



A Deep Analysis of Cyber Security with Special Reference to the Effect of High-Speed Internet Connectivity on Smart Phones and User Privacy

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Abstract: From last few decades there has been a volatile development in the mobile in terms of smart feature and internet connectivity smartphones has virtually replace computer from the normal usage of people they are managing almost everything from there smartphones like banking, purchasing, chatting, video calling and study of many schools, college students during pandemic situation of Covid-19 but in contrast to the brighter side there is a dark sight of the same. Due to high-speed connectivity and maximum usage and dependency of smart phone, cybercrime has increased dramatically in these days. People are not much aware about these threats and eventually falls in the trap. Furthermore, mobile apps are silently tracking the movement and personal details of innocent users. In this paper the authors are throwing some light on this serious issue and some resolution to prevent the same

Keywords: cyber security, mobile phone, internet connection, smartphone app, various threats, awareness

I. INTRODUCTION

Cyber security has become a top priority in our day-to-day life. Cyber safety plays a crucial role in the area high speed internet enabled mobile devices. Securing the information have end up one of the largest challenges in the present day. Whenever we assume approximately the cyber protection the first thing that comes to our thought is 'cyber crimes' which are increasing immensely day through day. Numerous Governments and groups are taking many measures in order to save us from these cybercrimes except numerous measures taken cyber safety is still a very huge subject to many.

As technology advancement are increases day by day as a result, we are also dependent on it. Our society in general also runs large number of applications largely and depend on them. New technologies bring new opportunities and challenges but it also brings new threats. In today's digital age, with the rapid growth of high-speed internet-enabled mobile devices with smart features across the globe. These mobile devices are the

necessity of all the people because these devices can hold so much data and information. People also uses their mobile phones to login into their emails and social media pages like Whatsapp, Facebook etc. even they are managing almost everything from there smartphones like banking, purchasing, chatting, video calling and online study of many schools, college students during pandemic situation of Covid-19. These devices have end up the number one target of cyber attackers. People are not much aware about cyber threats while using and installing mobile application and eventually falls in the trap. Furthermore, mobile apps are silently tracking the movement and personal details of innocent users. In this paper the authors are throwing some light on these serious issues and some resolution to prevent the same.

II. WHAT IS CYBER SECURITY

The practice of shielding devices, networks, and packages from virtual threats is cyber security. Usually, these cyber threats are targeted at acquiring, manipulating, or damaging classified information; extorting money from clients; or undermining ordinary business strategies. There are a few levels of defense unfolding in a hit cyber security strategy through the operating structures, networks, services, or statistics that one intends to keep secure. The individuals, tactics, and generation must all balance each other in an enterprise to establish powerful security from cyber assaults. Cyber security is the practice of protecting malicious threats from computing systems, servers, mobile devices, electronic systems, networks, and records. It is also known as protection of information technology or preservation of electronic facts.

III. TYPES OF CYBER SECURITY

Cyber security includes critical infrastructure security, network safety, software protection, facts safety, cloud safety, statistics loss prevention, and cease-consumer training. Various types of cyber security are as:

1. Critical infrastructure security: Includes cyber-physical structures which includes strength grid and water purification systems.
2. Network security: Protects internal networks from intruders via securing infrastructure. Examples of



community protection include the implementation of two factor authentication (2FA) and new, strong passwords.

3. Application security: makes use of hardware and software to guard towards external threats which could present themselves in a software's improvement degree. Examples of software security consist of antivirus programs, firewalls and encryption.

4. Information security: additionally, called as InfoSec, protects each physical and digital statistics—essentially records in any shape—from unauthorized get entry to, use, change, disclosure, deletion, or specific kinds of mail content.

5. Cloud security: A software-based totally tool that protects and video show devices your records within the cloud, to help remove the dangers associated on-premises attacks.

6. Data loss prevention: includes developing rules and processes for coping with and stopping the lack of statistics, and developing healing policies in the occasion of a cyber-safety breach. This includes placing community permissions and guidelines for statistics garage.

7. End-user education: acknowledges that cyber security systems are most effective as strong as their probably weakest links: the human beings that are using them. Stop person schooling includes coaching customers to comply with nice practices like no longer clicking on unknown links or downloading suspicious attachments in emails—which can permit in malware and different styles of malicious software program. [1]

III. MOBILE DEVELOPMENT (THE JOURNEY FROM 1G to 5G)

Cellular networks have surely been round us from because the Eighties and a brand new generation has premiered every decade or so. An "era" refers to a selected set of standards established for cellphone networks. With every technology, the rate of these networks will increase.

