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## Security Awareness of WhatsApp among Users

Aarti Kulkarni<sup>1</sup>, Deepika Sonar<sup>2</sup>, Tanaya Narvekar<sup>3</sup>

<sup>1,2,3</sup>Students, V. P. Institute of Management Studies & Research,  
Sangli (Maharashtra, India)

E-mail:[kulkarniaarti68@gmail.com](mailto:kulkarniaarti68@gmail.com)

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### Abstract:

*From the day when WhatsApp has invented, it has become one of the most popular communication platform among its users. It has most widely used for sharing text messages, images, videos, audios etc. with individuals and among groups. Through such features users can get the facility of instant messaging with such a user-friendly platform. Though users can access this platform easily still security issues arise. To overcome such issues WhatsApp came with its new and updated security features and those can be easily applicable to user's individual account so that they can protect their privacy, self-identity harmlessly. To know such security features public awareness is equally important in order to use such features with its 100% security power.*

**Keywords:** End-to-End Encryption, Social Media Apps, WhatsApp Messenger, Instant Messaging, Cyber Security.

### I] Introduction:

WhatsApp also called WhatsApp Messenger is an internationally available centralized instant messaging service owned by American company Platforms. It allows users to send text and voice messages, make voice and video calls, and share images, documents, user locations, UPI payment and other content. WhatsApp's client application runs on mobile devices, and can be accessed from computers called web WhatsApp. WhatsApp was founded in February 2009 by Brian Acton and Jan Koum, former employees of Yahoo!<sup>[8]</sup>. The main purpose for creating this application was not messaging. To access services of WhatsApp, user must sign in with mobile number. For business related people WhatsApp has come with it's another form of application called Business WhatsApp in January 2018. It became the world's most popular messaging application by 2015, and had more

than 2 billion users worldwide by February 2020. WhatsApp is a free cross-platform messaging service. It provides facilities to exchange information over different operating system like iPhone, android, windows, Mac etc. WhatsApp was officially made available for PCs through a web client, under the name WhatsApp Web, access is granted after the users scan their personal QR code through their mobile WhatsApp application.



Fig.1 No. of WhatsApp messages sent worldwide per day from the year 2011 to 2018<sup>[6]</sup>

## II] WhatsApp Features:

There are several features provided by WhatsApp which make it more popular among all social media applications. Those are as follows:

### 1. Read Receipts:

It notifies the sender with **double blue tickmarks** which shows that receiver has read the sent message. It is possible to hide read receipts but if user hide read receipts he/she is also not able to see others read receipts.

### 2. WhatsApp Settings Options:

WhatsApp provides user friendly platform along with below settings:

- i. **New Group:** User is able to create new group and can add upto 1024 members in the latest version
- ii. **New Broadcast :** User is able to send the messages to multiple people at a time without creating the group
- iii. **Linked Devices:** This feature is used in order to access **Web WhatsApp** .Under this menu user is able to see the list of devices where the same WhatsApp account is **logged in** and is in **Active** mode at the same time. It is accessible through QR code which is Scan by mobile phone and user can log-in through it.
- iv. **Starred Messages:** User can **star important messages**
- v. **Payments:** WhatsApp is able to provide the facility of **UPI Payments** to it's users

vi. **Settings:** Under this option WhatsApp provide several **security features** along with few **additional features**

**3. Reactions:** User can send or react through various **emoji reactions** which is helpful in shortening the chat message length

**4. Connect with People via:**

- i. **New Group:** Create group with contacts having limit of 1024 members in a single group
- ii. **New Contact:** Add new members to your chats for communication purpose
- iii. **New Community:** Communities on WhatsApp provides users with the ability to organize and bring related groups together under one platform. Community admins can members with important announcements, and community members can stay connected by exploring and chatting in groups with those they are connected.
- iv. **Message Yourself:** User is now able to message or can send important documents to own with updated WhatsApp version

**5. App language:** Language is not barrier to use WhatsApp. WhatsApp provide different languages like Hindi, Marathi, Tamil, Bangla etc. to user to use according to their convenience.

**6. Delete from everyone:** In this feature of WhatsApp user can delete send messages within particular time. Where another user cannot find what message was sent.

**Security Issues<sup>[3]</sup>:**

**1. GB WhatsApp:**

GB WhatsApp refers to the clone application of WhatsApp's official version. This version of WhatsApp is the modified version which not only includes all the features of WhatsApp but also introduces its new own features which are generally not found in official WhatsApp version. Basically, these version is banned by WhatsApp due to its illegal use but still it is one of the most popular among its users specially among youngsters because of its outstanding features like **hiding seen to the Status, able to see deleted messages, auto reply, DND mode, Download status, mark the unread messages, ability to see about line at the top of chat window etc.**<sup>[4]</sup>.

