THE INFLUENCE OF COVID-19 ON E-COMMERCE TOWARDS ONLINE SHOPPING

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ABSTRACT

The COVID-19 emergency is resuscitating a growth of online business towards new firms, clients and sorts of things, likely including a drawn out move of web business exchanges from luxuriousness item and endeavors to standard necessities. It in addition incorporates how strategy producers can use the limit of front line change in retail and related regions to help business assortment and to update social secluding, while at the same time guaranteeing that nobody is abandoned. Retail and food association's deals among February and April 2020 were down 7.7% stood apart from a near period in 2019. In any case, deals stretched out for business areas and non-store retailers (all things considered online business providers) by 16% and 14.8% freely. Subsequent to running the model the exhibition demonstrate that the precision of the CHAID model is 89.09% and Classification Error is 10.91% this is the best Operator for anticipating Types of Goods that purchasers will purchases as contrasted and Decision Tree and Random Tree as showing in Table 8 and showed in Figure 11. The results of this contextual analysis plainly demonstrate that CHAID is appropriate porter for identifying Types of Goods that customer demeanor for taking choice for buying or Not. One preliminary for predicting buyer lead for E-exchange online through 1000000 models and 8 apparent credits. The expert parceled the data to rule regions at first is getting ready data equal 90% and second is attempting data equal 10% In the wake of running the CHAID pattern, the CHAID made as appeared in Figure 4 by Rapid miner Tool for Invoice Types for items is the most Attributes in all Attributes. Execution vector CHAID Operator for Types of Goods quality showed in Figure 6. Precision CHAID Model showed in Figure 4 Classification mistake CHAID Model showed in Figure 5. Disarray Matrix CHAID Model showed in Figure 6. X Plot CHAID Model showed in Table 4. Accuracy Decision Tree Model showed in Table 5. Characterization mistake Decision Tree Model showed in Figure 9. Disarray Matrix Decision Tree Model showed in Figure 8. X Plot Decision Tree Model showed in Figure 8. Accuracy Ranom Tree Model showed in Table 7. Order blunder Ranom Tree Model showed in Figure 9. Disarray Matrix Ranom Tree Model showed in Figure 9. X Plot Ranom Tree Model showed in Figure 10.

Keywords: Five Covid-19, CHAID Model, Decision Tree Model, Data Mining, E- Commerce

1. INTRODUCTION

Effect of the COVID-19 crisis on online business isn't uniform across thing classes or sellers. In EGYPT, for example, a flood pursued was seen for things related to specific security (for instance pointless gloves), home activities, item or ICT gear, while demand dropped for things related to progress, sports or formal attire (for instance packs, wedding garments, duffel sacks, etc.). Shifts towards online business have been found in a few countries, explicitly along the food stock affiliation, including farmers who started using mechanized movements to sell their produce direct to customers or bistros that changed to giving food or staple vehicle affiliations [3]. In EGYPT, online plans grew fundamentally for medications and staple item, for the most part hang zones the degree that

electronic business, while all things considered online strategies contracted by around 18 percent in March 2020 inquisitively with the prior year . In Korea, where authority experiences are open, the online business trade regard rose by 15.8% between July 2019 and July 2020. Basic increments were seen for food affiliations (66.3%), nuclear family stock (48%) and food and prizes (46.7%), in any case online trades including society and extricating up affiliations or plan and transportation affiliations declined undoubtedly, by 67.8% and 51.6% unreservedly [1].

In China, food things were the absolute most vital champ in web business, with an expansion in gathered plans from January to April 2020 of 36%, comparative with the earlier year. On the other hand, preeminent online courses of action over January to April 2020 remained basically steady wandered from a near period in 2019 (+1.7%), following to having gotten far and away more than 2018-19 (17.8%). Amassed courses of action of dress things shrunk by 16% showed up contrastingly corresponding to 2019, after fundamental improvement from 2018-19 (23.7%). While segments apparently contrast across nations, this information endorse that paying little notice to the progress to electronic business, a tremendous portion of online business venders are opposing near financial repercussions as standard genuine retailers, following diminished spending by people on things thought about trivial. A representation of 200 000 outsider Amazon dealers in the Unites States suggests that by April 2020 around 36% of specialists were dormant, an improvement from around 28% in February.4 Particularly affected were merchants with under 1500 thing postings (ASINs), while venders with more than 3 000 postings saw positive climbs. This features how the COVID-19 emergency may have consolidated a move standard from little and unequivocal dealers to more prominent and isolated shippers[2].

