Assignment 1

Task 1

Compare and contrast two well-known BI tools, Power BI and Tableau to investigate similarities and differences of key features. Which one of Which two do you prefer? Also justify your choice.

Power BI and Tableau are two of the most popular platforms in the market for Data Visualization and Business Analytics.

Tableau:
Tableau is an interactive data visualization tool from Tableau Software built in 2003. It was acquired by Salesforce in 2019. With more than one million members spanning over 500 user groups, active Community Forums, and programs, Tableau has an active community to help users.

Pros of Tableau	**Cons of Tableau**
Great performance	No automatic refreshing of reports
Handles a large number of visual objects	Poor versioning
Ability to blend diverse data sets	High-Cost
Centralized data repository	
Extensive official resources available for knowledge and training	
Mobile-friendly	
Easy to learn and use	

Power BI:

Pros of Power BI	Cons of Power BI
Easy to use	Rigid formulas; uses DAX as the language for calculations
Ability to create custom visualizations	Data handling limitations in free versions
Active user community	Limited configuration options
Variety of data source connections	
Constant updates with new features	
360-degree view of data in interactive dashboards	
Easy collaboration and sharing of reports	

Comparison between the Power BI and Tableau:

Cost :
When compared to Power BI, Tableau is expensive. The yearly subscription for Tableau's Pro version is 10 times more than the Power BI Pro version. For organizations with budget constraints or already using Microsoft suite, Power BI can be a better option.
The Pro plan starts at $9.99 per month per user for PoweBI. The basic Creator bundle starts at $70 per month per user for Tableau.

Ease of Use:
PowerBI is fairly simple and easier to learn compared to Tableau. It takes time and expertise to get good at Tableau.
Power BI can be utilized by both experts and beginners. Tableau is best suited for seasoned data analysts.

Data Handling:
Power BI can handle only 10 GB of data. Anything more than that requires cloud services like Azure. Tableau can handle billions of data without any requirement for cloud services.

Underlying Language:
Power BI uses DAX (Data Analysis Expression) for calculated columns and measures. It affects speed and reporting capabilities.

Tableau employs MDX (Multidimensional Expressions). for dimensions and measures.

Licensing:
No license keys required for PowerBI. Whereas, License keys are required for Tableau.

In Conclusion, Both have their own set of features and strengths in terms of powerful data analytics and data visualization.

However, I prefer to use Tableau. Tableau excels in advanced visualization, offering a user-friendly interface for creating interactive dashboards. Its customization options, including calculated fields and advanced formatting, provide flexibility. With a robust community and scalable performance, Tableau supports large datasets efficiently. While integration with Microsoft products may be limited, Tableau ensures seamless connectivity to various data sources. Also, I am drawn towards Tableau because of its better looking visualizations. Also, since I am technically proficient in using this tool, Power BI feels a bit general.

Task 2:

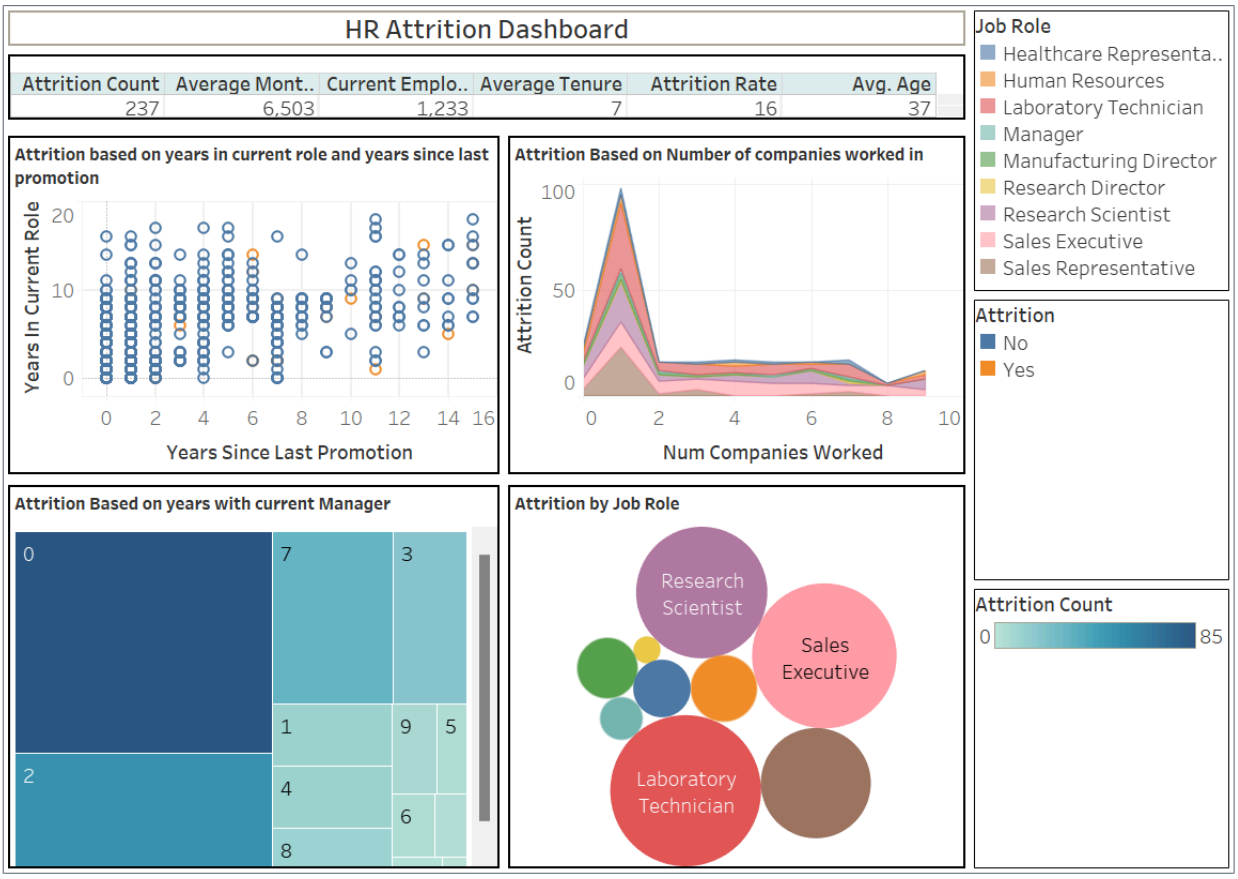
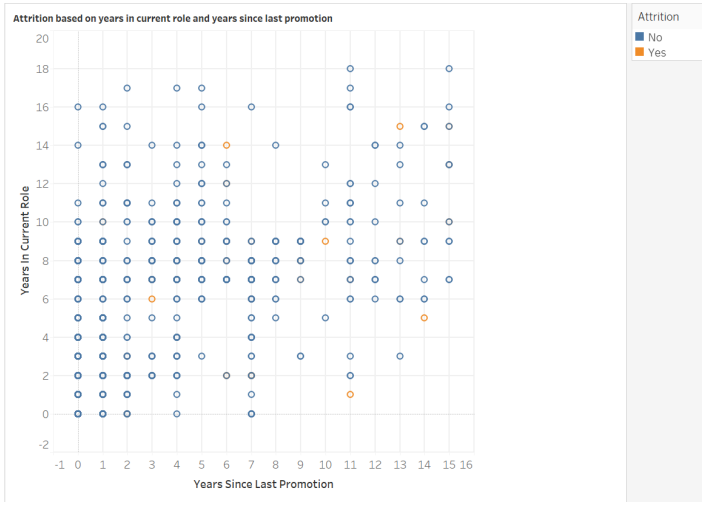
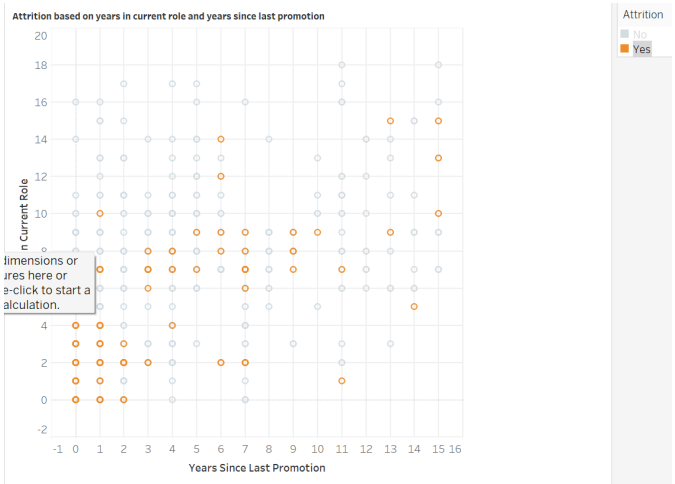