All through the early '80s, 1G phones started out to gain reputation across the globe. We saw the primary business cell community using analog alerts. In this era this was a big revolution in innovative technology but technology also brings various issues. During this time, there were a number of issues with 1G phones such as poor battery life, no internet facility in phones, poor voice quality, larger size of phones etc.

As 1G technology suffered from a number of drawbacks therefore by the early 1990s, 2G was starting to emerge. This second technology covered a GSM (global device for mobile). This was a brand-new virtual device for wireless transmission. This digital based totally generation became superior in comparative to 1G. It offer a greater reliable and secure choice for communicate consisting of conference calls, name preserve, inner roaming SMS facility in cellular phones. This become the first time

wherein human beings could ship text messages (SMS), photograph messages, multimedia messages (MMS) and emails on their telephones.

In early 2000s, 3G became at the scene. This technology is the one a lot of us first have become acquainted with when cellular phones became readily available to the loads. With this generation standard, duties like downloading video, conducting net searches, sharing photos, performing video calls, playing video games, and engaging on social media structures have become viable. The purpose of 3G become to improve records capacity services and facts transmission at the same time as retaining low expenses and the potential to assist a huge variety of packages [2]

At the cusp of 2010, 4G was brought through making upgrades to existing technology, LTE (or long-term Evolution) have become widespread all through this era. This has allowed devices to have better prices of records and greater skills for multimedia responsibilities. Quicker speeds are trendy for this generation, along better exceptional, progressed protection, and lower expenses.

And now, we have 5G networks. This generation includes the development of latest requirements to assist our developing internet of factors. Of note, technologies geared up with 5G are intended to speed up statistics even extra at the same time as decreasing latency, improving capability and reliability, and maintaining consistency and performance. While this generation is particularly new, it's far meant to offer a greater unified enjoy for all. [2]

Features	1G	2G	3G	4G	5G
Start/Development	1970/1984	1980/1999	1990/2002	2000/2010	2013/2015
Technology	AMPS, NMT, TACS, GSM	WCDMA	WCDMA	WCDMA	WCDMA
Frequency	30 KHz	1.8 GHz	1.6 - 2 GHz	2 - 8 GHz	3 - 30 GHz
Bandwidth	2 Kbps	14.4 - 64 Kbps	2 Mbps	2000 Mbps to 1 Gbps	1 Gbps and higher
Access System	FDMA	TDMA, CDMA, CDMA	CDMA	CDMA	OFDM/SCDMA
Core Network	PSTN	PSTN	Packet Network/Internet	Internet	Internet

Source: <http://net-informations.com/q/diff/generations.html>

IV. INTERNET IN INDIA

The internet in India arrived within the year 1986, its access became restrained to the academic and research communities. It changed into on August 15, 1995 when the common place guy in India were given a possibility to hook up with the arena via the internet. Speeds then had been enormously-slow and we had handiest one net issuer — the government-owned Videsh Sanchar Nigam limited (VSNL). [3]

From the year 1986 till 2020, there has been a lot changed in the terms of Internet connectivity and speed. In last few decades there were a big change in the mobile telephony there were many companies providing mobile voice and data connectivity in India gradually due to competition in the market to provide competitor rates in calling many perish and in present scenario only four or five are remain in business. Majority of them are running in losses due to various reasons.



Quality in voice and high-speed connectivity in data has opened the new gateway for doing business, online entertainment, games and other social media application are now the part of the human life cycle. Due to high-speed data connectivity in the mobile devices there are companies who are making continuous effort to provide the best high end hardware to run mobile devices at competitive prices.

India has a bunch of 4G and coming in future 5G mobile connectivity providers and one of them is Reliance Jio Infocomm Ltd. It brings internet information revolution. Before the entry of JIO in the market there were providers but the speed and prices of data connectivity were very high if compared as today. JIO has changed the scenario and in a very little time India has become the one of the maximum internet users in the world.

Due to speed of data on the mobile devices there are many business opportunity have evolved in the field of entertainment like OTT application showing various web series during lockdown due to COVID-19 and many application like Google Meet, Zoom, Microsoft Teams give the support to the students and corporates for study and business meetings, many other applications like in gaming PUBG was most popular multiplayer game on the internet if we talk about the creativity and entertainment Tik-Tok and other similar applications were most popular on mobile devices.

