PROJECT 1 - DATA VISUALIZATION

ISDS 556 - DATA WAREHOUSING AND BUSINESS INTELLIGENCE

Team 1 - Members -
- **Abhinay Sariswal**
- **Aditi Adhik Patil**
- **Aishwarya Sunil Chavan**
- **Amit Mane**
- **Ankita Jaiswal**

DATA VISUALIZATION: FORTUNE 1000 COMPANIES (2018)

Fortune 1000 is a list compiled by Fortune magazine. The list consists of American based public and closely held companies that are ranked and measured by gross revenue. This list can be used as a research tool for investors who are looking to add names to their portfolio. The companies listed on the list represent health, stability and many pay a dividend.

The data set is collected from Kaggle.com and consists of 1000 rows with 18 attributes. The attributes showcases company names, their previous year's rank, revenue, profit, changes in revenue and profit, asset value, market value, number of employees, CEO information, industries and location. The companies are displayed as per their ranks and each row describes information for that particular company.

In order to perform analysis on the companies, we have looked at various factors such as Revenue, Profit, Market value, and Industry sector. These factors are important for the benefit of investors to make decisions for investing into companies. Hence, we have generated graphs showcasing companies with highest revenue, market value, profit making business sectors and location based revenue visualization.

Graph 1 - Top 10 Companies with Highest Revenue
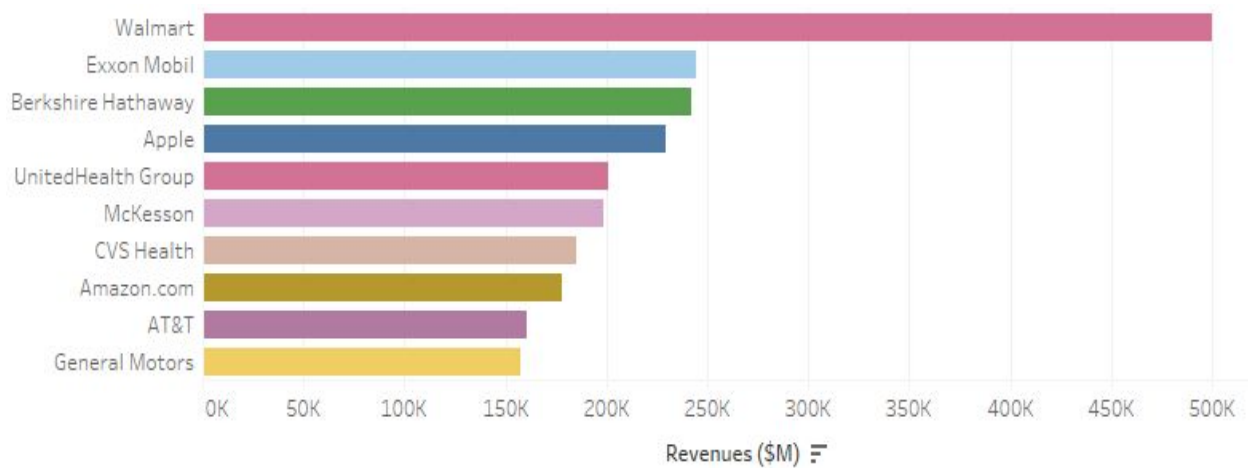
Considering **Revenue** as our **KPI**, for the first visualization we decided to find out the top 10 companies with **Highest Revenue** for the year 2018. According to our analysis Walmart, which is an American multinational retail corporation, has generated the highest revenue in the previous year which defeats its competitors by a huge margin. This is because Walmart is the biggest retailer in the US and offers competitive strategy by offering low cost products. The companies which follow Walmart are Multinational Oil and Gas corporation ExxonMobile, American

multinational conglomerate holding company Berkshire Hathaway and technology company Apple. All the companies in the top 10 list are related to different sectors like Technology, Retail, Healthcare and Finance are the ace performers in their sectors. In the next graph we will compare the revenues of these top revenue generating companies with the companies having Highest market value.

