The impact of data analytics in cyber security

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***Abstract*— In the current world the technology has been upgraded in such where almost in every activity being done by the human, they would have a small piece of tech in it. The data analytics has the ability to analyze huge amount of data in matter of minutes. Having data analysis in the cybersecurity world is not something new, most of the tools and applications are making use of these analytics techniques and they would bring some sort of impact that could either be positive or negative.**

***KEYWORDS*— Cyber security, data analytics, impacts.**

I. INTRODUCTION

Nowadays, the term Data Analytics has been more frequently being used. The world has moved from one discovery of technology to another high-tech discovery of technology. Data analysis is basically a process or procedure being done on examining data sets [1]. The main purpose of using data analytics is to discover any sort of trends. By discovering the trends, it shall provide the users to develop a conclusion about the information. This is so useful that it shall bring efficient productivity for the users as they would do ton of jobs. The users would just input the data into the system and the rest would be done by calling the commands.

Back then, users would need to go through the data one by one and this would take plenty of time in order for them to discover trend in the data set. This is something that would waste a lot of time but as with the data analytics things has gotten much easier. These data analytics is much differed than the traditional method of analyzing data. This is because, behind the data analysis there are plenty of technology being working. For instance, python is a medium that could be used for data analysis. With the help of python, the data analysis has become much easier as they just need the raw data and proper command, and the trend is discovered. Fig 1. shows the usage of data analytics in industries. It can be safe to say that the data analytics has merge into many kinds of industries.

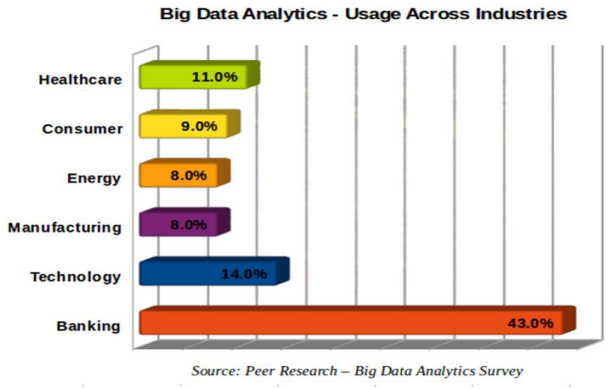

Fig. 1. The usage of data analytics in industries. Source: edureka.co

Cyber Security is a sector that is being developed as they are more useful for the current technology development. Basically, cyber security is a practice that is done in order to protect and defend the computer systems which includes the server, networks and many more [2]. The cyber security is a sector that allow the user to fight against electronic devices being hacked or attack by the attackers. Under Cyber security there are number of securities being done. The Data analysis has brought positively and negatively impacts on many sectors of job. Data Analysis are more useful in the Cyber Security.

The Data Analysis has brought positive and also negative impact on the Cyber Security. These impacts could say has made the cyber security to have add on advantages and lack on disadvantages. In this paper, the impact of data analysis in Cyber Security will be discussed with the support of past journals. This would be useful as they would bring a deep understanding for the readers on knowing why they should appreciate and implement the Data Analysis not only in Cyber Security but also in various job sector as they do come with impact.

II. IMPACTS

Looking in the impacts they usually do not come in negativity, but they do bring positive impact. The Data Analysis has brought positive and negative impact on Cyber Security. Under this section, there will be two breakdowns whereby the first one would be discussing about the positive impact and the second part would be negative impact.

A) Positive Impacts

According to Peter Oluseyi Obitade, with the help of data analysis the cyber security would be able to analyze huge amount of cybersecurity data's [3]. This is one of the positive impacts as the data analysis would be able to analyze tons of cyber security data. This would be a positive impact that is brought by the data analysis to cyber security. This is more useful as the cyber securities would not need to work on huge data.

As it can be said, in cyber security the amount of data would be viewed would waste their time. The reason the cybersecurity data is huge as every minute there is always and attack taking place. As every single attack taken place the amount of data that is being captured would be more than expected. This is why the amount of data would be more.

Fig 2. refers to a typical usage of data analytics in network analyzing. It can be seen that the data analysis has analyzed the network so well that the users does not need to waste time in reviewing the raw data.

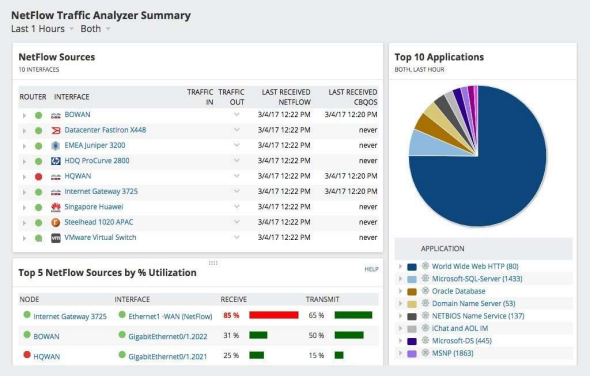

Fig. 2. The data analytics in network analyzer. Source: dnsstuff.com

The data analysis would need the python as the cyber securities will just need to input the tons of data in the python and then they would need to commend on what they are looking for. For instance, the cyber security input the emails that is received by the clients in the python and they would want to see the graphs and probability on normal email and spam email. The cyber securities will need to command the python to analyze the data and provide the graphs and the probability. This is so useful as they would be able to provide the outcome faster and the amount of data could be huge also.