V. 4G- RELIANCE JIO INFOCOMM LTD

In this section the author(s) would like to discuss the role of Reliance JIO in making the fast internet connectivity in terms of HD voice and data to the common man of the Indian republic in detail.

Reliance Jio Infocomm Ltd become launched on 27 December 2015 with a beta for companions and employees and have become publicly to be had on five September 2016. It's far an Indian telecommunications agency and it operates a country wide LTE network with insurance throughout all 22 telecom circles. It does now not offer 2G or 3G carrier, and as a substitute makes use of only voice over LTE to offer voice provider on its 4G network. As of 31 December 2019, it's miles the largest cell network operator in India and the third largest cell community operator in the global with over 40.fifty six crore (405.6 million) subscribers [11] .It changed the face of the industry with massive amounts of facts and voice usage limits. The length has been marked through a large spike in statistics usage and voice traffic and a pointy decline in purchaser spends on telecom. [4]

Due to the high speed 4G connectivity India worked online, studied online, shopped online, received healthcare online, socialized online, played online during COVID-19 situation.

VI. MOBILE APPS DEVELOPMENT

Due to high-speed internet connectivity brings a new market of mobile app development. Every product or service provider is offering app to their customer to

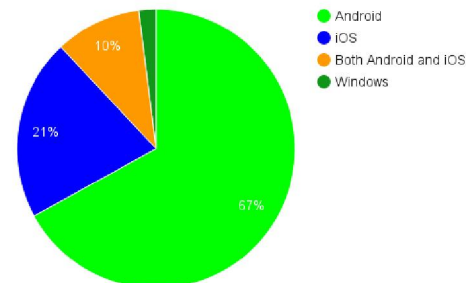
increase their customer base and ease of service. The brand-new apps that remodel the way we communicate which include (Twitter, Whatsapp, Face e book), for journey such as (Google Maps, Uber), for make purchases (Yelp, square), discover new tune (Shazam, Spotify) and percentage reminiscences (Instagram, Snapchat).

The pinnacle cellular app builders and recreation improvement businesses in India are Android and iOS. The cellular app marketplace in India is one of the fastest developing inside the international – in mid-2015, fifty-two million extra people accessed the net over the preceding year throughout the subcontinent. Mobile transactions also are riding the motion: In early 2016, some two hundred million mobile wallets had been open within the United States. A huge part of mobile app developers in India attention on Android over iOS. [5]

Mobile nowadays, replaced the computer although not completely but in many terms due to its handy design and continuous development in the hardware for making people to get used to do all the things that were only possible with computers. There is a drastic development in the camera quality in mobile devices 48 mega pixels and 3- 4 cameras with artificial intelligence makes the photo alive and people love to share these pics over their social media and availability of these social media apps on mobile devices makes the user easy sharing in just two to three taps on the mobile screen. Another utility of purchasing and making payment through mobile apps are more in fashion due to after the covid-19 situation and “Demonetization” to prevent black money.

VI.I. APP DEVELOPMENT MARKET IN INDIA

With continuously increasing the mobile devices/smart phones and cheaper handsets, the app developer market in India is the continuously growing market.



Source: belong.co

VI.II. DIFFERENT TYPES OF MOBILE APPS

Various cellular apps are an essential part of our everyday lives. The marketplace is crowded with all varieties of mobile apps. Today, even organizations who in no way would've wanted apps inside the past are stepping into the game [6]



1. Lifestyle Mobile Apps

It is the most popular app in last recent years. This app provide the facility to users to help them find new restaurant, new songs, destination, and their like and dislike etc. This app quickens or supports the character facets that outline your lifestyle such as: Fitness, Dating, Food, Music, Travel etc.

Here are some examples: Spotify, weather, Uber

(i) Weather: weather is one of the maxima beautifully designed and smooth-to-use apps. It offers greater information than the other standard weather app, but understands the order wherein the records may be the most valuable to user.

The app indicates off a gorgeous image of the area and shows hourly climate, the forecast for the week, a map, the hazard of precipitation, wind and pressure rates, the sunrise and sundown instances, and extra. We can easily add greater places and then swipe from place to vicinity. This is one of those apps that everyone can use without guidance.