**2. Fraudulent WhatsApp Web:**

Hackers create phishing website in order to access WhatsApp web version and trick the user into handing over the personal information like phone no, email, WhatsApp no, etc. . . . And such information is used to bombard the user with spam or correlate with other leaked or hacked data on the internet. To avoid such WhatsApp scams it is recommended to **use only WhatsApp's official site and login to Web WhatsApp only via QR code**

**3. Unencrypted Data Backup:**

WhatsApp allows users to back up their data, media, and messages on Android and iOS

platforms. This is an essential feature as it allows to recover accidentally deleted messages. WhatsApp allows to take backup of data on local devices as well as on cloud platforms like Google Drive for Android , iCloud on iPhone .Backups stored on cloud platforms are not necessarily encrypted and as these backup files contains decrypted versions of all messages it is theoretically vulnerable and undermines WhatsApp's end-to-end encryption policy .As users have no choice in a backup location, you are at the mercy of the cloud providers to keep the data secure .There are other means that attackers could use to gain access to users' cloud storage accounts<sup>[10]</sup> .

### III] Security Measures:

#### End-to-end encryption

To secure sensitive user data from unauthorized access WhatsApp came with End-to-end encryption policy. To provide end-to-end encryption, Open Whisper Systems made partnership with WhatsApp On November 18, 2014<sup>[5]</sup>. In end-to-end encryption, encrypted data is only viewed by those who have decryption keys, which prevents unintended users or third parties or unauthorized users from reading data, corrupting data, stealing data and hacking data. In conversation, user may share their business documents, financial details or personal details which must keep secure. After using end-to-end encryption user can reliably share their information.

#### Working of End-to-end Encryption<sup>[1]</sup>:

The messages we send on WhatsApp are end to end encrypted it means only sender and receiver are able to read sent message and not even WhatsApp is able to read it.

End-to-end Encryption starts with cryptography, which is the technique for protecting information by transforming it into unreadable format called cipher text which decrypted by only those users who have secret keys which transform it into plain text. WhatsApp does not store any messages on the server: the chat antiquity is stored on the client's device. The client application uses SSL to connect to the server. This deployment might open up WhatsApp to strike on SSL 2.0. There is no E2E inscription to provide security in chatmessages between sender and receiver. Therefore, the message server can read the messages exchanged.

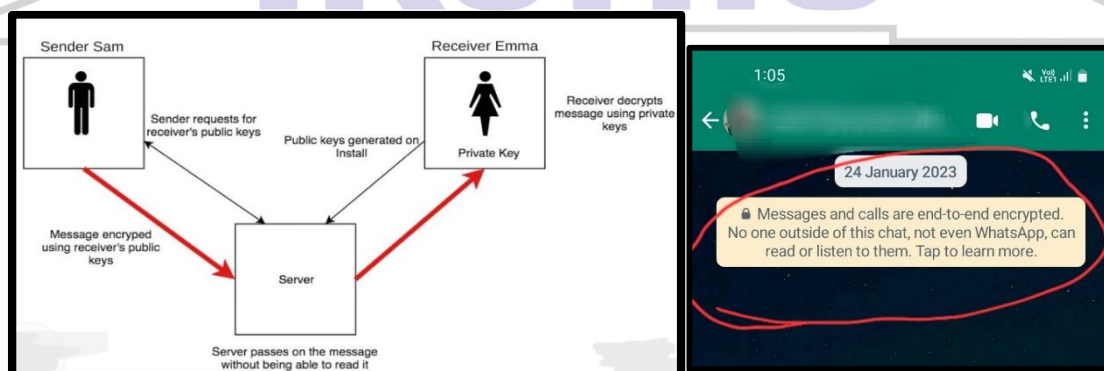


Fig 2: Working of End-of-End Encryption<sup>[2]</sup>

### Security Settings:

WhatsApp provides multiple features in order to protect user's security and privacy with respect to their last seen, profile picture, status, online status, etc.

