CASE STUDY-4

Digital marketing (or digital advertisement) is an essential part of any marketing strategy. Digital marketing allows firms to meet potential customers when they are online. Recently, digital marketing has been quite popular for many online retailers as it is affordable and trackable.

Amazon.com is one of the biggest online retailers that rely on digital marketing. The company spends a substantial part of its advertisement budget on Social Media platforms to increase the online traffic for its own website. Facebook.com gets the highest share on Amazon's advertisement budget. Depending on the Amazon's customer profile request, Facebook systematically displays Amazon advertisements on certain Facebook users' accounts. The intention is to expose those users to Amazon.com advertisement and eventually direct them to Amazon.com. Amazon's annual advertisement spending for Facebook is $100M.

The company works closely with Facebook. When a customer purchases a product from Amazon.com, the company knows whether that customer first clicks the Amazon.com advertisement on Facebook and then visits Amazon.com, or directly visits Amazon.com without the Facebook interaction.

While the cost side of the digital marketing is known to Amazon, the benefits are not quite clear. Facebook representatives claim that Amazon should make an additional $400M per year through Facebook adds, and therefore, the annual advertisement cost of $100M (i.e. 25% of the benefits) for Amazon must be quite reasonable. However, this is an unsubstantiated claim. The Chief of Marketing Officer (CFO) wants to quantify the true benefits and if the advertisement cost is more than 25% of its benefits, the CFO will negotiate with Facebook to reduce the advertisement cost. Since you are the Business Analyst for Amazon.com, the CFO asked you to quantify the benefit of digital marketing at Facebook.com using historical transaction data.

Of all Amazon customers, roughly, 15M are Facebook users and around 5M of them are visiting Amazon.com by clicking the Amazon add displayed on Facebook. The average annual spending of an Amazon customer who directly visits Amazon.com without the Facebook interaction is $500.

As the Business Analyst, you are asked to conduct an analysis on historical transaction data from 3,677 customers. The data include information about the total annual transactions of customers who live in Northern California. To obtain a clean estimate, the IT department collected data on two types of customers: (1) customers who always purchase after clicking the Facebook adds, and (2) customers who always purchase without clicking the Facebook adds. Out of 3,677 customers, 1,255 customers always made purchases after clicking the Facebook add and the rest always made purchases without clicking the Facebook add. In addition, the IT also obtained some variables from Facebook.com to capture customer's Facebook activities.

An ideal analysis would include the summary of the data (with some visuals of important variables) used for the analysis, the results of the analysis, the interpretation of the results, and the implication for the digital marketing strategy. Limitations of the analysis and certain suggestions (e.g. variables that would be useful to increase the quality and reliability of the analysis) should also be communicated in the proposal to make a conservative conclusion. It is important to be ready for potential questions to increase confidence in your analysis. The variables in the dataset include the following:

$Purchase_i$ indicates the number of purchases made by customer i

$FacebookVisit_i =$ equals to 1 if a customer's all purchases are after a Facebook visit and 0 if a customer's all purchases are without visiting Facebook.

$Income_i =$ indicates the level of income level of customer i (treat this as a continuous variable)

$Gender_i = 1$ if customer i is female and 0 otherwise

$CustAge_i =$ Age of customer i

$Distance_i =$ The distance of customer i's home address to the closest downtown.

$NumofFriends_i =$ The number of friends customer i has on Facebook.

$NumofPosts_i =$ The number of posts customer i created on his/her Facebook account for the entire year.

$PublicProfile_i = 1$ if customer i's Facebook account is Public and 0 if Private