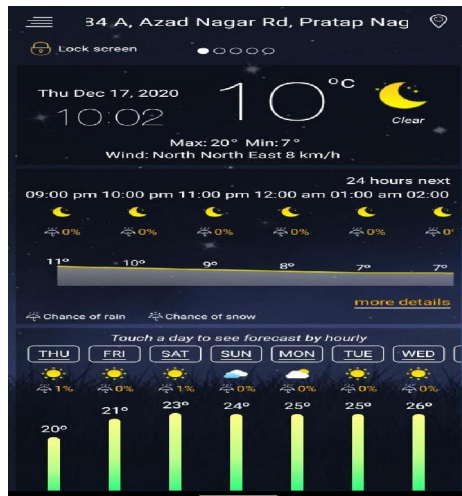


Image: Weather app

(ii) Spotify: Spotify is a digital song streaming carrier that gives us access to tens of millions of songs, podcasts and motion pictures from artists all around the international, like Apple track. Spotify is without delay attractive due to the fact you could access content material totally free with the aid of virtually signing up using an email deal with or by means of connecting with Facebook.

You can discover the main differences among Spotify free and premium in our separate function but as a short summary, the unfastened model is ad-supported, much like radio stations. The loose version of Spotify may be accessed on laptop, pc and cell smartphone, but the complete service needs a Spotify premium subscription.

Developing a playlist is as clean as proper-clicking a tune and clicking "upload to Playlist" or clicking the three dots next to a song at the app. snatch your preferred

songs and stick them in a playlist on your non-public listening pride.



Image: Spotify app

2. Social Media Mobile Apps

This app is the most popular kinds of cellular apps that are used to build our social networks like Facebook, Whatsapp, Instagram etc. and most people check in with them each day. Facebook by myself reviews over 1 billion energetic every day users. Social media apps must be fun, rapid, and continually integrating the increasing functions of the social networks they assist.

Some of social media apps are: Facebook, Instagram, Pinterest, Snapchat etc.

(i) Snapchat: Snapchat is a cell app for Android and iOS devices. It's headed by way of co-founder Evan Spiegel. One of the core concepts of the app is that any image or video or message you send - via default - is made to be had to the receiver for handiest a brief time before it turns into inaccessible. This temporary, or ephemeral, nature of the app was originally designed to encourage an extra natural waft of interaction.

Snapchat's developer is a public enterprise, referred to as Snap. It claims to be a camera business enterprise. As such, it creates other products, along with hardware also, Snapchat is colloquially known as Snap

ii) Instagram: Instagram lets in users to edit and upload photos and brief motion pictures through a cellular app. customer can upload a caption to each of their posts and use hashtags and place-based geo tags to index these posts and make them searchable by way of different users within the app. every post by way of a consumer appears on their followers' Instagram feeds and also can be considered by the general public when tagged the usage of hashtags or geo tags. Customers additionally have the choice of creating their profile personal so that simplest their followers can view their posts.



3. Utility Mobile Apps

Utilities are the types of cellular apps that we might also use most often without considering them as apps. Lots of them come pre-installed on your tool and serve a single feature. Some examples of Utility Mobile Apps are: Reminders, Calculator, Flashlight, etc.

4. Games/Entertainment Mobile Apps

The gaming and amusement category are massive, and as such, very competitive. Video games are one of the extra apparent cell app classes and need little clarification. Those types of apps are famous amongst developers because they bring customers returned a couple of instances each week, sometimes a couple of instances per day. Some examples of game apps are: Angry Birds, Clash of Clans, Subway Surfer etc.

Subway surfers: subway Surfers is a game in which the player makes their person run until they lose. The game subject matter has been based on a global excursion since the year 2013. The sport is available on the iOS, Android and windows phone operating structures. Subway Surfers claims to be the fourth maximum downloaded recreation of all time.



Image: Subway surfers app

5. Productivity Mobile Apps

While productivity may additionally sound like one of the more boring sorts of cell apps, it is an incredibly famous category. These kinds of apps help their customers accomplish a challenge extra without difficulty, fast and effectively than your competitors. Examples of productivity apps are, properly, many of the products from both Google and Apple, like: docs, Sheets, pockets/Pay and other like: Evernote, Wunderlist

- i) Calendar: With Calendar, you could permit absolutely everyone to pick out a time and e-book an assembly with you, at once within the app. and you'll by no means have to fear about overbookings, as Calendar will routinely

protect you from any conferences being scheduled on the equal time.