The COVID-19 emergency also incorporates the complementarity among on the web and separated plans channels. In this way, while Amazon's own courses of action in the central quarter of 2020 were 26% higher than in the earlier year, its proposition in immovable web business in the United States tumbled from 42.1% in January 2020 to 38.5% in June 2020. Specifically, Amazon lost piece of the overall business to Walmart (from 4.2% to 5%) and Target (from 2.2% to 3.5%). It will when all is said in done be resolved that these and close to affiliations profited by immense relationship of squares and-mortar stores, engaging smart vehicle

and get by the customer[3] To guarantee an amazing electronic business scene that passes on for everybody, framework creators should additionally build up the empowering air for online exchanges regions, for example, automated openness, (around the globe) coordinated efforts and trade, reviewing for bleeding edge item and tries. For instance, a zone with smart bearing for online business is postal associations. [4] While joint efforts and postal associations have been moved back in different nations, considering new COVID-19 related security rules and government proposals, how they were viewed as major zones by different lawmaking bodies assisted with holding their working as key drawing in experts of online business on the save side. Additionally, master networks have responded by creating contact-less development choices in several nations, including through pack additional rooms or by overriding imprints with elective checks of transport. Governments can sufficiently support such strategies. For instance, Italy is thinking about various measures to invigorate the utilization of robotized bunch additional rooms, including developing the thought of pack accumulating affiliations or pushing a more competent use of additional rooms, for example, through expanded interoperability or parting between various suppliers.[5]

2. BACKGROUND STUDY

The writing study has been given to indicating the exact visual portrayal of customer conduct with the end goal that it covers all the zones of interest needed for an internet business association to make enhancements in their items and advertising procedures. Past investigations have zeroed in on strategies on how social brain science can be a significant factor in deciding the purchasing conduct of any client. This would incorporate the creator's emotional, or target sentiments on items. Snowball examining was utilized to remove exceptionally compelling clients [1]. Assessment of client's design mindfulness with the most recent patterns utilizing customized positioning capacities dependent on the client's previous criticism. How much visual highlights impact shopper choices [2]. Deciding connections of appearances of sets of articles and investigation of human brain research, regardless of whether the purchaser base acknowledges the matching of items or not [3]. The creators utilized synergistic separating to anticipate a client's choice of another commercial dependent on the client's survey history.

The suggestions are made utilizing the N-CRBM model (neighborhood contingent RBM) with joint conveyance restrictive on comparability and notoriety of scores of the neighboring clients [4]. The paper gives a hypothetical investigation of the log-probability inclination. The investigation legitimizes the utilization of a short Gibbs chain to get a one-sided yet uniting assessor of the log-probability slope and furthermore shows an association between recreation mistake and log-probability and Contrastive Divergence (CD) which comprehends that CD is a superior strategy for preparing a RBM [5]. Any thing's reasonableness or extra information has been utilized to perform suggestions that would improve the recommendations of interpretable things to the client. The creators have utilized RBM based cooperative separating their individual explanations.[6] Nostalgic Analysis can be utilized to separate important bits of knowledge from client surveys and criticism. Past examinations have zeroed in on the nostalgic investigation of miniature blog administrations, for example, Twitter. The slants appended to tweets are investigated and grouped into positive and negative opinion [7]. Wistful Examination of remarks via web-based media for foreseeing the individual's mind-set which can additionally influence the stock costs.

