# ONLINE SHOPPING SECURITY: HOW TO STAY SAFE ONLINE DURING HOLIDAY SEASONS

[1]Marisha Mahadevia, [2]Heli Patel, [3]Roshni Patel
[1]Student, [2]Student, [3]Assistant Professor
[1]Computer Engineering
[1]Indus University, Ahmedabad, Gujarat, India

***Abstract-*** Online Shopping refers to the process of searching for and purchasing goods and services over the internet through the usage of a web browser. It provides an intermediary mode between sellers to the end user or the consumers [1]. The primary aim of online shopping is that consumers may additionally locate and purchase items they need without ever needing to leave the residence. Especially during holiday seasons it saves an individual's hassle of searching and waiting in long queues to buy a particular item. Owing to the significance of online shopping towards worldwide economic growth, this paper highlights the limitations associated with consumers security from fraudulent gift cards to phishing scams and proposes relevant steps for consumer being extra cautious when they shop online especially during holiday seasons.

***Index terms-***online shopping, security, consumer behavior, confidentiality, finance.

## I.INTRODUCTION

E-trade is allude to purchasing and promoting of goods and services or transmitting of finances or facts, through electronic structures primarily internet. E-trade has encountered exponential development all over the world [1].

It has recently broadened during past 5 years and is predicted to continue at this rate. Online shopping a shape of e-commerce could emerge as a paramount source of buying technique; if the limitations associated with insecurity, trust and customer's protection are tackled [2].The most popular season for online shopping is during holidays. Millions of people across the world are going to shop online in search of great deals and heavily discounted coupons for that perfect gifts. From consumer's perspective online shopping has many advantages referring to easy price comparisons, delivery; saving time and virtual store is available 24 hours per day. During holidays whenever sales are announced, the consumers upload their personal and financial data on system trusting policies of confidentiality and security of marketers. Since online business has broadened significantly for the past years, there is concern over online shopping especially when customer's personal information and financial transactions is required to facilitate transaction through internet medium. Everyday 156 million, 16 million pass successfully through email filters, 8 million are opened by recipients, and 800000 people click malicious links. The purpose of this study is to ensure consumer being extra cautious when they shop online especially during holiday seasons from cyber threats revealing their personal information, driving license number, social security number, banking details.

## II. ISSUES OF SECURITY, PROTECTION AND TRUST

The problems associated with online shopping starting from fraudulent gift cards to phishing scams and social engineering tactics, cybercrime tactics leads to lack of consumer's protection in transaction that requires privacy and trust. The outcomes show that during the holidays people are more likely to purchase items from an unknown online retailer if they find a bargain and will use free public wireless networks while journeying all through the vacations. It is important for customer to remain cautious during online shopping. The robust growth in online spending reflects that shoppers are choosing the convenience of swiping, tapping and clicking over a ride to the mall. It leads to enormous opportunity for cybercriminals.

Thus security, protection policy and trustability turn out to be company's major barriers to online shopping [3]. Some of the tactics they use to steal online financial details are:
1. Attacks on virtual servers:
One attack infects all domains on server.

2. Blended attacks that combine phishing and malware:
Phishing email with bogus e-card, then you are asked for software update to view e-card, and in this manner malware or keylogger is downloaded,
Example was the result of past data leaks at companies like LinkedIn and Dropbox.

3. Smartphone and texting attacks:
You receive bogus text message for example your debit card is deactivated call 11111222 to activate it, so victim surrenders account number and pin.

4. Fake apps:
There are fake online stores, where malicious users develop fake apps that look like the real deal. Users unknowingly download them and provide their personal information, which the malicious user records.

5. Credit Card Fraud:
Malicious users intercept online stores at the payment portal. When you select the items you want to buy and then when you proceed to make the payment, you are redirected to the malicious consumer's website instead of legitimate payment gateway. In 2016 illegal transactions extended to 31 percent throughout holidays.

6. Transactions via Mobile:
Mobile seems to be starting point for maximum customers, which results in 54 percent of retails internet site visitors.

For Example:
Cyber Monday alone could efflux 16.5 percent to $6.6 billion in online earnings.

According to Deloitte, 55 percent of customers prefer to shop online chasing for sheer discounts and free shipping. But it lead to enormous data breach at a major U.S credit bureau that compromised identity files on 143 million Americans.
Below is the analysis provided by Ponemon Institute LLC and jointly developed by Accenture on cybercrime revenue.

**2.1 Global average cost of cybercrime in online shopping over five years:**

Figure 1 shows global average cost in online shopping for the past 5 years

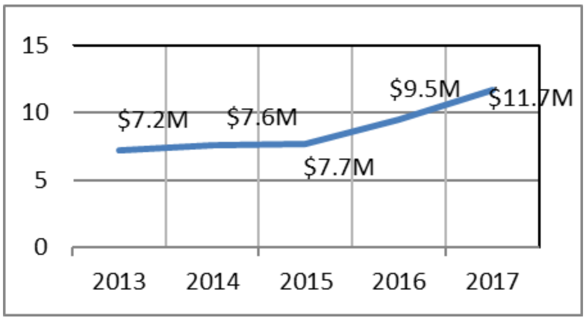

figure 1: *average cost of cybercrime* over 5 years

### 2.2 Total cost of losses due to cybercrime in online shopping in seven countries:

Figure 2 presents the average cost of cybercrime for seven countries, considering 254 separate companies, for the past two years.