This synthetic intelligence-led productivity app is usually learning for you and could prevent effort and time as you intend out your day, week, month, and even 12 months.

6. News/Information Outlets Mobile Apps

Information and statistics apps are quite sincere. They supply their customers with the information and data they're looking for in a smooth to recognize format that effectively navigates them to the matters they care about maximum. Examples of different types of popular news apps are: BuzzFeed, Smart news, Google news & climate, Feedly, Flipboard, Yahoo news Digest, Reddit, LinkedIn Pulse, dailyhunt

- i) Dailyhunt: Dailyhunt is one of the maximum popular news hunt apps in India that provides hyperlocal information to you in some clicks. It covers a prime a part of the country with news from the North to the South, East to the West and can provide the modern-day news and updates to you from politics, local information, health, generation and much greater, free of rate. it is one of the nice apps that you can find tailor-made and custom designed up to date for you



Image: Dailyhunt app

VII. VARIOUS SECURITY THREATS DUE TO HIGH SPEED DATA CONNECTIVITY IN SMARTPHONES

Due to high-speed connectivity and maximum usage and dependency of smart phone, cybercrimes has been increased dramatically in these days. People are not much aware about their threats and eventually falls in the trap.



Like different viruses and spyware which can infect our computers and laptops, similarly there are a variety of security threats that can affect our mobile phone.

Security threats on mobile devices come from a variety of places like using Wi-Fi network can allow others to gain access to our mobile device, by using various mobile apps etc. Some threats in mobile phones are silent tracking, data leakage such as personal information, banking and purchasing, tracking of personal preferences, unsecured Wi-Fi, networking spoofing, Phishing attacks, spyware, broken cryptography etc. These mobile threats are generally divided into several categories like: [7]

1. Application-Based Threats: These types of threats having many types of security issues for our mobile devices. These threats can occur in mobile phones when users download malicious apps or grant apps permission to access device data. These types of threats are:

(I) Malware: It is a software that performs malicious actions while installed on our mobile phones. Without our information, malware can make charges to our phone bill, send unsolicited messages to the contact list and also give the information to the hackers to control over our device. Some examples are:

In 2020, a new BlackRock Android malware strain has emerged in the criminal underworld that comes equipped with a wide range of data theft capabilities. It can steal passwords and card data from 337 apps. Android apps include banking, dating, social media, and instant messaging apps are targeted by New BlackRock Android malware. This new threat can steal passwords and card data from 337 apps.

This new threat emerged in May this year and was discovered by mobile security firm Threat Fabric [8]



Image: Threat Fabric

Source:

<https://www.zdnet.com/article/new-blackrock-android-malware-can-steal-passwords-and-card-data-from-337-applications/>

(ii). Spyware: it is also designed to collect or use private information without user facts. Centered information includes smartphone name history, text messages, consumer place, browser records, contact listing, electronic mail, and private pictures etc. This stolen fact may be used for identity robbery or monetary fraud.

(iii). Privacy Threats: It may be caused by applications that are not necessarily malicious, but gather or use sensitive information such as: our location, contact lists, personal information etc.

(iv) Vulnerable Applications: It incorporate flaws which may be exploited for malicious functions. Such vulnerabilities allow an attacker to get entry to touchy data, carry out unwanted actions, stop a provider from functioning efficaciously, or download apps in your tool without our facts.

2. Web-based mobile threats: These types of threats are usually achieved through phishing or spoofing. Attackers will send an email, text, or other instant message that looks as if it was from a trusted source but the message contains a malicious link or attachment. When users click through or provide personal information, the bad actor can then gain unauthorized access to their mobile device or steal credentials to spoof identities [9] For example:

(i) Network spoofing is where hackers set up false access point's connections that look like Wi-Fi networks, but are simply traps in high-traffic public places such as coffee shops, libraries and airports etc. To enable users to connect, cybercriminals offer common names like "Free Airport Wi-Fi" or "Coffeehouse" to the access points. In certain cases, attackers need users to build an 'account', complete with a password, to access these free services. Since many people use the same combination of email and passwords for different services, hackers can then compromise the email, e-commerce and other protected data of users.

(ii) Phishing Attacks

It is an online identity theft in which an attacker tries to trap/steal the user's personal information like banking, shopping, calling etc. resulting in financial loss of individuals as well as organizations.

