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Intro to Data Science
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<u>DATA MANIFESTO</u>

What is data?

Defining what "Data" is usually depends on personal interpretations. There has not been one objective definition for it. On the other hand, Data is not some distant, impersonal concept or meaningless numbers. It's the essence of our human existence, the stories we tell, the knowledge we gather, and all the other types of pieces of information we know. It is like an all-encompassing collection that holds an incredible amount of information. It's not just numbers and statistics; it's a powerful tool containing facts, knowledge, and wisdom. It is a vast pool of everything that makes up our world. Through data, we can unravel the intricate details of our existence, make informed choices, push forward, and make new discoveries.

Whether it's the neatly organized rows and columns in a spreadsheet, the rich narratives found in books, or the well-designed billboard on the side of the road, data touches every aspect of our lives. It's the language we use to communicate, the lens through which we gain insights, and the key that extends opportunities. As our digital world expands, so
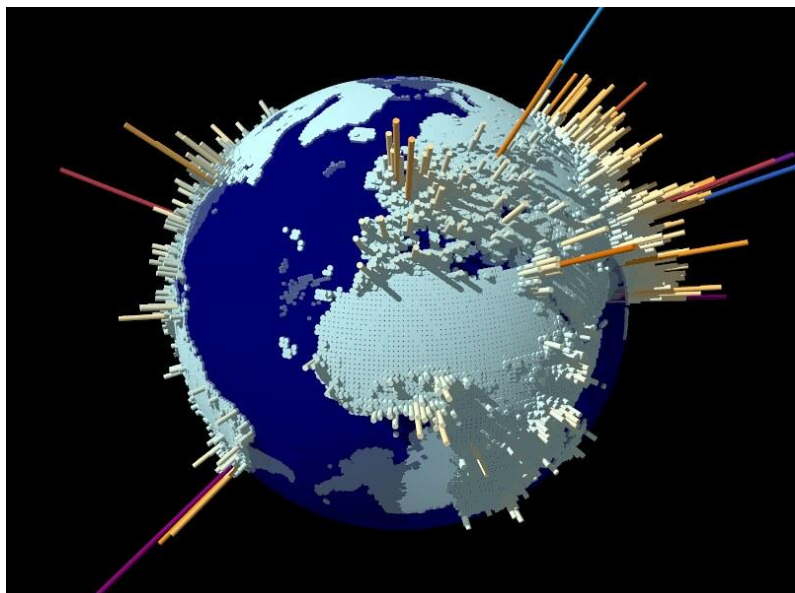
does the wealth and diversity of data. It continuously enriches our collective understanding, empowering us to navigate the complex web of our interconnected world. In its essence, data is the life force that drives innovation, fuels discovery, and guides us toward a brighter future.

In comparison to other terms like information, knowledge, or facts, data stands out as a uniquely expansive and versatile concept. While these terms have singular, well-defined meanings, data defies such narrow boundaries, encompassing a multitude of dimensions and possibilities. Furthermore, data is dynamic and knows how to shift shapes and could come as any of those terms or similar ones. Through all human achievements and progress in life through the history, data has been the backbone for all discoveries and innovations. Although a certain knowledge level is important for comprehending and analyzing data, one does not need it to understand or interact with data. Those who project and present data analytics and expert in that field are known as Data Scientists.

Data Scientist:

For the fact that data is unstructured, complex and dynamic, we can not let it just exist; it presents a challenge that cannot be ignored, and people need to study and understand it. The reason is that (Girardin)

in order to understand data, it needs to be converted into a language average human beings can understand.

individuals who can bridge the gap between its technical complexities and the comprehension of the average human being are known as data scientists. A data scientist has the skills needed to interpret from whichever format into words. They study the patterns, answer questions, perform comparisons, and drive conclusions from data. Data scientists utilize a range of tools and programming languages to analyze and visualize data in a way that is digestible for non-technical individuals.

