RESEARCH ARTICLE   OPEN ACCESS

Social Engineering: A Psychological need

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ABSTRACT: This paper discuses the overlooked aspects regarding the underlying psychology of social engineering. Social engineering is a technique to access or obtain the sensitive information. Social Engineer use social networking websites to prey for potential targets. Online social engineering attacks are usually variant of traditional information security hacking programs such as malware, worms etc. Here the social engineers exploit the trust factor among the victim to obtain the sensitive and valuable information. But here the researcher will discuss about the social networking website especially Facebook. Social Engineering done through the social networking websites have many psychological affects on the user. There are many links(advertisement) which manipulate the user and brings out curiosity in them so as they open them and give their personal and important information to have their result for their psychological satisfaction. The base of these links are through social engineering and these links are basically to find the users liking, disliking, choice, strength, weakness, future, experience, personality and personality comparison. So due to such curiosity generating points they get manipulated psychologically. So in this paper researcher will discuss about the psychological aspects thoroughly through "Maslow hierarchy of needs".
Keywords:Social Engineering, Physiological needs, Safety, Social needs, Self esteem, Self actualization.

I.   INTRODUCTION:
The internet has become the largest communication and information exchange medium in today's world. In our everyday life, communication has been distributed over a variety of online communication channel. . Social networking sites have become a part of our daily routine in private and business communication. Social engineering in times of the biggest social network "Facebook" is the biggest system within the internet. More than one fifth of the time spent online, people are on Facebook. It is step by step replacing instant messaging and e-mail as means of communication. Facebook gives us many unwanted links(advertisement) that are manipulative and affect us psychologically[1].
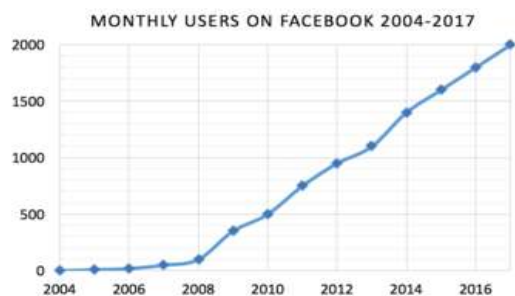

Fig 1. Facebook popularity active users of Facebook increased from just a million in 2004 to over 1800 million in 2016 [2].

Donald Trump campaign used the data scraped from Facebook to win presidency[3].

"Social engineering is lying to people to get their information of any type."It is one of the oldest methods of Hacking; it refers to how a person exploits or hacks the human mind and extracts information from it. It involves techniques to manipulate humans and bypass the security instead of using technology .As a result both humans and computer system can be manipulated to create a false level of trust. Social engineering is used everyday by every person in everyday situations. A child trying to get her way in the candy aisle or an employee looking for a raise is using social engineering. Social engineering happens in government or small business marketing too. Unfortunately, it is also present when criminals, common men, and the trick people into giving away information that makes them vulnerable to crimes. Like any tool, social engineering is not good or evil, but simply a tool that has many uses[4]. Social engineering represents a real and significant threat to many organizations, companies, governments, and individuals, social networking sites (SNSs), have been identified as among the most common means of social engineering attacks[5].

II.   HOW SOCIAL ENGINEERING WORKS THROUGH PSYCHOLOGY:

These social engineers and many more like them seem to have natural talent or a lack of fear that enables them to try things that most of us would never consider attempting. Social engineers use a wide variety of tactics to perform attacks. The first step in most social engineering attacks is for the attacker to perform research and reconnaissance on the target[6].

The attacker can design an attack based on the information collected and exploit the weakness uncovered during the reconnaissance phase. But here the question arises how?

- **Using Intelligent Questions**

As a social engineer you must realize that the goal with elicitation is not to walk up and say, "What is the password to your servers?". The goal is getting small and seemingly useless bits of information that help build a clear picture of the answers you are seeking or the path to gaining those answers. Either way, this type of information gathering can help give the social engineer a very clear path to the target goal[4].