3. Network threats: This type of threats occurs when attackers targeted to unsecured Wi-Fi connections. In some cases, hackers may even set up a fake Wi-Fi network in an attempt to trick users. Spoofed networks will ask users to create an account with a username and password, giving hackers the opportunity to compromise devices and credentials [10]

4. Physical Threats: This threat occurs when someone loses our mobile device or has it stolen. Attackers have direct access to hardware where private data is stored or where they have access to data.

VIII. VARIOUS APPS AND SOFTWARE THAT PROTECT MOBILEPHONE FROM VARIOUS CYBER ATTACKS

Over the previous couple of years, the usage of mobile gadgets for each business and personal purposes has increased dramatically. Nowadays due to the high speed connectivity in mobile phones we can easily access, store, find and share the information. People they are managing almost everything from their smartphones like email,



banking, online purchasing, chatting, video calling, buy and download various applications etc. This information has caused an increase in cyber-attacks. Study shows [12], that 96% of smartphones do not have pre-installed security software. This lack in security is an opportunity for malicious cyber attackers to hack into the various devices that are popular (i.e. Android, iPhone and Blackberry).

If people are not using the security apps and software on their mobile phones, then mobile phone having a risk of infection from corrupted apps and other kinds of malware. Therefore in this section author (s) would like to highlight some preventive apps and software that protect our mobile phones from various cyber-attack.

VIII.I. SOME SECURITY SOFTWARE

1. Firewall: A firewall monitors community visitors in addition to connection attempts, deciding on whether or not or not those need to be able to skip freely onto your community or pc. Hackers have learned how to create statistics and programs that trick firewalls into believing that they're relied on – because of this the program can bypass via the firewall with none troubles. Regardless of those obstacles, firewalls are nevertheless very powerful in detecting the huge majority of much less sophisticated malicious assaults on your business.

2. Antivirus software: Antivirus software protects the mobile phones from viruses which could destroy the data, slow down or crash user's mobile phone, or permit attackers to ship electronic mail through user's account. Antivirus safety scans user's documents and their incoming e-mail for viruses, after which deletes something malicious.

3. Install anti-spyware: spyware is a unique sort of software program that secretly monitors and collects private or organizational statistics. It is designed to be tough to come across and tough to get rid of and has a tendency to deliver undesirable ads or seek consequences that are supposed to direct you to certain (often malicious) web sites. A few spyware records every keystroke to gain get admission to passwords and different monetary statistics. Anti-adware concentrates solely on this risk, but it is regularly covered in most important antivirus programs, like those from Webroot, McAfee and Norton. Anti-spyware packages provide real-time safety via scanning all incoming records and blocking threats.

VIII.II. SOME SECURITY APPS

1) AVAST MOBILE SECURITY: Avast is a fantastic app to offer your Android smartphone safety against viruses coupled with many different threats. Avast is one of the world's maximum trusted free antivirus for Android, which alerts you whilst adware, adware get set up and violate your privacy.



Source:

<https://blog.avast.com/hs-fs/hub/486579/file-3580934993-jpg/blog-files/1440x900.jpg>

2) MALWARE BYTES: It may efficiently discover dangerous threats and get rid of them earlier than your device gets compromised. Malwarebytes gives actual-time shields and scans for even the sophisticated phishing URLs at the same time as you operate the Chrome browser. It also alerts you in case it detects something suspicious to make sure a secure surfing experience. The software conducts periodic privacy audits by using figuring out get entry to permissions of your apps hooked up in your smartphone or tablet. You may tune those apps tracking your area, costing you hidden expenses, or tracking your calls. Malwarebytes can quickly search all of your files for malware and doubtlessly harmful programs, including spyware, screen lockers, and so forth



Source:

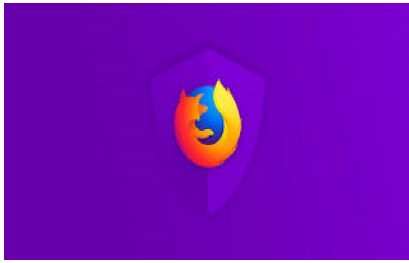
https://upload.wikimedia.org/wikipedia/commons/thumb/2/27/Malwarebytes_Logo_%282016%29.svg/1200px-Malwarebytes_Logo_%282016%29.svg.png

3) FIREFOX FOCUS: Firefox focus is designed to block on-line trackers, which includes third-party advertising and marketing, with the end aim of both enhancing surfing speed and protective consumer's privacy. Content blocking is performed using the Disconnect blocklists. The blocking off of the third-celebration tracker is enabled by way of default. Within the different Firefox browsers, customers have to permit the tracking protection feature in the browser alternatives manually customers can also view varieties of trackers on a page via tapping on the defend icon subsequent to the URL bar. A panel will pop-up and suggests what form of trackers are on that page: ad



trackers, analytics trackers, social trackers, or content trackers

SOME COMMON PREVENTIONS ARE:



Source:

https://blog.mozilla.org/opendesign/files/2019/06/FX_Design_Blog_Header_1400x770.jpg

4) NO ROOT FIREWALL: Many apps to your Android device is probably the usage of and eating up your cell information unnecessarily.

