Visualization

Data Literacy- explore, understand, and communicate with data

-Starting a snowball effect with questions

-Solving a problems

Elements to a great analyst

* Interest, Curiosity, Imagination, open-mindedness and flexibility, ability to analyze and ability to synthesize, self-motivation, awareness of what’s worthwhile, pattern spotting, healthy skepticism, familiarity with the data.

Data Type- Set of items, variables- qualitative and quantitative

Data Visualization

* Using data to make charts and graphs to help tell a story and make data easier to understand.
* Charts, Graphs, Tables, Maps, Dashboards, etc.

Chart and Graphs- Bar, Column, Line

* Always label axis’s
* Always start at 0
* Column charts showing comparison of different values in subcategories
* Line charts- data over time “trends”. X- time, Y- subjects. Use with few subjects or its too messy.
* Composition- measuring things in a whole. Ex:
  + Pie charts (out of 100%)- don’t use if similar percentages, or negative values.
  + Stacked column charts. – keep simple.
* Relationship-
  + Bubble chart- 3+ measures.
  + Scatter Plot- Needs 2+ measures.
    - Showing if one variable is a good predictor of another
    - Good to see outliers.
* Distributions-
  + Histogram- splits a single continuous measure into bins, groups, to analyze distribution.
    - Use to measure score, surgery results, analyzes population, find avg.
  + Box and Whisker- shows range of values along median and interquartile ranges.
    - Helps find outliers
    - Use with lots of granular qualitative values
    - Don’t use if measurement are the same or close to same.

Tables- to measure across set of intervals.

* Column- qualitative, rows- quantitative
* Use colors to help with following across rows and with dif categories.

Maps- geographical data visualization.

* Always have a scale.
* Tree map- represent part to whole relationships.
  + Don’t use neg values.
  + Use colors with categories in relation to other categories, separated by borders.
* Heatmaps- uses colors and size to show values of a measure
  + Works with patterns, trends, and relationship in data.

Dashboards- collection of several views, letting you compare a variety of all data all at once.

-Hover Over feature is very useful.

**Tableau**

-Save files as package.

https://help.tableau.com/current/guides/get-started-tutorial/en-us/get-started-tutorial-home.htm

* Free Training Videos
* <https://www.tableau.com/learn/training/20202?qt-training_tabs=1#qt-training_tabs>
* Tableau Starter Kit
* <https://www.tableau.com/learn/starter-kits>
* Build a workbook
* <https://help.tableau.com/current/pro/desktop/en-us/getstarted_buildmanual_ex1basic.htm>
* Preparing Excel Files for Tableau
* <https://help.tableau.com/current/pro/desktop/en-us/data_tips.htm>
* Visualization guide
* <https://www.tableau.com/learn/articles/data-visualization>
* Which chart or graph is right for you?
* <https://www.tableau.com/sites/default/files/whitepapers/which_chart_or_graph_is_right_for_youwp_1.pdf>
* 10 Best Practices for Building Effective Dashboards
* <https://www.tableau.com/sites/default/files/2021-09/10%20Best%20Practices%20for%20Building%20Effective%20DashboardsWP.pdf>

**Project Construction**

* 1. Knowing the Data: Data dictionary, data types, know how to account for null/missing values.
  2. Identify the Purpose: Why are you doing the analysis? What questions can you produce by looking at data?
  3. Define What Must be Resoled: Questions should be SMART: Specific, Measurable, Action, Relevant, Time-bounded. Define what must be resolved to deliver impact/change.
  4. Set out the Situation and Complications: What context can you share to help the audience understand what you’re doing. What’s going on with the data?
  5. Derine what Success is for the Project: End goal? When to know to present? Making sure relevant qualitative and quantitative measures are included.
  6. Indicate what Will and Wont be included in the Project: Scope of solution space, Irrelevant info, focused population, what fields are relevant.
  7. Define Limitation of Project: Barriers in the project. Missing data. \*Notify audience early in presentation to help understand info clearly.
  8. How to Plan to Present: Dashboard, Power Point, Data/dump extract, Report

**Data Storytelling**

* Yes they have the dashboards but this makes it easier for audience to understand.
* Assumptions: Everyone understands it, and everyone cares
* Responsibility: highlighting what the numbers mean and the significance of the findings.

Clear Structure:

* Beginning- premises/background (question/purpose)
* Middle- action (bulk). Presenting data, expanding on meaning of numbers, showing charts ect.
* End- resolution with answers/conclusions from data.

Tips:

* Verbal delivery matches visual delivery
* Don’t complicate visuals
* Break it down