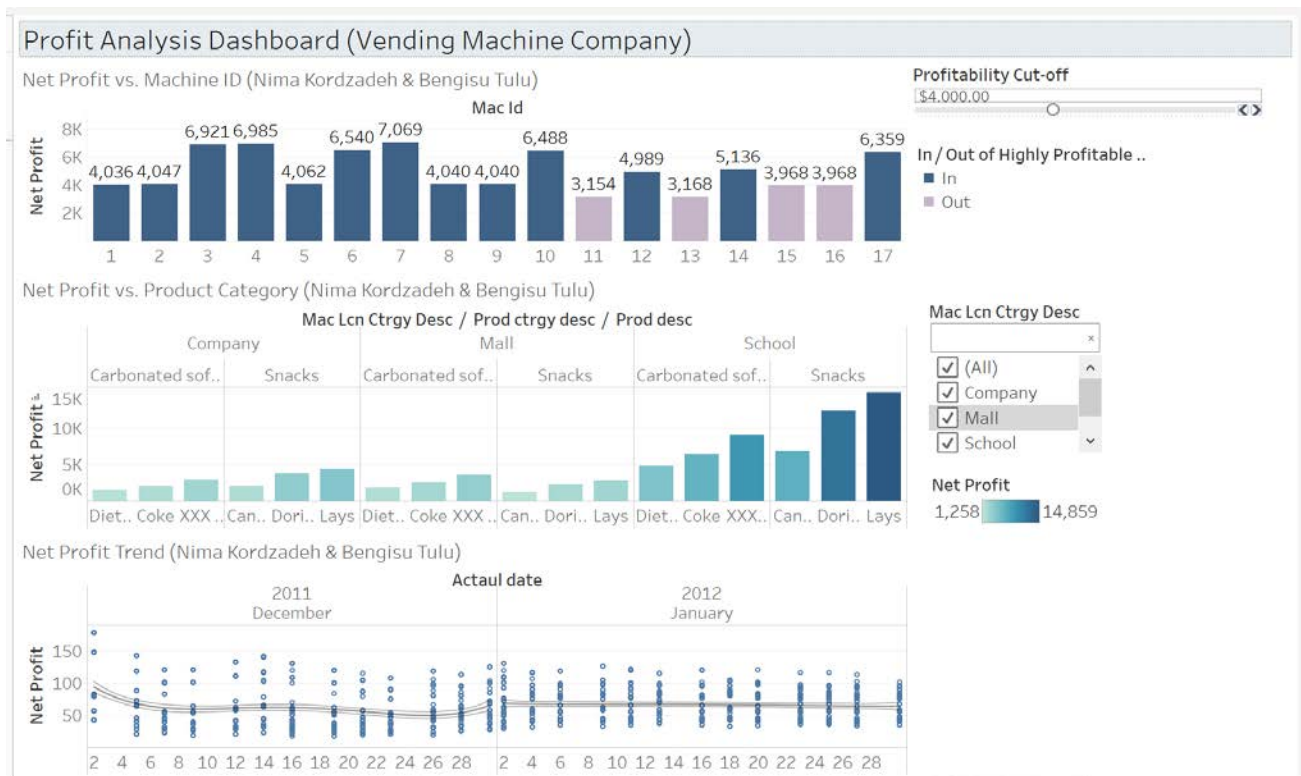


You will complete this assignment with your partner (i.e., groups of two students).

Dashboard #1: Theme: Sales and Marketing -- Dataset: DW Assignment-inExcel Dataset.xlsx

You will create a dashboard for the vending machine company that you have worked on before (assignment 1). The company will use the dashboard to draw insights about their profitability, which is their main performance indicator. More specifically, they want to be able to compare net profits associated with different vending machines, locations, product categories, and products in an interactive and appealing way. They also want to see profit trend lines on the dashboard. To do so, you will create three worksheets/graphs and put them together to create the dashboard as follows:



- 1) **Net Profit vs. Machine ID:** This chart is used to visualize and compare the profitability of the 17 vending machines. The main point about this chart is that each machine will be considered either *highly profitable* or *not highly profitable* depending on whether the net profit of that machine is (or is not) greater than the *profitability cut-off* point. *Profitability cut-off* is a value that can be dynamically set by the user. In other words, *Profitability cut-off* is a parameter that the user sets to distinguish between highly profitable and non-highly profitable vending machines. To add this feature to the chart, you should work with parameters and sets. Watch the following Tableau videos to learn about them:

- a. Visual Analytics

- i. Creating Sets
- ii. Working with Sets
- iii. Parameters

Profitability cut-off is a float number with the display format of currency. It can be any value between \$1,000 and \$8,000, both inclusive (step size: 100). The user will use a slider to change the value of that cut-off point.