In a research, it has been said that there the data analysis is useful on detecting any sort of threat [4]. The main purpose of having cyber security is to detect threats and take quick action in order to prevent any damages to information's. The data analytics would be more useful to the cyber security as they would be able to detect threats in advanced. This would make the cyber security to take actions in advance before an activity is done. For instance, network trafficking there is always attack being done on the network and this has brought a hard time for the cyber securities to react to the threat. The cyber securities would only be able to react to the threat when the attack taking place. This will consume some time as the cyber securities will need to conduct a report and then react to attack. This time consuming would bring more damages. But with the data analytics, this could be eliminated. The data analytics would begin to learn on the networks, and they would indicate if there is any sort of attack being taken place.

The data analysis will learn all the movement and begin to monitor the network and it shall indicate the if there is any unusual movement or suspicious activity. With this indication the cyber securities will be able to react in advance before the attack taking place. The could either begin investigation before the any attack being done.

Prediction is something that most needed in the cybersecurity [5]. This is because, they would be able to make prediction what shall happen if an activity is conducted. With this data analysis, they would be able to generate a model that could do a prediction. This would alert them on the prediction the data analysis being done. The prediction model would bring things easier as the cyber securities could conduct their work in advance, and they could also plan things out well. As we can say, the data analysis is able to analyze a huge amount of data this would be useful in the prediction model.

The positive impact of having the data analysis is the variety of what the data analysis could do. The data analysis has the ability to work on semi structured data such as social media [6]. This is more useful as nowadays attacks could be done from various way. The attackers are using the social media a medium to conduct the attack. Speaking of social media there is a lot of example such as, email, web pages and many more. The cyber security will need to be able to spread their wigs into all area in order to allow them to protect the network from all perspective area that is possible to have attacks. Fig. 3 displays the usage of data analytics on unstructured data. This shows the cyber security would be able to take care on unstructured data.

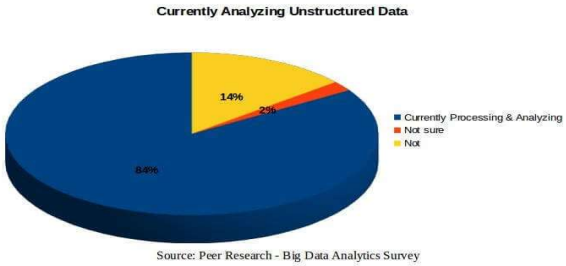

Fig. 3. The usage of data analytics on unstructured data. Source: edureka.co

B) Negative Impacts

Security is a main issue in having data analytics. In a journal, it has been stated that there should be additional requirements for security related [7]. Having the data analytics in the cyber security would bring issues to the security as the data analysis itself does not have proper security. Cyber security is something that plays a role in having a solid security but having data analysis without proper security it shall put data's on risk. This shall result on risking the information of users.

The data analysis will need to have a proper security in order to prevent any sort of information leakage. For instance, when the data from cyber security is being entered the python they will need run the command and the rest will be done but, in this process, there is no proper security. When there is an intruder in the process of data analysis then information may get out of hand and it may not be suitable for cyber security. Speaking in cyber security, security will need to be strong and they will need to protect that information from being exposed.

Having the data analytics sometimes bring a huge problem that is running the cyber security as a service. Sometimes having something new in the service it shall require additional act. It has been stated by Aarushi Arya that, the departments shall not trust the data that has been projected [8]. This could be due to trust issues. The cyber securities always do not trust out things easily as they tend to work things out till they get their own data. Having the data analysis to gather data for the cyber securities is something that they would not rather trust. Although they do come with hands on, but cyber securities do not want to trust them. The cyber securities would rather gather and analyze the data by themselves but not through a program. This is an impact that could take place in cyber security as they would waste more time as the cyber securities would analyze the data again just to double confirm it as they would not trust the result that is analyzed by the data analyzer.

Data analytics has been developed to complete a huge amount of task but having them in the cyber security does not complete all the requirements [9]. The data analytics has been able to fulfill many tasks, but they are not ready to be more

dependent on the data analytics. The cyber securities would rather implement a program that could be fully dependent. The data analytics does not come with a zero-day attacks as they are not being programmed to conduct that. This is an impact on the cyber security as they are not fully working with the process or the aim of cyber security. This would be something that is installed completely.

The data analysis will need to have the zero-day detection as this plays a vital role as when something new is implements in a network or devices or anything there will always a zero-day whereby the attackers would attack when the application is up and running. The data analysis will need to be able to detect all sort of zero-day attack in order to prevent it on taking place but cyber security having data analytics in them would not be able to conduct this analysis and this would be an impact on cyber security as they would be a double work.

III. CONCLUSION

The data analysis has been more useful on analyzing information. The data analysis has brought positive and negative impact to the cyber security as the impact usually plays vital role in them. Having the data analysis is more helpful as they could analyze millions of data. There are a couple of amendments needed to be done as the data analysis is not a 100% compatible program for cyber security. They need to add on certain function that would be able to accomplish the purpose of the cyber security.

On the other hand, the data analysis is also being helpful to the cyber security. It can be said, not everything that is introduced is a 100% satisfied and compatible program. They do come with a number of drops. The positive impact for the cyber security is that they cyber securities would be able to analyze millions of data in a few minutes, run predictive model and they would also be ready to protect semi structured data such as social media.

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