The creators arranged the individual's state of mind into glad, up, down, and dismissed, what's more, the extremity file is determined which is additionally provided to an fake neural organization to foresee the outcomes [8]. Feeling Examination of remarks dependent on bidirectional long present moment memory (BiLSTM) which completely thinks about the setting data to acquire a superior content portrayal of the remarks [9].With the headways in innovation, computerized stages are getting more famous. Likewise, with the use of the high level ML and AI strategies, all the associations attempt to change their organizations to advanced stages. Computerized stages have developed the interest in numerous orders for their capacities to grow new advances, models or the instrument to work successfully and productively. [10] It is the computerized period which has changed the study hall lessons over to virtual homeroom lessons, actual money to the advanced wallets, and office gatherings to the video conferencing board room talks. [11]The digitization isn't limited to just adapting however it has investigated the wings in the amusement like gaming, membership based OTT stages, Social Media/YouTube channels, Health care area has additionally arisen with the advanced development as the wellbeing related applications for the Doctor guidance or requesting the medications online is viewed as the most utilized applications during the Lockdown stage. The following is the chart of the creator's investigation study which shows the different stages being utilized during the lockdown stage. All the individuals who have utilized the advanced stages for their utilization during the lockdown should have the diverse assessment because of the client identified with the computerized stages, the use is identified with their solace, membership, online instruments for meeting or directing the meetings, wellbeing related applications and so forth [12].

3. MOTIVATION AND PROBLEM

The fulfillment of utilitarian thought processes offers instrumental benefit to the client. Seen convenience as a utilitarian determinant of buyer conduct. [13] Alluding to the setting of web based business; shoppers following utilitarian intentions see internet shopping as helpful for the acquisition of wanted items. There is a lot of experimental help for the positive connection between saw helpfulness and shoppers' social expectations to shop on the web [14]. During a pandemic, the handiness of online business is significant for two reasons. To start with, under such conditions, web based shopping gives the most advantageous intends to make dress buys. Physical stores needed to close during the closure, and other circulation channels utilized for garments, for example, online shopping, are irrelevantly utilized among purchasers in EGYPT [15]. Second, web based shopping is valuable since it brings down a customer's danger of contamination by forestalling contact with others [16]. The COVID-19 closure, the apparent handiness of internet shopping was decidedly identified with customers' expectations to participate in web based shopping conduct. [17]

3. STUDY OBJECTIVES

This paper presents an evaluation of the vital difficulties of COVID-19 through an IS and IM focal point.

- The pandemic has constrained governments and chiefs to reconsider the utilization of IS and innovation.
- Computer based intelligence could cause better, more educated dynamic during emergency the board situations.
- Protection and security are key basic worries for some residents during the pandemic.

- In non-industrial nations, the advanced gap is generally clear because of social and social hindrances [18].

4. EXPERIMENTAL RESULTS ANALYSIS AND DISCUSSION

Stood up to with lockdown frameworks and store terminations, purchasers go to on the web and convenient shopping to buy products, step by step necessities, and various things. Another audit refered to in the report revealed that a twofold digit segment of online clients was buying even more cautiously as a result of COVID-19, and some of them grasped the preparation suddenly during the erupt. The segment of overall retail bargains created by methods for E-Commerce is rising, likewise, projected to show up at 33% by 2024.At a comparable time, a couple of sections, including travel and airplanes, experienced a genuine decrease in view of COVID-19 in both on the web and separated channels. Online travel administrations, for instance, Booking Holdings, Expedia Group, and Airbnb saw step by step comfort arrangements fall by completed - 90% during April 2020. The buyer's dynamic cycle has changed definitely starting late. Buyers are driving expansive assessment online before genuinely tending to a salesman. Buyers are similarly making more direct purchases on the web and through their PDA, never wandering foot into customary actual territories. The web makes cooperating much more straightforward and snappier. It's coordinated to changes in the way people work with a rapidly creating by and large example towards web shopping or online business. [19].

4.1 GATHERING DATASET

The information utilized for this assessment were gathered online exchanges. The Egyptian online business advertise is affecting and set to be the best in Africa by uprightness of a tremendous people and quickly expanding web infiltration rates. As a country at a relationship between the Arab world and Africa, both holder Arab and skillet African web business areas are unmistakable in Egypt. In that limit, the close by appearance of the Pan-Arab general retailer Souq is among the most standard complaints in the country basically like the

Pan-African general retailer Jumia.The datasets for online exchanges are 1000000 models and 8 clear attributes as shawed in Table 1.