Fig: Dashboard created in Tableau

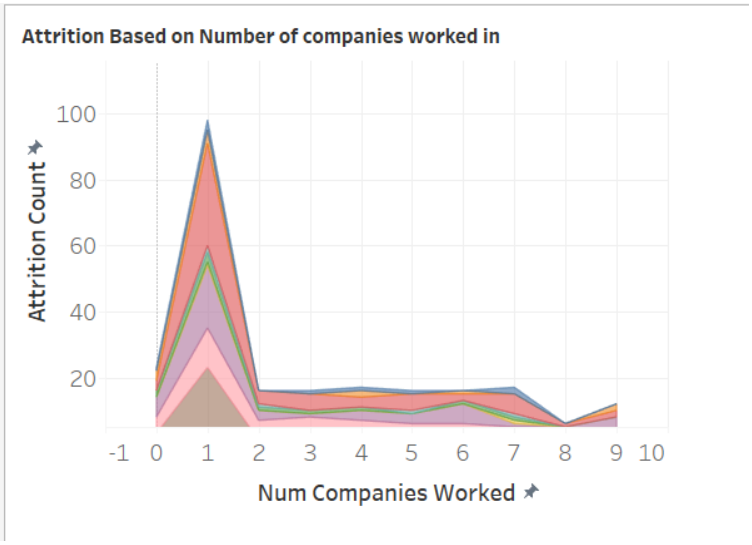
Visualization 1:





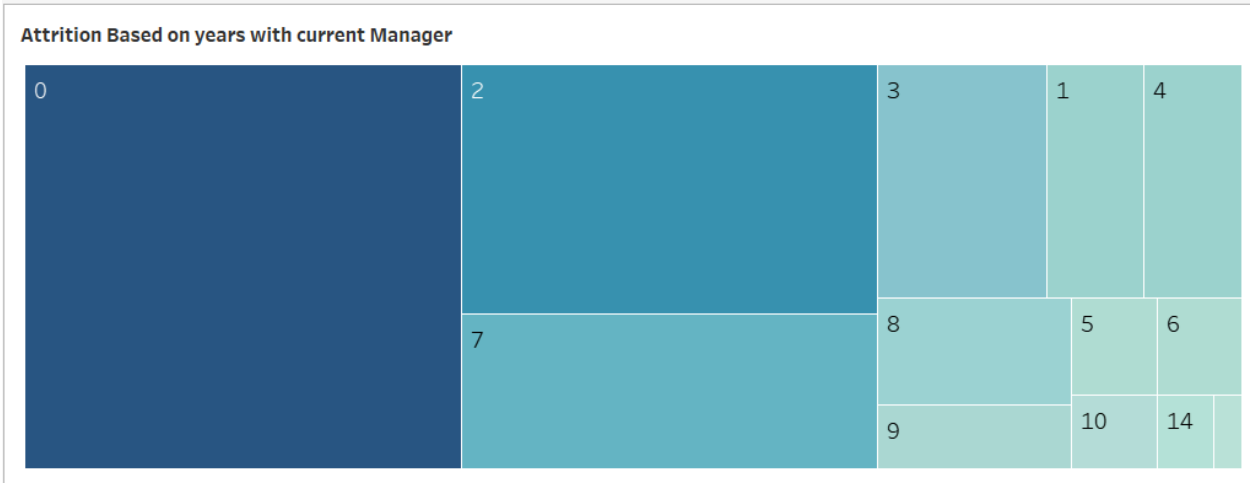
From this visualization we can see a pattern that the employees who have got the promotion recently in year 0 and 1 and who have spent less years in the current roles have more attrition. It makes sense because most of the newer employees after gaining promotion opt for newer job options. Similarly more attrition also occurs where the employee have no promotion for last 3 to 7 years and has already worked for 5 to 8 years.

