if an adjustment is needed

iii. When you make an adjustment, show the client how the data backs up what you are saying

   1. Show how to build viz’s to support adjustments possible examples:

   a. Location adjustments
b. Linier regression
c. Condo floor level adjustment
d. Pool adjustments
e. View adjustment

8. Learn how to utilize this new technology, continue to develop tools that help you analyze data, and strive to communicate this data in a way that is meaningful to your client.