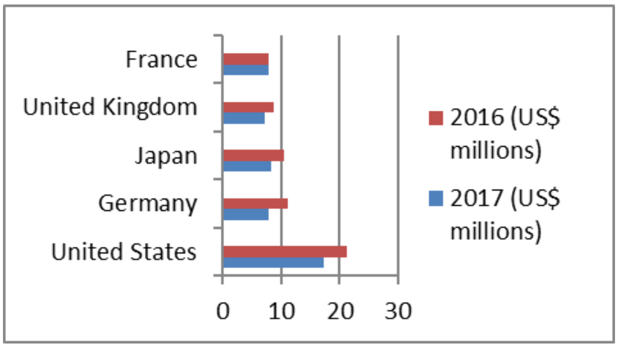

figure 2: average cost of cybercrime in seven countries

## III. ANALYSIS OF CONSUMERS BEHAVIOUR TOWARDS ONLINE SHOPPING

Data was collected through a questionnaire exclusively for the study.

### 3.1 Sample size:

Samples were collected from consumers and buyers of online shopping in Ahmedabad region. Sizes of 120 respondents are taken for the collection of the data.

### 3.2 The factors why consumers shop online:

Electronic retails services intend to provide human to machine interaction [4]. Online retailers have improved their service and consumers have located it convenient. Payment is moved to cash on delivery (COD). Delivery pattern has changed. From fixed time it has moved to convenient delivery timings [5].Figure 3 shows the some of the factors why consumers prefer to online shopping.

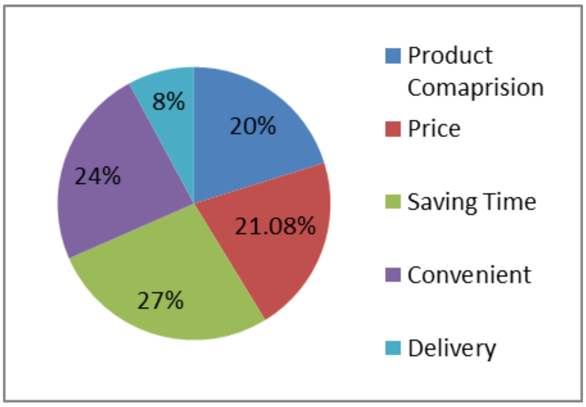

***figure 3**: factors why consumers shop online*

The examine showed that 27.2% of the shopping had been done with the aid of regular shopper who assume saving time is the main driving force at the same time 23.7% of the purchasing had been completed for whom convenience became the primary orientation for shopping online. Other motivating forces, which had led to online shopping, were price (21.1%), product comparison (20.2%), and Delivery facility (7.9%).

So worldwide internet merchants ought to consider how they perform on factors noted to have an effect on customer's behavior, product perceptions, searching expertise, and customer service [6].

### 3.3 Most popular types of online purchases:

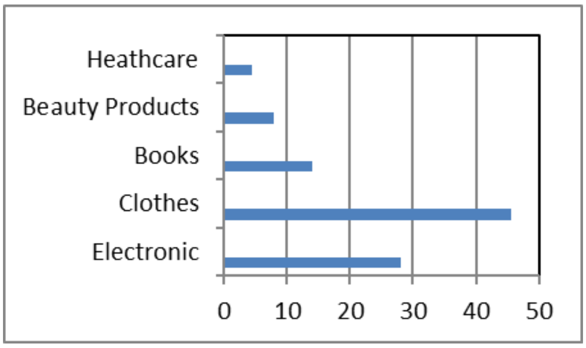

figure 4:popular types of online purchases

Figure 4 depicts that in the chart that the highest category of goods purchased by the respondents (45.6%) is clothes and accessories. Whereas the lowest category of goods purchased online are health care products by (4.4%) of the respondents. According to the chart 28.1% of the respondents buy electronics for online shopping, 14% buy books, 7.9% use beauty and personal care products, 20% for online shopping. It is additionally marked that most online customers, however use data gathered online to form purchases offline [7].

## IV. GUIDELINES TO REMAIN SAFE

Some of the recommendations you should keep in mind while knocking out that excursion shopping list:

1. Secure your passwords:
Use strong and long passwords for every login, account or website you use. Update your passwords regularly. Never use the same password for multiple accounts.

2. Look for the lock:
When you visit an e-commerce website, take a look at the address bar for a padlock symbol, to be able to permit you to recognize if it is a secure website or not. You will understand if it through searching the start of the web address for an s in https:// (instead of http ://).

3. Verify the email deals:
Don't open emails from unknown senders or click on links to offers that seems suspicious. In course of holiday season a phishing attempt may come in the form of an email marketing a sale you won't want to miss, however the hyperlinks within the email may direct you to a fake website that was constructed to seize your personal information.