Graph 2 - Top 20 Companies with Highest Market Value
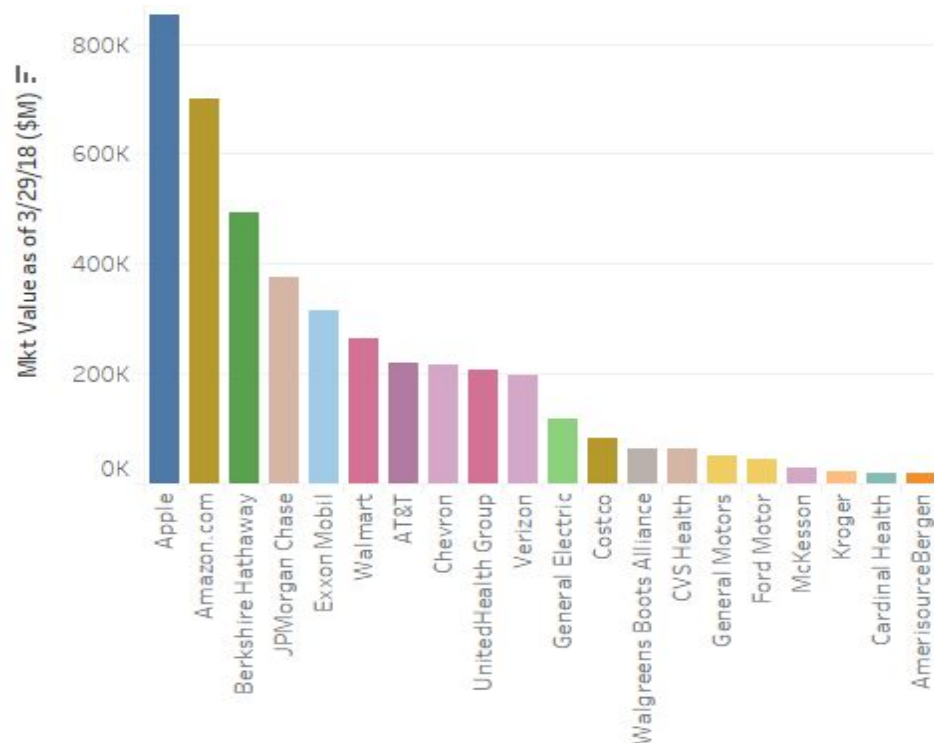
Considering **Market Value as KPI** in this graph, we have the Top 20 companies with Highest Market Value. Market value figues helps to evaluate the economic status of companies and can play a role in identifying stocks that may be overvalued, undervalued, or priced fairly. Apple leads the race by a significant difference followed by Amazon which is an online marketplace. Walmart which is the highest revenue generating company is dwarfed by other companies like Berkshire Hathaway, JPMorgan Chase and ExxonMobil when we compared with the market value of these companies. According to our analysis, we can conclude that generating the highest revenue does not help the company to increase its market value. The profits made by any company have more impact on that company's market value than revenue.

In the next graph we will visualize the highest profit generating business sectors and compare these sectors with highest profit generating companies. We will try to find the relationship between revenue, market value and profits made by a company and find which of these factors have maximum impact on a company's growth.