Visualization 2:



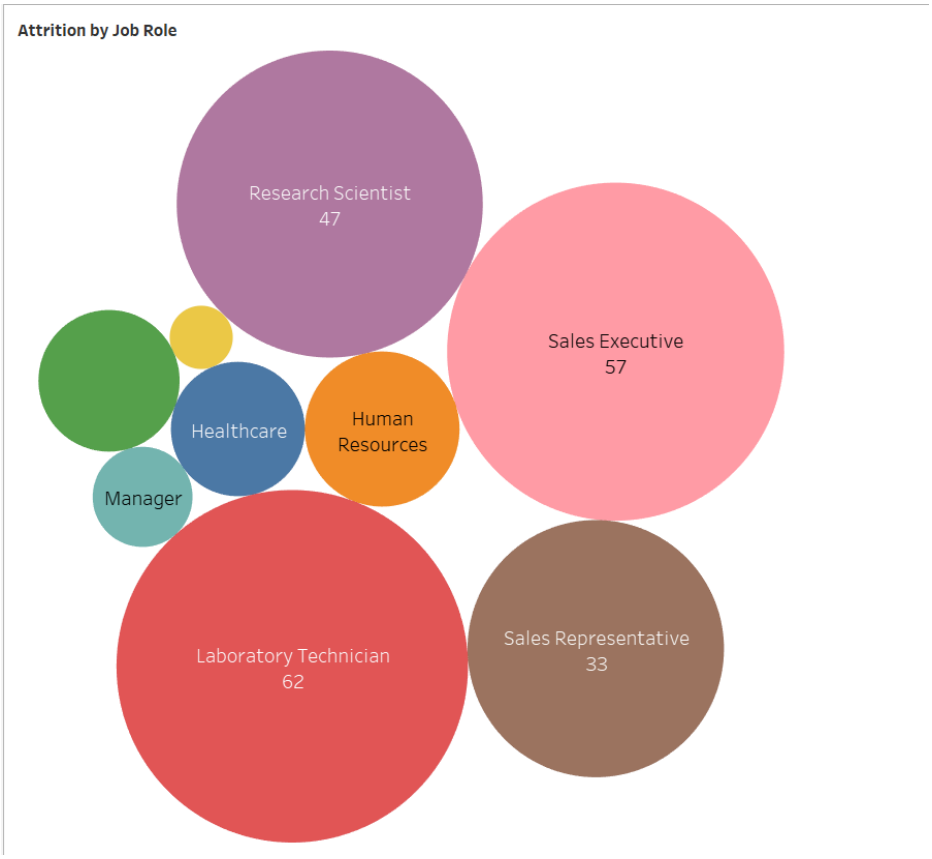
This visualization makes us understand that the job roles for those who have worked for just 1 year have more attrition and it decreases gradually in the upcoming years.

Visualization 3:



The visualization above makes us understand that there is more attrition if the employee has spent less time with the current manager i.e. more employees leave the company in year 0 and subsequently decrease.

Visualization 4:



Based on the above circle visualization, we can conclude that the Laboratory Technicians are leaving more than the other job roles.

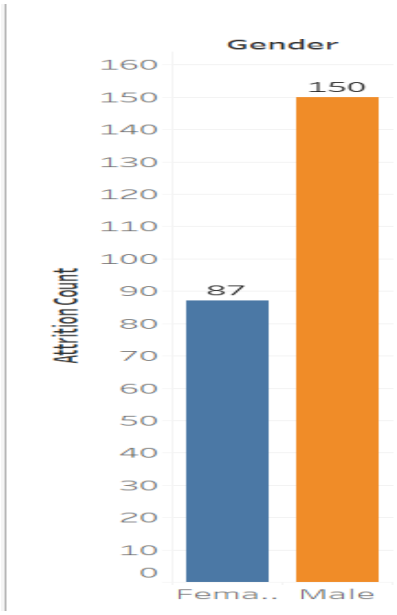
Visualization 5:

Attrition Count	237
Average Monthly Income	6,503
Current Employees	1,233
Average Tenure	7
Attrition Rate	16
Avg. Age	37