4. Prefer Credit over Debit card:
Credit cards provide protection from identification theft that debit cards don't, if you use a debit card, your whole bank account is at danger. If you use credit card for all purchases, you can at ease cancel it if your shopping site gets hacked. This will also make it easier to identify any weird activity on the card, considering the fact that you will have a clear picture of all your holiday shopping activity in single region.

5. Don't cache Information Anywhere:
Many shopping sites offer you to save your credit card information on their servers to speed up the shopping process. It might be probably quicker but there are a few risks to maintaining your personal information elsewhere. If an organization that you are purchasing with has a data breach, then your personal information may be at risk.

6. Use a superior anti-malware program:
Many people avoid the advice to install an anti-malware software. Online shoppers ought to comfy their PC from viruses and distinctive assaults. With the intention to make certain that your security program's protection stays current, preserve its virus and malware signatures up-to-date.

7. Print or save a copy of your orders:
Keep documentation of your online purchases. Most sellers will send you an email or refer you to a web page with a confirmation of your purchase. This page will encompass a purchase receipt and an affirmation quantity. Print or save the confirmation receipt and keep it until you receive your product.

8. Be extra attentive if using a mobile device:
Smartphone's assist you to do everything a computer can do nowadays, but Smartphone's are not as protected against threats as your computing device. Most Smartphone's aren't equipped with the anti-virus software that you have on your computer. So it becomes easier for criminals to get malware on your cellular device that could assist them steal records you enter. The shortened URLs on Smartphone's make it harder to tell whether it's secure or trusted. So prefer shopping online on desktop rather than Smartphone's. Print or save a copy of your orders:

9. Don't operate on public Wi-Fi rather shop home:
Entering personal information using a public network leads to identity theft. Most Wi-Fi hotspots encrypt your data. So wait until you get home to your protected network. It may be less convenient, but it's much safer.

10. Refer company's privacy policy:
Read the privacy policy to know what a company does with users' information and how it is transmitted. We all say we've read and agreed to, but it's important to make sure your personal data is not handed over to any third party and is encrypted and secure.

11. Update your browser:
New version of your browser gets a boost in security. Older browsers might have holes in their security that hackers have discovered and can exploit. Updates will help you remain advance then identity thieves and keep your credit safe.

## V. CONCLUSION

In the past, consumers had sufficient time to visit shopping centers and search for different products. Today there is profound change in the entire scenario. Online shopping is a huge growing technology. Having access to online shopping has revolutionized and held our society as a whole[8].If it is properly utilized with assured safety and security for the transactions, it will thrive into a competitive and dynamic environment. But it is possible for hackers to gain personal information and other financial information. The concern of security, trust and protection plays an important role in online shopping. So web designers are putting their effort to protect you from cybercrimes and lead it to an end. You should also try to keep the above mentioned tips so that you can remain safe when you are shopping online especially during holiday seasons. Thus it will help us to continue to depend upon online shopping, so it can move towards tremendous success in the future.

## REFERENCES

[1] Sanjeev Prashar, T. Sai Vijay, Chandan Parsad "*Predicting Online Buying Behavior among Indian Shoppers Using a Neural Network Technique*." International Journal of Business and Information, Volume 11, Number 2, June 2016.
[2]Abdulghader.A.Ahmed, Hadya.S.Hawedi, "*Online Shopping and the Transaction Protection in Ecommerce: A case Of Online Purchasing in Libya*." International Journal of Scientific and Research Publications, Volume 2, Issue 6, June 2012.
[3]Chen Y-H., Barnes S., "*Initial Trust and Online buyer behavior*", Industrial Management & Data Systems, vol. 107, no. 1, pp. 21-36, 2007.
[4]Heiner Evanschitzky, GopalKrishna R.Iyer, Josef Hesse, Dieter Ahlert, "*E-satisfaction: a re-examination*". Journal of Retailing 80 (2004) 239–247
[5] Dr.Gagandeep Nagra, Dr.R Gopal, "*A study of Factors Affecting on Online Shopping Behavior of Consumers*." International Journal of Scientific and Research Publications, Volume 3, Issue 6, June 2013.
[6]Jarvenpaa, S.L., and P.A. Todd, "*Consumer reactions to electronic shopping on the World Wide Web.*" International Journal of Electronic Commerce 1(2), 59-88, 1996.

[7] Forsythe, S. M. and Shi, B., "*Consumer patronage and risk perceptions in internet shopping.*" Journal of Business Research, 56, PP. 867-875, 2003.

[8] P. Jayasubramanian, D. Sivasakthi, Ananthi Priya K,"*A Study on Customer Satisfaction towards Online Shopping*." International Journal of Applied Research 2015.

[9] Sonia San, M., and C. Carmen., "*How perceived risk affects online buying*." Online Information Review 33(4), 629-654, 2009.

[10]https://www.accenture.com/t20170926T072837Z__w__/us-en/_acnmedia/PDF-61/Accenture-2017-CostCyberCrimeStudy.pdf

[11]https://www.threatmetrix.com/press-releases/threatmetrix-forecasts-50-million-global-cyberattacks-2017-holiday-shopping