Table 1 Data Set for Transactions for Consumer

NO	Feature Name	Feature Description	Feature Domain
1	Gender of Consumer	Gender [0 = Male Or 1 = Female]	[0, 1]
2	Consumer Age	Age Type [1=20-29 / 2=30-39 / 3=40-49 / 4=50-59 / 5= Above 60]	[1,2,3,4,5]
3	Consumer Education	Level of Education [1= High_ Level / 2= Medium_ Level / 3 = Low_ Level]	[1,2,3]
4	Consumer Goods Types (Decision Attribute)	[A= Physical Goods / B= Digital Goods / C= Services]	[A, B, C]
5	Consumer REGION	[De=Delta / As= Est. / We= West / No= North / So= South]	[De, As, We, No, So]
6	Online Purchasing_ Frequency	1=Once A Week / 2= More Than Twice In A Week / 3= Once In A Month / 4= More Than Twice In 3 Months / 5= Once In 6 Months / 6 =Once In A Year	[1,2,3,4,5,6]
7	Payments Types	[1= Credit Card / 0= Cash]	[1,0]
8	Consumer Purchasing	Purchasing Goods for Consumer / Online Services By Consumer [Y=1 / N= 0]	[1,0]

4.2 TYPES OF GOODS MODELLING

To build the model gathered the informational index throught add dataste with extination CSV document by utilizing retrive informational collection measure and Select Attribute measure 7 structure 8 ascribes by utilizing Select credits measure after that add Set Role measure in this cycle set objective (Types of Goods trait) that is the objective characteristic in the dataset after that split the informational index into two phaseses 80% treaing and 20% testing and utilizing the alorthm to be specific Random Tree to bulid tree at that point utilizing Apply model for informational index at last use perfromance cycle to meger the acuracy and mistake this model this CHAID model for prdecting Types of Goods as appeared in Figure 4. The model of Decision Tree for prdecting Types of Goods as appeared in Table 5. The model of Ranom Tree for prdecting Types of Goods as appeared in Table 5.
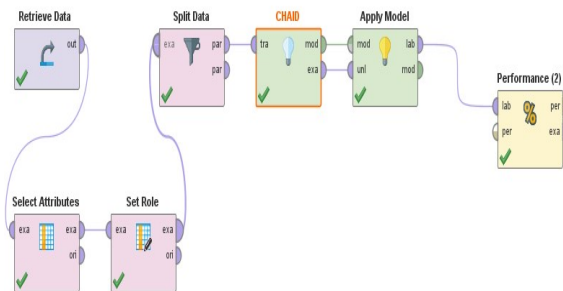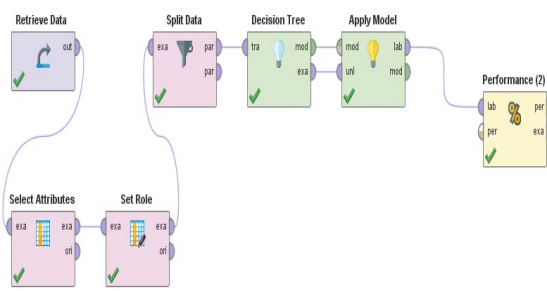

Figure 1 Building CHAID Model for Types of Goods
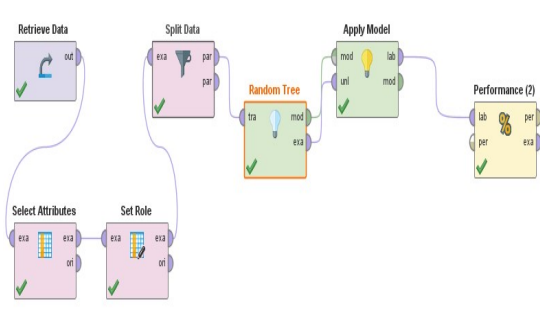