For example, if the user sets the value of *Profitability cut-off* to \$4,000, all the machines with a net profit greater than \$4,000 will be considered highly profitable (and their bars are colored in dark blue), whereas the remaining machines will be considered not highly profitable (and will be colored differently, e.g., in light pink).

Also, use appropriate mark types, axis labels, etc. to create a chart similar to the one provided to you in the figure above. The colors that you use, however, do not have to be the same as the ones that I have used.

- 2) **Net Profit vs. Product Category:** This chart presents the net profit value for each product under each category for each location. When creating the chart (on the worksheet), be sure to build hierarchies such as *product category description* → *product description*. To learn about (or review) the concepts of hierarchies, drill down, and roll up, watch the following video:

- a. Visual Analytics
 - i. Drill Down and Hierarchies

Moreover, use appropriate mark types as well as an interactive filter so that the user can select the locations (i.e., company, mall, school) that they want to see on the chart. Do not forget to customize the title of the chart to show what the chart is and who have created it.

- 3) **Trend Analysis:** The third chart shows how the total profit has changed over time. The scatterplot includes a trend line (in my case, a polynomial function of degree 4, but you can change it to improve the performance or goodness of fit of the line). Again, use an appropriate title for the chart. To learn about trend lines watch the following video:

- a. Visual Analytics
 - i. Trend lines

Finally, I highly encourage you to watch the remaining videos (i.e., the ones that you have not watched yet) under *visual analytics*.

Dashboard #2: Theme: *Human Resources Management* -- Dataset: Use one of the following two:

- WA_Fn-UseC_-HR-Employee-Attrition.xlsx –
 - o Source: <https://www.kaggle.com/pavansubhasht/ibm-hr-analytics-attrition-dataset/data>
- HR_comma_sep.csv
 - o Source: <https://www.kaggle.com/stevezhenghp/why-do-people-leave-analysis/data>

A human resources (HR) department is typically a major functional unit in any organization. An HR director/manager normally uses various performance indicators to measure the extent to which they are performing effectively and properly. Numerous HR-related performance indicators are used by different organizations. For example, see: <http://gain-insights.com/solutions/key-performance-indicators-in-hr-analytics/> and <https://www.clearpointstrategy.com/human-capital-kpis-scorecard-measures/>. Thus, having a performance dashboard can help HR departments and their managers better monitor and analyze their performance and take actions accordingly. In this assignment, you will use a dataset to create a dashboard containing two graphs for an HR department. You can use either of the two datasets provided to you

- 1) The first performance indicator for which you will create a chart is '*attrition rate*'. Attrition rate is defined as the *loss of employees over time* and determines to what extent an organization is successful (or unsuccessful) in keeping (talented) employees. Now, it is your job to figure out how to create a chart (and put it on a dashboard) to help the HR manager gain insight about attrition rate in the organization. It is up to you:
 - a. which dataset you prefer to use,
 - b. what measures and dimensions you want to put on the chart,
 - c. what type of chart/graph you want to use, and
 - d. what other features (e.g., hierarchies, parameters, sets, groups, etc.) and mark types you want to employ to create an innovative and useful graph for the manager to visually monitor and analyze attrition in their organization.
- 2) Choose another performance indicator (other than attrition) and create another graph/chart to enable the HR manager view their organization's HR performance from another perspective. Your chart should be both useful and easy to use; however, it should not be too simple. Be creative and put some time into understanding the datasets, learning about HR-related performance indicator, and building a nice and useful chart.
- 3) Put the two charts (from parts 1 and 2) in a dashboard. Customize the dashboard in any ways that you think will add value to it and will make it an effective monitoring and performance assessment tool for the HR manager. Again, it is up to you what features you want to use on your dashboard.

The main criteria that we (the graders) will consider when evaluating and grading your dashboard are: usefulness and ease of use, creativity, and visual appeal.

I highly encourage you to re-read chapters 11 and 12 of the textbook (Performance Dashboards) to review and remember the major characteristics of effective performance indicators and dashboards. Moreover, I suggest that you look at this example on how one can work with an HR dataset to build a predictive model: <https://www.kaggle.com/stevezhenghp/why-do-people-leave-analysis?scriptVersionId=1583070> . Note that you do not have to build or run any predictive models for this assignment; however, if you want, you can add analytical features to your charts and dashboards to make them even more interesting.

What to submit: Each 2-person group must turn in two files:

1. A word document that contains screenshots of the two dashboards and clearly presents what features, columns, rows, marks, etc., you have used for each dashboard. You can also provide explanations on what you have done, if needed.
2. A zip file that contains the Tableau workbook files for the two dashboards. We should be able to open the Tableau files to see your dashboards in that software.

Be sure to include your name in your word file. This will be due at 5:00pm October 30th.

Also, as always, be sure to bring your laptop with you to class on October 30th. We will be working on and evaluating your dashboards in class.