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# Task 1 – Analyse the Problem Faced by the Company

## Unauthorized vouchers

There were a lot of unauthorized vouchers selling on the online platforms, like Shopee etc and Domino’s Pizza Malaysia could not manage to find the source of this illegal selling operation. Moreover, from the case study given, those customers who are using the unauthorized vouchers when making a purchase in Domino’s Pizza platform had been interrogated by police which will affect the image of Domino’s Pizza as some of them do not even know the vouchers they were using are not legitimate. Besides that, Domino’s should disable the unauthorized codes on their system and make report against the seller of the vouchers instead of the users of the vouchers.

## Flaws in Domino’s online ordering system

The fact that Domino’s detected the irregularities on the order amounts due to the unauthorised vouchers but their online ordering system still accepting the orders from the customers. Besides that, it is possible that their system has been exploited long before the irregularities occur. In a result of the exploitation, the unsuspecting customers who were not aware of the glitches might end up paying more for their orders through odd combinations made during their order process, while other customers who noticed the flaws would have been able to easily exploit the glitch to gain a huge discount on their order.

## Huge loss in profit gain for their sales

Domino’s will be facing a very huge loss in their profit gain for their sales because they got less amount of payment compare to the expected amount when their customers utilise the glitches in their online ordering system during the ordering processes. Not only that, Domino’s needs to pay extra money for the searching process of sources of the unauthorised vouchers.

## Failure in data analysis

Although the unauthorised vouchers problem was found by Domino’s due to the high alert for unusual pattern of purchases in their online ordering system, but it was already in a late phase when the problem was found and it could be realised earlier if the customers’ purchases data can be managed and analysed properly.

# Task 2 – Discussion

As we know, data science is a multi-disciplinary field that involves principle, processes, and techniques for understanding phenomena through the analysis of data. Data science can fit in the organization by applying the data analytics lifecycle into the Domino’s business model, which means it allows the data analyst to build the model by developing datasets for training, testing, and production purpose as well as comparing the outcomes of the modelling to the criteria established for success and failure. This can solve the problem of the flaws or ‘glitches that exist in the any system of the organization as the data analyst would have found out the difference between the expected output and the actual output of the model if there is any flaw.

There are many techniques from data science that can be used to address the problems faced by Domino’s. Clustering is a good technique to be used here as it can group the customers who ordered on Domino’s online ordering system based on their location and then deduce the scope of areas where the source of the unauthorised vouchers might be located at from the clustering results. In order to prevent the exploitation of glitches, the online ordering system of Domino’s should be implemented with machine learning ability that is able to learn the selection patterns of the customers when they are making orders and differentiate the patterns between the normal customers and the customers who are trying to exploit the glitches in the system. Data science can help Domino’s to build the model with datasets prepared for the implementation of machine learning. The machine learning should be a supervised learning because the patterns of customers’ selection are limited in a certain number so it can be inserted as datasets to train the system and the machine learning technique that can be used for learning the selection patterns is classification and the classification rules can be derived by a decision tree.

Moreover, data science includes some techniques like outlier detection and treatment. An outlier is an observation that lies an abnormal distance from other values in a random sample from a population. Outlier detection is the method to detect those abnormal observations whereas outlier treatment is the method that solves the outlier problem. This can ensure that every abnormal pattern on the purchases from the Domino’s online ordering system be detected and treated properly.

The loss in profit gain faced by Domino’s can be solve by the implementation of data science into the organization as well. Every organizations need to do some prediction on their business in the future in order to know if the business model they are using now is good or if a new product is worth selling. Regression technique is where a prediction for each individual component in the model is made in numerical form. With regression technique, Domino’s can understand the supply and demand of their products and maximize their profit gain from there. Not only that, data science can be applied into Domino’s organization to target their customer base when advertising their products in order to generate more revenue. For example, clustering technique can be used to determine the major groups of customers that like Domino’s products and Domino’s can target them as the main customer sources. This can improve the efficiency and reduce the cost of advertising as the minor groups will be advertised less and the majority will be advertised more. According to the research, only 2% of web traffic converts on the first visit (Anon., 2015). Thus, a retargeting can also be done by Domino’s in order to bring back the potential customers who did not checkout in their first visit of the online ordering system of Domino’s and convince them to purchase the products to increase the profit gain.

In a nutshell, there are many ways for data science to be fitted in the organization based on the needs of that particular organization and it is a good thing to apply data science in every organization as it brings a lot of benefits.

# References

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