Figure 2 Building Decision Tree Model for Types of Goods

Figure 3 Building Ramon Tree Model for Types of Goods

4.3 FINDINGS AND DISCUSSION

The resultes of this case study clearly prove that CHAID is suitable oprter for identifing Types of Goods that consumer attitude for taking decision for purchasing or Not. One trial for foreseeing purchaser conduct for E-trade online through 1000000 models and 8 ostensible ascribes The analyst partitioned the information to principle areas initially is preparing dataset =90% , second is trying information = 10% of After running the Model CHAID, the CHAID made showed in Figure 4 by Rapid moner Tool for Invoice Types for products is the most Attributes in all Attributes. Execution vector CHAID Operator for Types of Goods quality shawed in Table 2. Accuracy CHAID Model shawed in Table 2,Classification error CHAID Model shawed in Figure 5. Confusion Matrix CHAID Model shawed in Figure 6. X Plot CHAID Model shawed in Table 4.Accuracy Decision Tree Model shawed in Table 5. Classification error Decision Tree Model shawed in Figure 7. Confusion Matrix Decision Tree Model shawed in Figure 8. X Plot Decision Tree Model shawed in *Table 6*.Accuracy Ranom Tree Model shawed in *Table 7*. Classification error Ranom Tree Model shawed in Figure 9. Confusion Matrix Ranom Tree Model shawed in Figure 10.
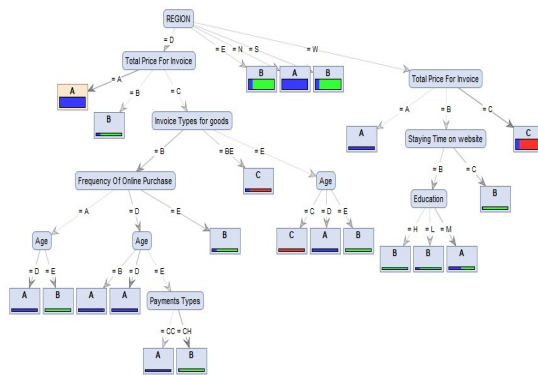
Figure 4 Building CHAID Tree Model for Types of Goods

```
PerformanceVector
PerformanceVector:
accuracy: 89.09%
ConfusionMatrix:
True:        A          B          C
A:           320099     8          0
B:           58036      262356     0
C:           29252      0          130249
classification_error: 10.91%
ConfusionMatrix:
True:        A          B          C
A:           320099     8          0
B:           58036      262356     0
C:           29252      0          130249
```
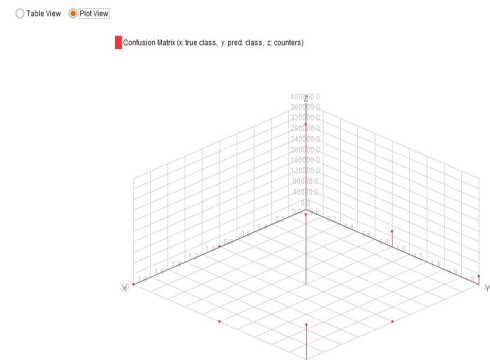
Figure 5. Classification error CHAID Model

Table 2 Building CHAID Tree Model for Types of Goods

Class prod	True Class A	True Class B	True Class C	Precision of Class
Class pred. A	320099	8	0	100.00%
Class pred. B	58036	262356	0	81.89%
Class pred. C	29252	0	130249	81.66%
class recall	78.57%	100.00%	100.00%	

Figure 6 Confusion Matrix CHAID Model

Table 4 X Plot CHAID Model

Class prod	True Class A	True Class B	True Class C	Precision of Class
Class pred. A	319896	8	0	100.00%
Class pred. B	58006	262176	0	81.88%
Class pred. C	29485	180	130249	81.45%
Class recall	78.52%	99.93%	100.00%	

Table 3. Accuracy CHAID Model

Class prod	True Class A	True Class B	True Class C	Precision of Class
Class pred. A	320099	8	0	100.00%
Class pred. B	58036	262356	0	81.89%
Class pred. C	29252	0	130249	81.66%
Class Recall	78.57%	100.00%	100.00%	

Table 5 Accuracy Decision Tree Model

Class prod	true A	true B	true C	class precision
Class pred. A	319896	8	0	100.00%
Class pred. B	58006	262176	0	81.88%
Class pred. C	29485	180	130249	81.45%
Class recall	78.52%	99.93%	100.00%	

PerformanceVector
PerformanceVector:
accuracy: 89.04%
ConfusionMatrix:

True:	A	B	C
A:	319896	8	0
B:	58006	262176	0
C:	29485	180	130249

classification_error: 10.96%
ConfusionMatrix:

True:	A	B	C
A:	319896	8	0
B:	58006	262176	0
C:	29485	180	130249

Figure 7. Classification error Decision Tree Model

Table 6 x plot Decision Tree Model

	True Class A	True Class B	True Class C	Precision of Class
Class pred. A	320441	3295	218	98.92%
Class pred. B	57220	258721	0	81.89%
Class pred. C	29726	348	130031	81.22%
Class Recall	78.66%	98.61%	99.83%	

Table 7 Accuracy Random Tree Model

	True Class A	True Class B	True Class C	Precision of Class
Class pred. A	320441	3295	218	98.92%
Class pred. B	57220	258721	0	81.89%
Class pred. C	29726	348	130031	81.22%
class recall	78.66%	98.61%	99.83%	

PerformanceVector
PerformanceVector:
accuracy: 88.65%
ConfusionMatrix:

True:	A	B	C
A:	320441	3295	218
B:	57220	258721	0
C:	29726	348	130031

classification_error: 11.35%
ConfusionMatrix:

True:	A	B	C
A:	320441	3295	218
B:	57220	258721	0
C:	29726	348	130031

Figure 9 Classification errors Ramon Tree Model

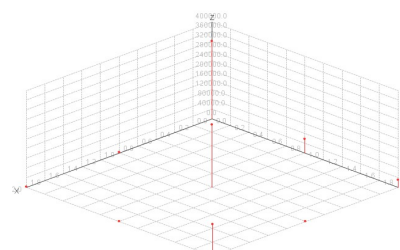*Figure 8.Confusion Matrix Decision Tree Model*

Figure 10 Confusion Matrixes Random Tree Model

5. PERFORMANCE MEASURES AND DISCUSSION

Online business joins buying and selling of unrefined material, things, organizations or such an items and adventures through an electronic medium (web) by the client, retailer, and business. However, web business retail is the exchanging of items and adventures between an online retail association and customers (all things considered end-customers). The web business trade can be of different sorts, for instance, business to Business or B2B (Cisco, Alibaba), Business to Consumer or B2C (Amazon, Walmart) and Consumer to Consumer or C2C (EBay).After running the model the presentation demonstrate that the exactness of the CHAID model is 89.09% and Classification Error is 10.91% this is the best Operator for foreseeing Types of Goods that purchasers will purchases as contrasted and Decision Tree and Random Tree as shawed in Table 8.

I. Table 8 Accuracy for the tree Operators for Types of Goods

Operator Name	Accuracy	Classification Error
Decision Tree	89.04%	10.96%
Random Tree	88.65%	11.35%
CHAID	89.09%	10.91%

Thtree operators were compered nemly decision tree, random tree an chaid and the results prove that chaid oprator ite tht sutiable opratorfor this case study acortdingto the accuracy factor is 89.09% and the Classification Error is10.91% shawed in *Figure 11.*
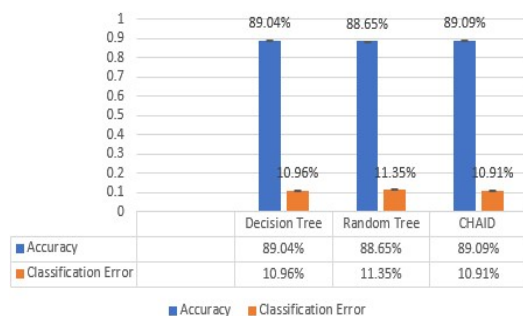

Figure 11 Three Operators Accuracy and Classification Error

6. CONCLUSION

As of now, more than ever, Egyptian associations are understanding the centrality of having a stunning electronic presence. Right when associations are investigated at an unprecedented crisis, changing is essential. This coronavirus pandemic is impacting the strength of everyone, similarly as affecting the prosperity of associations and influencing the economy. Another report showed that a twofold digit bit of online clients overall was buying on the web more than ever due to COVID-19 pandemic, and some of them have shopped online surprisingly during the scene. The COVID-19 pandemic has changed the world as likely am mindful it. People are right now living in a sudden manner, shopping in a startling way, and from numerous perspectives, thinking and acting in an unforeseen way. On the contrary side, retailers are closing doors, and clients across are looking at the shopping cycle through another point of convergence.