No Root Firewall places you on top of things of net get admission to for apps without rooting your device. It permits us to pick out whether a particular app can get entry to the net simplest over Wi-Fi or only over mobile data or neither or each.



Source:

https://play.google.com/store/apps/details?id=app.greyshirts.firewall&hl=en_GB

AD BLOCKER APPS:

1) ADBLOCK PLUS: Adblocker Plus is arguably the maximum famous ad blocker app at the list. It works on each rooted and non-rooted gadget, even though non-root users have some more work to do. The app runs inside the history and filters internet site visitors nearly precisely like its net browser extension.

2) ADGUARD: Ad Guard is a bit of a wild card. We hadn't heard a good deal about it earlier than doing this newsletter, but it seemed to work ok for us. The app blocks commercials the same manner as AdBlock Plus. Ad Guard runs as a provider inside the historical past and filters net traffic. It does work without root, however it calls for a chunk of greater setup. It also maintains tabs on all your net visitors just like apps like Glass Wire. You furthermore might get an awesome searching material layout UI to place the whole thing together

If we talk about some safety precautions need to be taken to safeguard our self and from hackers some major steps include like turning off Bluetooth of our devices also one should never use open Wi-Fi and unsecured Wi-Fi as they have making it prime goal for hackers

One should always use security apps like installing anti-virus software's and anti-spyware package deal for PC which protects pc to greater extends while keeping combination passcodes to major apps which especially includes banking apps so forget 1234 passwords and start using combination of numeric and figures and completely ignoring randomly generated passcodes. Browsing history also plays a vital role as it gets access to hackers easily so one should clean their browsing history and cookies and save your smartphones from hackers.

IX. CONCLUSION

So, in this paper we concluded that nowadays mobile devices are the necessity of all the people because these devices can hold so much data and information. Due to high speed internet connectivity in mobile phones and dramatically increase the mobile development in terms of smart features, cyber security plays an important role to protect the useful information and data of mobile devices. Nowadays many companies have also launched many Apps for smartphone with new features. It brings a new market of mobile app development due to high speed connectivity. We had also discussed about various mobile threats and how to protect the mobile devices using some security software and security Apps.

REFERENCES:

- 1) <https://us.norton.com/internetsecurity-malware-what-is-cybersecurity-what-you-need-to-know.html>
- 2) <https://www.ufinet.com/the-evolution-of-wireless-telecommunication-from-1g-to-5g/>
- 3) <https://www.moneycontrol.com/news/technology/25-years-of-internet-in-india-how-its-impacted-the-lives-of-1-3-billion-people-5706731.html>
- 4) <https://www.businesstoday.in/current/economy-politics/reliance-jio-will-pioneer-5g-revolution-in-india-in-h2-2021-says-mukesh-ambani/story/424209.html>
- 5) <https://www.businessofapps.com/app-developers/india/>
- 6) <https://duckma.com/en/blog/types-of-mobile-apps>
- 7) application-based threats, web-based threats, network-based threats and physical threats
<https://www.lookout.com/know-your-mobile/what-is-a-mobile-threat>
- 8) <https://www.zdnet.com/article/new-blackrock-android-malware-can-steal-passwords-and-card-data-from-337-applications/>
- 9) <https://www.okta.com/blog/2020/10/mobile-security-threats-and-prevention/>
- 10) <https://www.okta.com/blog/2020/10/mobile-security-threats-and-prevention/>
- 11) <https://en.wikipedia.org/wiki/Jio>
- 12) Jorja Wright, Maurice E. Dawson Jr. and Marwan Omar, "Cyber Security and Mobile Threats: The Need for Antivirus Applications For Smart Phones", Journal Of Information Systems Technology & Planning, ©2012 Published by Intellect base International Consortium, USA