Visualization:

Visualizations are very important when it comes to data analytics. They are keen because they have a remarkable ability to present complex information in a visually appealing and understandable way. They turn a very intricate dataset into graphs and charts that are easily understandable. Not only that, but they also portray patterns and relationships between datasets or within the same dataset, which helps the analyzer to study the data more.
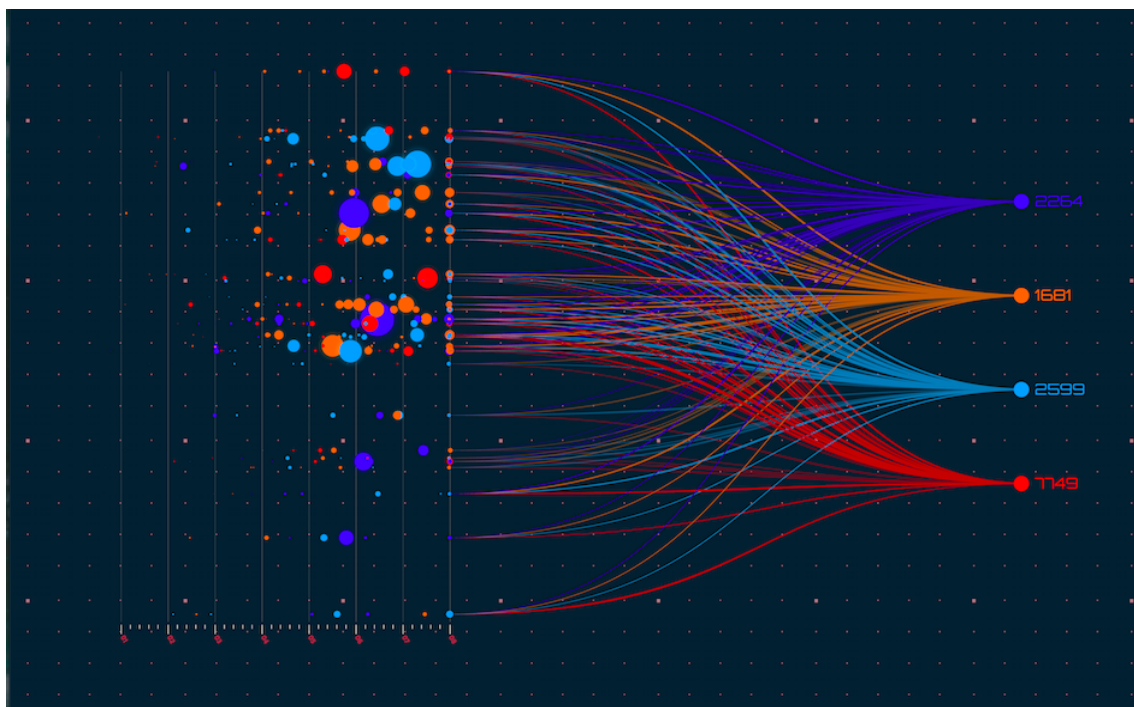
("The Psychology Behind Data Visualization - Treehouse Tech Group")

When designing the visualization of a certain dataset, analysts design it with a deep understanding of their purpose, the intended audience, and the context in which it will be used. Aside from technical skills, data scientists are as well great communicators. They possess the skills to interpret their findings in such as way that the general public can understand, depending on their audience. According to Lupi, "The way we visualize it [data] is crucial because it is the key to translating numbers into concepts we can relate to (Lupi)." Meaning that it's not just random graphs and tables but well-chosen visualizations that communicate what the data is about.

Therefore, to become a data scientist, one need to have both their technical and soft skills polished. Not only should you be able to collect and manage data, but you should also be able to identify potential errors and biases that may affect the accuracy of your findings. Being proficient in tools such as Excel or programming languages such as Python, R Studio, SQL, and others is a must. Additionally, You should also be able to design appropriate visualizations that will help you present your findings effectively. This can be achieved by learning how to use tools such as Tableau, Power BI, Flourish, and other data visualization software or within you respective coding language. It's crucial to be able to communicate your results in a clear and concise manner, so that others can understand the significance of your findings.

Through data analysis and visualization, a multitude of problems can be solved. By possessing the necessary skills, one can delve deep into various fields such as healthcare, finance, marketing, media, and more, utilizing data to provide solutions to specific industry problems or answer crucial inquiries. Predictive analysis and pattern recognition can also be utilized in data analysis to optimize decision-making. In essence, The ability to extract

meaningful insights, uncover hidden patterns, and make informed predictions is invaluable in

today's data-driven world. And through data analytics, you can drive innovation, and make

data-informed decisions that lead to success and advancement in your respective industry.

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