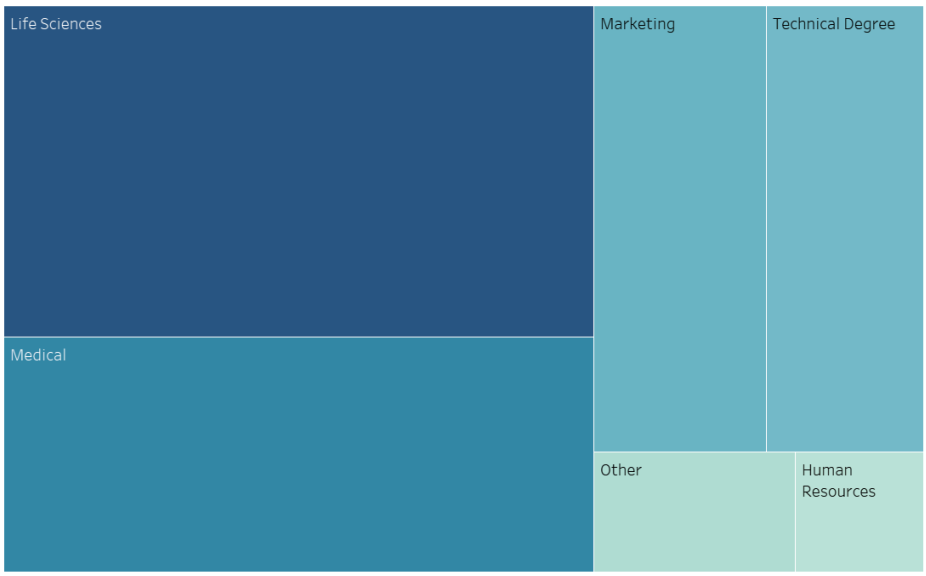
This is the Key Performance Indicators and Calculated fields from the dataset used in the dashboard. This gives the key idea about the current scenario of the company and how it is doing in numerical format.

Other visualizations that didn't make it to dashboard:

Attrition by Gender:

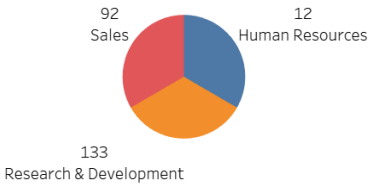


Attrition by Education Field:



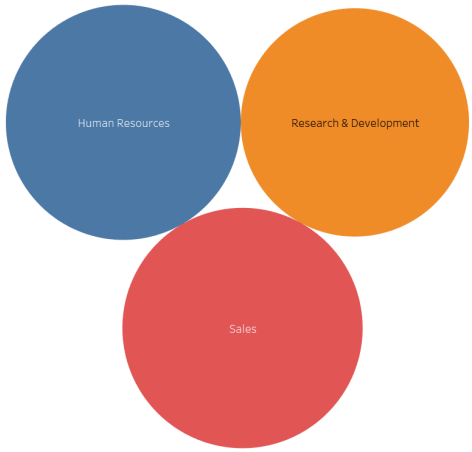
This shows more attrition has occurred in LifeSciences and least in Human Resources.

Attrition by Department:



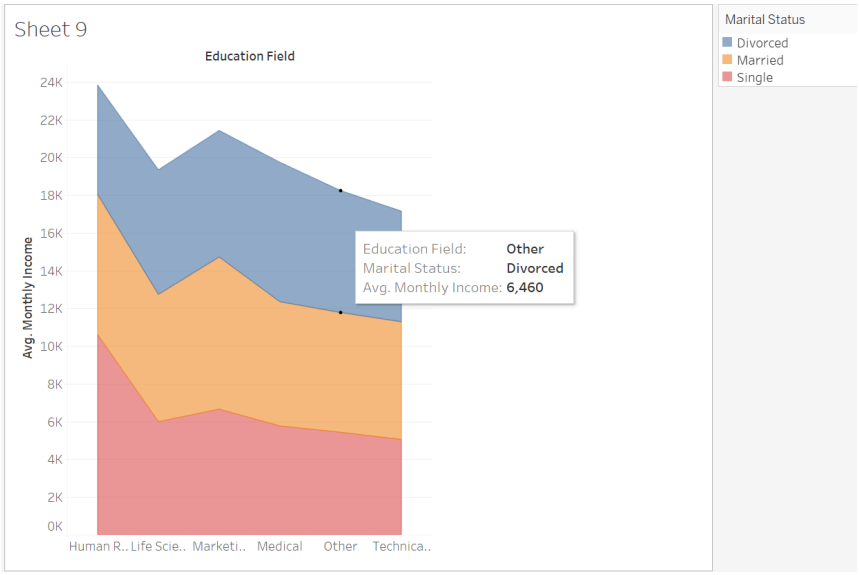
There is more attrition in Research and Development and less in Human Resources.

Income Distribution in Departments:



The average monthly income in all the departments are almost similar looking at the visualization.

Average monthly income with respect to marital status and education field.



Hence the visualization using Tableau helps in making better decisions by gaining knowledge about the trends and patterns.