The Egyptian Consumers' mindsets, practices, and purchasing penchants are changing, and an enormous number of these new ways will remain post-the COVID-19 pandemic. "We're seeing a mind boggling move in where clients are spending, with a hair-raising move towards eCommerce. E-commerce bargains have increased for Egyptian transporters since March 11; the day the World Health Organization revealed that COVID-19 is an overall pandemic." Said Ahmed Nagy, the regulating head of eMarketing Egypt, the principle progressed advising office in the Middle East. Since the assertion of the essential pollution of Covid in Egypt, and since the Egyptian government has given "stay-at-home" orders attempting to slow the spread of the epidemic, various Egyptians are as of now self-confining while simultaneously going to advancement for working, tutoring, correspondence, and shopping to buy their consistently necessities.

The revelations of this examination evidently show that CHAID is suitable computation for predicting Types of Goods that client lead for taking decision for purchasing or Not. One investigation for envisioning customer lead for E-business online through 1000000 models and 8

apparent credits The researcher isolated the data to standard portions at first is getting ready informational index equivalent 90% and second is attempting data equivalent 10% of After running the Random Tree Model, the decision tree made as showed up in Fig3 in WEKA Tool and another tree made as showed up in Fig4.The most root motion in the tree is buyer guidance level: Three different ways were made. In the essential manner High Level=H, Invoice Types for product and Types of Goods are the most Attributes in all Attributes. as showingup in *Table* 1. The COVID-19 pandemic has changed the world as in all likelihood am careful it. Individuals are at present living in an astounding way, shopping in an unexpected way, and from various points of view, thinking and acting in a surprising way. On the opposite side, retailers are shutting entryways, and customers across are taking a gander at the shopping cycle through another purpose of assembly.

The Egyptian Consumers' mentalities, practices, and buying tendencies are changing, and a colossal number of these new ways will stay post-the COVID-19 pandemic. "We're seeing an astonishing move in where customers are spending, with an exciting move towards eCommerce. eCommerce deals have expanded for Egyptian carriers since March 11; the day the World Health Organization itemized that COVID-19 is a general pandemic." Said Ahmed Nagy, the controlling head of eMarketing Egypt, the major advanced coordinating office in the Middle East. Since the confirmation of the fundamental contamination of Covid in Egypt, and since the Egyptian government has given "stay-at-home" orders endeavoring to slow the spread of the illness, different Egyptians are eventually self-pulling out while at the same time going to headway for working, coaching, correspondence, and shopping to purchase their reliably necessities.

The disclosures of this assessment surely show that CHAID is appropriate assessment for anticipating Types of Goods that customer lead for taking choice for buying or Not. One assessment for anticipating client direct for E-business online through 1000000 models and 8 evident credits The scientist disengaged the information to administer

segments from the start is arranging information set=90% and second is endeavoring informational collection = 10% of After running the Random Tree Model, the choice tree made as showingup in Fig3 in WEKA Tool and another tree made as showingup in Fig4.

The most root signal in the tree is purchaser direction level: Three distinct ways were made. In the basic way High Level=H, Invoice Types for item and Types of Goods are the most Attributes in all Attributes as showed up in *Table* 1. The resultes of this logical investigation clearly exhibit that CHAID is suitable oprter for identifing Types of Goods that client attitude for taking decision for purchasing or Not. One primer for foreseeing purchaser lead for E-trade online through 1000000 models and 8 obvious credits The master allocated information to control locales from the start is preparing informational index equivalent 90% and second is endeavoring informational collection equivalent 10% of After running the CHAID Model, the CHAID made as appearing in Figure 1 by Rapid moner Tool for Invoice Types for things is the most Attributes in all Attributes. Execution vector CHAID Operator for Types of Goods quality shawed in Figure 1. Accuracy CHAID Model shawed in *Table 3.* Classification mix-up CHAID Model shawed in Figure 6. Chaos Matrix CHAID Model shawed in Figure 6. X Plot CHAID Model shawed in *Table 4.*Accuracy Decision Tree Model shawed in *Table 7.* Portrayal botch Decision Tree Model shawed in Figure 9. Confusion Matrix Decision Tree Model shawed in Figure 9. X Plot Decision Tree Model shawed in *Table 6.*Accuracy Ranom Tree Model shawed in *Table 7.* Request bumble Ranom Tree Model and Chaos Matrix Ranom Tree Model shawed in Figure 9. X Plot Ranom Tree Model shawed in Figure 10.

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