**Graph 3 - Top 7 Profit Making Business Sectors**
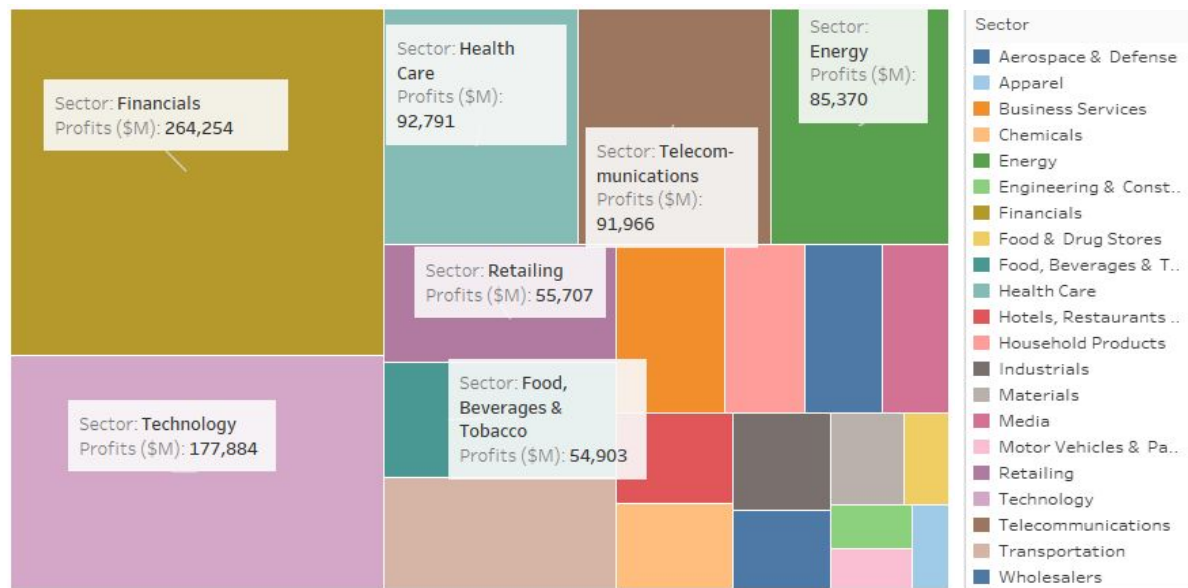
This graph uses **Profit** as **KPI**. Based on our analysis, the above graph shows the top 7 profitable business sectors. Each sectors are ranked by growth in the net profit over past 12 months. Growth and profit goes hand in hand and are important for any company to survive and remain in business. Among the seven industries, the most profit generating industry in the past year is the financial sector. As seen in Graph 1, the top revenue generating sector is retail, but the financial sector is the most profitable industry.

It is because even though retail companies like Walmart and Costco generate a high revenue, the return on investment on this industry is less than the financial companies like JP Morgan Chase and Wells Fargo. The extraordinary growth in the US GDP per capita and even-greater accumulation of capital results in higher profits for finance sector. Also, as seen from the graph below, we also analyzed profits for the top 2 retail and finance industries. It can clearly be seen that financial companies make more profits than retail industries.

After Financial sector, Technology, Healthcare, Telecommunications, Energy, Retail and Food and Beverage form the top profit making business sectors.

Graph 4 - Location based Revenue Visualization
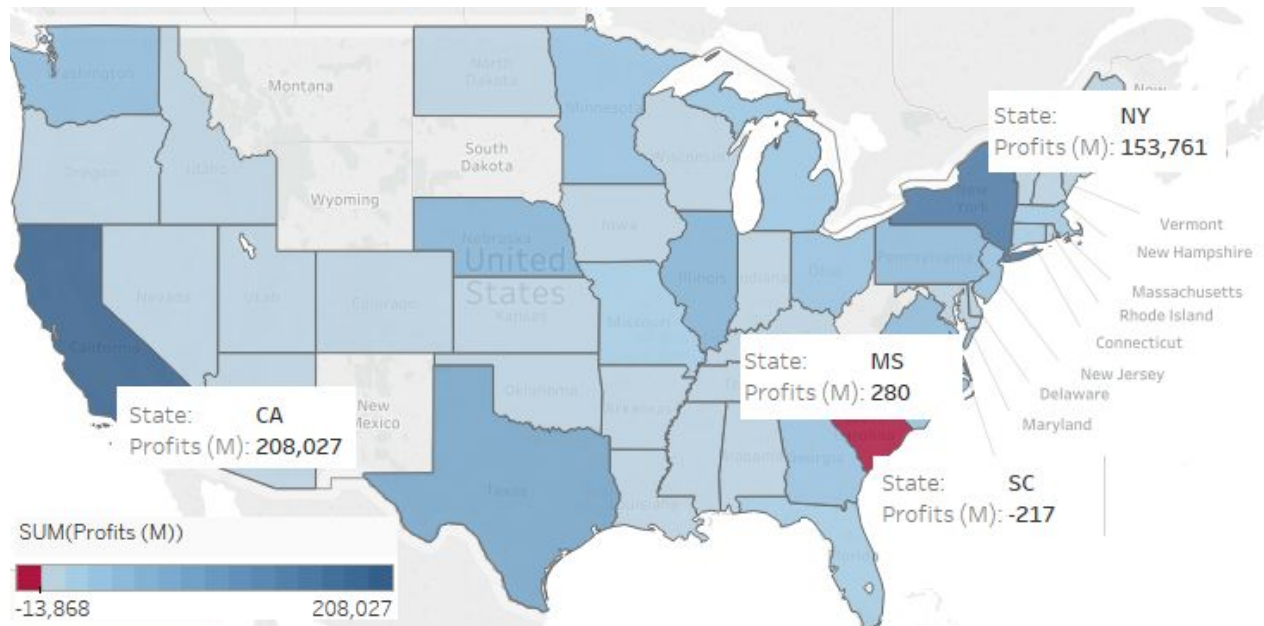
This interactive map represents a heatmap of profits of the company by demographic location across the country. It illustrates the variation of the sum of profits of all the companies across the country highlighted in color ranging from red (negative profit) to blue (positive profit). States that are shaded gray have no Fortune 1000 companies.