- **Expressing a Mutual Interest**

Expressing mutual interest is an important aspect of elicitation. This particular scenario is even more powerful than appealing to someone's ego because it extends the relationship beyond the initial conversation.. All of this can lead to a massive breach in security. The danger in this situation is that now the attacker has full control. He controls the next steps, what information is sent, how much, and when it is released. This is a very powerful move for the social engineer[4].
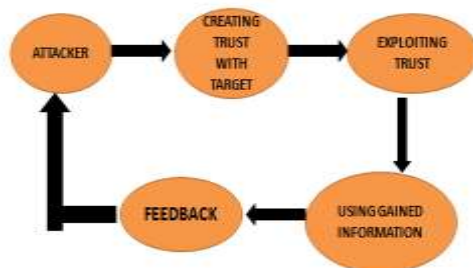

Fig 2: Social engineering cycle

Unfortunately in the world today, malicious hackers are continually improving their skills at manipulating people and malicious social engineering attacks are increasing.
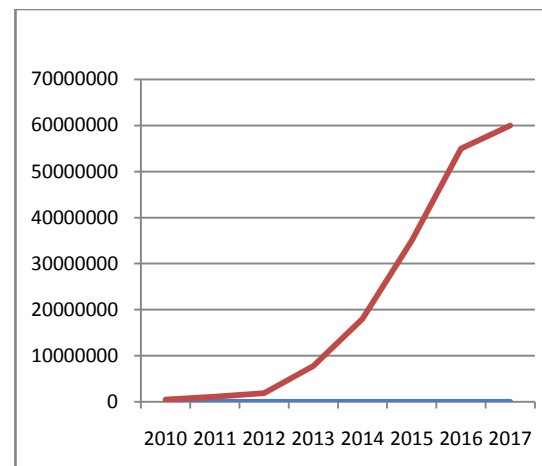

Fig 3. Social Engineering attacks increasing per year

Social networks have taken on a mind of their own. When one becomes successful it seems that a few more pop up that utilize similar technology. With sites like Twitter, Blippy, PleaseRobMe, ICanStalkU, Facebook, LinkedIn, MySpace, and others, you can find information about people's lives and whereabouts in the wide open[4][7].

Here the researcher will focus only on the links that pop-up and how they affect us. As these links are a result of social engineering. They are types of advertisement which redirect at the external links. Every advertisement is not malicious but it can be too. So we should prevent it.

These type of links take our personal information such as e-mail id's, passwords, phone number and more and in return they fool us by showing us content by which we get influenced to reach our psychological satisfaction.

III.   CAUSES OF USING:

Only those people go through these type of links, and do response them who feel socially deprived, have insecurity, who are overconscious, have peer group pressure and for fun.

Nowadays, due a wide use of social networking websites, the three age groups teenager(13-19), pre-adult(20-35), adult(35 & above) have different curiosity level to know about themselves. Therefore the statement of the links are done accordingly. Here, we searched for such statements in facebook.

IV.   NATURE OF STATEMENT:

Researcher searched for such statements in facebook and analysed approximately around sixty statements. So the researcher categorized them and out of them many were related to liking, disliking, choices, strengths, behaviour, interpersonal

relationship, weakness, future aspects, appearance, mental health, experiences, personality check. These are directly or indirectly correlated to **Maslow's need of Hierarchy**[8] because we respond to these types of statement when we are willing to know about a certain topic about ourselves or if there is a need. So researcher here has researched about how these statements are related to our needs as to every statement we don't show any response. The statement which are a need to ourselves specifically at that age, give response to those type of statements accordingly.

V. CONCEPTUAL BASES OF STUDY:

So this psychological satisfaction depend on the Maslow hierarchy of needs. Maslow hierarchy of needs is a theory in psychology proposed by Abraham Maslow in 1943 in a paper "A theory of human motivation"[9][10]. Maslow extended the idea to include his observation of human innate curiosity, Maslow in his theory has used the terms "physiological need", "safety", "belonging &love", "esteem", "self actualization" to describe the pattern that human motivation generally move through. The goal of Maslow's theory is to attain the fifth level or stage : self actualization
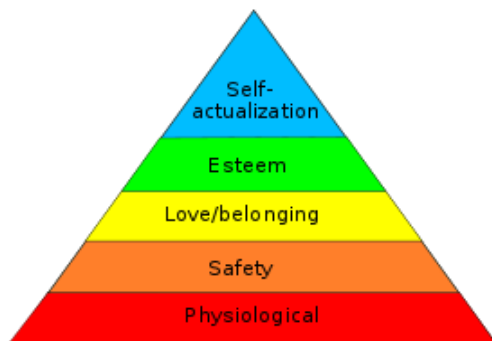

Fig 4. Maslow's hierarchy of needs, represented as a pyramid with the more basic needs at the bottom.

