Washington University in St. Louis
Olin Business School

DAT 560E Data Visualization for Business Insights

Individual Assignment 2 (SP2024A)

Due Date: TBD

120 points

1. (27 points) Use the Tableau tool to connect to the "MLB-Player-Stats-Batters-2019-2023.xlsx" file. Only use the 2023 table.
   (a) Create a chart to identify the mode of SO (strike-outs) for players with at least 110 games (G). Use the measure filter of the games. Add an annotation for this mode. (6 points)
   (b) Create a histogram for HR. Add a parameter control with min=1, max=12, step=1. Add a measure filter for AB with a minimum of 300. With bin size = 1, does this distribution seem to follow a normal distribution? Add annotation with your comments. Add a normal curve (probability density function) to the above histogram. (9 points)
   (c) Use the Tableau Show-Me card to create a box-and-whisker chart showing RBI by players and teams. Add a measure filter for players' AB with a minimum of 120. (6 points)
   (d) Create a box-and-whisker plot for HR by players and teams from scratch using the adding reference lines method. Add a mean for HR (AVG(HR)) by teams to the graph. Add a measure filter for a dimension filter (i.e., Player) with players' AB >= 100. (6 points)

2. (79 points) Use the Tableau tool to connect to "Global Superstore 2024A" data.
   (a) Create a Waterfall Chart showing the shipping cost by Region. Display % of the Shipping Cost and the amount in thousands (k) of the shipping cost by each Region. Add the grand row totals. (6 points)
   (b) Create a bullet chart for the actual Profit vs. the Target Profit by the Sub-Category. The Target of Profit is calculated based on a percentage of Sales. Create a parameter for this percentage of Sales with a default value of 20%. (7 points)
   (c) Create a Bar-in-Bar chart showing 20% of Sales (as a target for the Profit) and the actual Profit by Region. (6 points)
   (d) Create a Dumbbell (DNA) Chart to display the Shipping Costs for 2020 and 2023 by

Market. Add labels for the Shipping Cost. (6 points)

(e) Create a sparkline chart showing the top 5 countries with the highest Sales over the continuous Month(Order Date). (6 points)

(f) Create a Control Chart for weekly averages selected measure using the dual-axis method. Create a parameter to set the control limits. Use the range of values with minimum = 0.5, maximum = 6, and step size = 0.5. Add a parameter for selecting a measure from a list containing Profit, Sales, and Shipping Cost. (8 points)

(g) Create a Control Chart for Weekly sales averages using the Add Reference Line/Band method. (5 points)

(h) Create a Control Chart for Weekly sales averages using the Add Reference Line/Distribution method. (5 points)

(i) Create a Calendar for November 2023 showing Sales by Color and Profit by Size. In addition, use two different shapes to show whether the Profit Ratio >= 0.20 or not. (7 points)

(j) Create a group bar chart for the Sales by the Sub-Category and the Segment (colored by the Segment). (7 points)

(k) Create three conditional column charts (vertical bar chart) for Profit by Region to highlight the top three Regions using (1) a calculated field, (2) a group, and (3) a set. (10 points)

(l) Create a Bullet Graph with Gaps chart showing 25% of Sales (as a target for the Profit) and the actual Profit by Market. (6 points)

3. (14 points) Use the Tableau tool to connect to the Global-GHG-Emissions.csv file.

(a) Create a lollipop chart with state maps showing the top 10 "Country & Entity" with the highest average Annual GHG (greenhouse gases) emissions from 2000 to 2021. Add labels showing the Average Annual GHG Emission. (7 points). Note: The main greenhouse gases whose concentrations are rising are carbon dioxide, methane, nitrous oxide, hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), and ozone in the lower atmosphere.

(b) Create an animated bar chart showing the Annual GHG emissions over the timeline for the top 8 "Country & Entity" with the highest sum of GHG emissions. Add labels for the Annual capita GHG emissions and country maps to the end of the bars. (7 points)