The darkest blue color represents the highest profit which is in the state of California, followed by New York and Texas. It is because these states have companies with major profit building sector like finance and technology. Therefore the sum of profit of companies in these states is the highest.

On the other hand, the lowest profit is in the states of South Carolina (SC), which is represented by red color. This is because SC has majority of the companies in the material sector. This sector is one of the least profit generating as the market for this sector is low and the companies in this state have negative profits. The other low profit generating states are Mississippi, Utah. These states have companies in the sectors like Household Products, Food, Beverages & Tobacco which makes a low profit, therefore, the sum of profits of these statements are the lowest.

CONCLUSION

Visualization is a technique that transforms data into visually attractive graphs that can be easily comprehended. Tableau is one such great visualization tool that enables access to huge data sets and convert them into actionable insights which would not be possible otherwise as data in its raw form. The graphs we have generated shows a clear view of the companies and their business sectors which will be helpfulful for investors to strategically plan their investments.

Abhinay: Tableau is a useful and simple tool that we can use for creating interactive visualizations to generate valuable insights. It gives the management an appropriate visual analysis of the critical focus areas. They can analyze the details of the focus areas and implement strategies to improve the business. In Cal State Fullerton admissions and outreach, we can use it for prospective recruitment and admissions tracking process. We can use visualizations and reports to track the conversion rates of the recruitment events and create future recruitment plans.

Aditi: Tableau provides great data visualizations at scale and it is really easy to use. Features like "what if" queries it is possible to adjust data hypothetically and visualize data dynamically according to the needed KPIs. In the extended education department at Cal State Fullerton, we can use tableau to make visualization graphs of agents, students, courses and admission data. These graphs can help college management to visualize the data from different departments and their relations with each other to make future recruitment plans and management decisions.

Aishwarya: While working on business analysis for Ephesoft Inc., an interactive visualization tool such as Tableau can be used on different variables related to the KPI and make decisions. In addition, Ephesoft is a content management company, it has enormous amounts of data. Tableau can allow us to present large amounts of data together and analyze it efficiently. Tableau could help compare the performance of different departments such as sales, services, marketing, and others. The forecasting feature can be used to predict future trend in sales or lead generation.

Amit: Tableau a data visualization tool helps us in understanding the data efficiently and come up with facts, relationships and visualizations between different factors in the data. Tableau is very useful in finding unknown insights, analysis ,and finding facts which can be very useful while dealing with huge data in Titan Shops where analysis and insights are required on a daily basis to predict sales, and manage inventory.

Ankita: Tableau is revolutionizing the way people use data to solve the problems. It makes analyzing data fast and easy. Tableau helps hospitals in the speeding decision-making process, identifying trends in patient care needs, and improving operational performance. In telemedicine and healthcare organization where every second count, Tableau reduce the amount of time it takes to connect to the data and provide data-driven insights that drive better patient outcomes.