Maslow hierarchy of needs is often portrayed in the shape of a pyramid with the largest, most fundamental needs at the bottom and the need of self actualization at the top. Maslow theory suggest that the most basic level of needs must be met before the individual will strongly desire (or focus motivation upon) the secondary or higher level needs. The human brain is a complex system and has parallel processes running at the same time. Thus many different motivations from various level of Maslow hierarchy can occur at the same time[10]. The researcher believe that conceptualization of fulfilment of self actualization needs and fulfilment of social needs.

i. Physiological needs

Physiological needs are the physical requirements for human survival. If these requirements are not met, the human body cannot function properly and will ultimately fail. Physiological needs are thought to be the most important; they should be met first. This is the first and basic need on the hierarchy of needs. Without them, the other needs cannot follow up. Physiological needs include:-**Breathing, Water, Food, Sleep, Clothing, Sex**.

The statements such as liking of your favourite food, your best outfits, people you are comfortable with etc connects with the physiological need of our daily basis.

ii. Safety needs

Once a person's physiological needs are relatively satisfied, their safety needs take precedence and dominate behaviour. In the absence of physical safety – due to war, natural disaster, family violence, childhood abuse, etc. people may experience stress disorder or trauma. In the absence of economic safety – due to economic crisis and lack of work opportunities – these safety needs manifest themselves in ways such as a preference for job security, grievance procedures for protecting the individual from unilateral authority, savings accounts, insurance policies, disability accommodations etc. This level is more likely to predominate in children as they generally have a greater need to feel safe.

Safety and Security needs include:-**Personal security, Financial security, Health and well-being, Safety needs against accidents/illness and their adverse impacts.**

The statements such as how wealth you will be after ten years, how healthy you are, when will you die etc connects with your safety needs.

iii. Social belonging

After physiological and safety needs are fulfilled, the third level of human needs is interpersonal and involves feelings of belongingness. Social Belonging needs include:-**Friendships, Intimacy, Family**.

According to Maslow, humans need to feel a sense of belonging and acceptance among social groups, regardless whether these groups are large or small. Humans need to love and be loved – both sexually and non-sexually – by others. Many people become susceptible to loneliness, social anxiety, and clinical depression in the absence of this love or belonging element. This need for belonging may overcome the physiological and security needs, depending on the strength of the peer pressure.

The statements such as how/who is your best friend/squad, how much do you love your family, your friend after ten years etc connects with your social needs.

iv. Esteem

Esteem needs are ego needs or status needs develop a concern with getting recognition, status, importance, and respect from others. All humans have a need to feel respected; this includes the need to have self-esteem and self-respect. Esteem presents the typical human desire to be accepted and valued by others. People often engage in a profession or hobby to gain recognition. These activities give the person a sense of contribution or value. Low self-esteem or an inferiority complex may result from imbalances during this level in the hierarchy. People with low self-esteem often need respect from others; they may feel the need to seek fame or glory. However, fame or glory will not help the person to build their self-esteem until they accept who they are internally. Psychological imbalances such as depression can hinder the person from obtaining a higher level of self-esteem or self-respect. Most people have a need for stable self-respect and self-esteem.

The statements such as how much egoistic you are, who you are, how much important you are to your friends, are you depressed etc connects with your self esteem.

v. Self-actualization

"What a man can be, he must be". This quotation forms the basis of the perceived need for self-actualization. This level of need refers to what a person's full potential is and the realization of that potential. Maslow describes this level as the desire to accomplish everything that one can, to become the most that one can be. Individuals may perceive or focus on this need very specifically. As previously mentioned, Maslow believed that to understand this level of need, the person must not only achieve the previous needs, but master them.

The statements such after how many years you will be a master of yourself, where will you go hell or heaven, are you a good person etc connect to the need of self actualization.

Fig 5. Hierarchy of needs with overlaps of different needs at same time

VI. CONCLUSION:

Social engineering in many cases traces and benefits our psychological needs. It is done accordingly to people's priorities, as per our study. The two aspects here are : it benefits the one who's willing giving their information by giving them psychological satisfaction and to the one who are taking the information for their financial and personal needs . Fulfilment of self actualization need has a significant impact on continuance intention, however the direct impact of fulfilment of social needs on continuance intention is not significant but fully mediated by satisfaction.

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