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Exercise

1. What are the three characteristics of Big Data, and what are the main considerations in processing Big Data?
2. Why is Big Data analytics important?
3. Explain the differences between traditional & big data?
4. Give 3 examples of big data application and big data's technology used!
5. Explain the differences between Big Data and Machine Learning?

Answer

1. There are 3 characteristics of big data, that is:
    a. Volume
    b. Variety
    c. Velocity

    And the main consideration for processing big data is the characteristics it self, let me explain:

    a. The Volume of Data Being Processed
    Perhaps the most important consideration for you will be the volume of data you're actually processing. Over the past few years, the sheer volume of data being processed has exploded. The number of data produced was expected to reach 35 zettabytes by 2020, and it will only continue to grow over time.

    Twitter alone generates over 7 terabytes of data daily - that number is about 1o terabytes for Facebook. Some companies even generate terabytes of data every hour of every day. This is why they have clusters of data just stored by the terabyte somewhere.

    Today, we store everything. We're all drowning in data - financial data, environmental data, behavioral data, etc. As long as you can think about it, there's probably some data that relates o it somewhere. Everything you do can be logged as an event, especially if that action is taken online. Every action generates data, and it can be stored.

    Even when you consider your devices, you'd see that data explosion will continue. Years back, phones with 32 GB of storage were sufficient to handle processes for years without stress. Now, manufacturers have all but dumped the 32 GB standard and are now pushing for higher base storage capacities.

b. The Variety of Data

With the volume of Big Data comes another problem - even for the best of data management services. - the variety of data itself.

Today's technological world is populated by smart devices and social collaboration. This means that processing enterprise data is even more complicated as it includes raw, semi-structured, and unstructured data. These are the ones gotten from web log files, web pages, emails, social media forums, and other online platforms.

Essentially, variety deals with all types of data. There is a paradigm shift that is going on today, and it involves moving from traditional, structured data to raw, unstructured data as part of the decision-making process of companies.

c. The Velocity of Data

In the same way that the volume and variety of Bid Data have changed, you also need to deal with the increasing velocity of data itself.

Essentially, velocity considers how quickly data is arriving and being stored - as well as the rate of retrieval for the data. Interestingly, the volume of data can sometimes be a consequence of the velocity at which it arrives.

To accommodate data velocity, you need to have a new way of thinking about the problem. Instead of condoning the idea of velocity to simply the growth of data repositories, you can think of it as data in motion - essentially, the speed of data movement.

2. Because of increase massively data everyday, most organizations have big data and need to implement method to analyse big data to extract values from it. Big Data analytics helps organizations to get new opportunities ang gain value in many ways.
3. Traditional approach begins with hypothesis and test against selected data but Big Data approach explores all data and identify correlations.
4. There are several ways to use big data to help lighten human work, for example:
    a. Big Data in Taxes

    Please note that the use of big data can be used to increase state tax revenues. This happens because the big data system can work to retrieve data from the type of family tree, wealth owned, what goods are owned, as well as public bank accounts.
    Big data can also list the types of taxes that have been or have not been paid by individuals by displaying them as one. So that checking whether the taxpayer has paid or not has become easier. Given that currently the awareness of taxpayers is still lacking in domestic people, so that tax revenues are still not appropriate.

    b. Big Data in Banking

    Examples of the application of big data can also be seen in the banking sector. Financial institutions in this case will collect and access analytical insights, on large volumes of unstructured data for sound decision making. Because big data analysis allows financial institutions to access the information they need, by eliminating overlapping systems.

c. Retail

Smart shoppers are demanding retailers to be smarter in understanding exactly what they need. This means that customer service has evolved in recent years. With this big data analytics, it will be helpful for retailers to understand each of these needs.
Armed with resource data from customer loyalty programs as well as buying habits and other sources, these retailers will gain an in-depth understanding of customer needs. Not only that, this example of applying big data allows them to predict trends to recommend new products.

5. Big data refers to vast amounts of data that traditional storage methods cannot handle. Machine learning is the ability of computer systems to learn to make predictions from observations and data. Machine learning can use the information provided by the study of big data to generate valuable business insights.