**1. Status Privacy:** User is able to set privacy to its WhatsApp Status with options like:

- a) **My contacts :** Can share the status only with all people in contact list
- b) **My contacts except... :** Can share the status to people in contact list by skipping few people in the contact list
- c) **Only share with... :** Can share the status to only few selected people in the contact list

**2. About line:** User is able to display or hide his/her WhatsApp profile's about line through below options:

- a) **Everyone:** Everyone is able to read **about line**
- b) **My Contacts:** **Only people in the contact list** are able to read about line
- c) **My Contacts except... :** **All people except few selected people** are able to read about line
- d) **Nobody:** **Not a single person** is able to read about line

**2. Profile Photo:** User is able to set his/her profile picture with following privacy settings:

- a) **Everyone:** **All people** are able to see profile picture
- b) **My Contacts:** **Only all people in contact list** are able to see profile picture
- c) **My Contacts except... :** **All people in contact list except few selected people** are able to see profile picture. This is recent update of WhatsApp.
- d) **Nobody:** **Not a single person** is able to see profile picture

**3. Last Seen and Online Status:**

- **Last Seen:** Users are able to set last seen using options like:

- a) **Everyone**
- b) **My Contacts**
- c) **My Contacts except...**
- d) **Nobody**

- **Online Status:** Users are able to set Online Status using options like:

- a) **Everyone**
- b) **Same as last seen**

**Two-Step-Verification:**

It is a optional security feature of WhatsApp to get more security to WhatsApp account. To use this feature user must create and confirm a unique PIN which is require to access your WhatsApp account. Only those people access account who have this PIN. This Two-Step-Verification PIN is

different from registration code. This provides maximum security to your account where random people refrain from illegal access.

#### IV] Review of Literature:

WhatsApp is the most popular platform for connecting people. Facebook (Meta) purchased WhatsApp in 2014 for \$22 billion<sup>[7]</sup>. WhatsApp is used as messaging app where you can share your information to another user may it sensitive or not. The ultimate concern while sharing your information is security. So WhatsApp came with different Security features where users reliably share their information. WhatsApp has attracted a lot of attention because of its large scale usage of end-to-end encryption.

End-to-End encryption is most popular security feature. In this message is encrypted using keys and only those who have decryption key only they can access information.

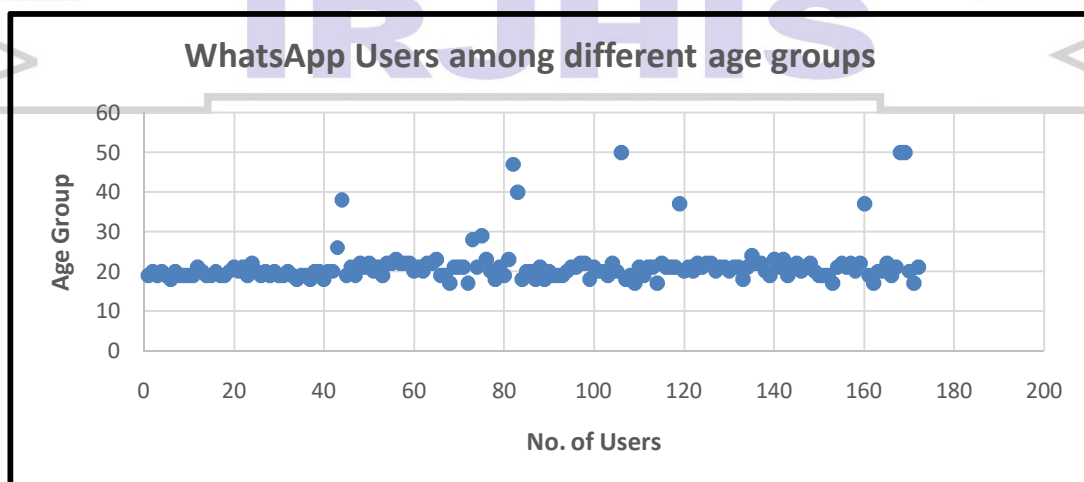
According to study more than 2 Billion users use WhatsApp and became popular mobile messenger apps in the world. India has the most WhatsApp users. India accounts for 487.5 million WhatsApp users. Brazil became second most WhatsApp users with the count of 118.5 users. It is most popular app in more than 100 nations. According to 2021 study, 100 billion messages are sent on WhatsApp every day<sup>[9]</sup>.

#### V] Methodology:

The study regarding **Security Awareness about WhatsApp among People and Regrading Issues** has been taken place under the **survey based method** and is done **by accepting responses from WhatsApp users through Google Form sent over WhatsApp**. Total 172 people have responded to the survey. Our survey is based on parameters like Age, Gender, and role like student, professional or other than these, no. of WhatsApp accounts, purpose for using account, awareness regarding WhatsApp privacy and security settings ,precautionary measures,etc.

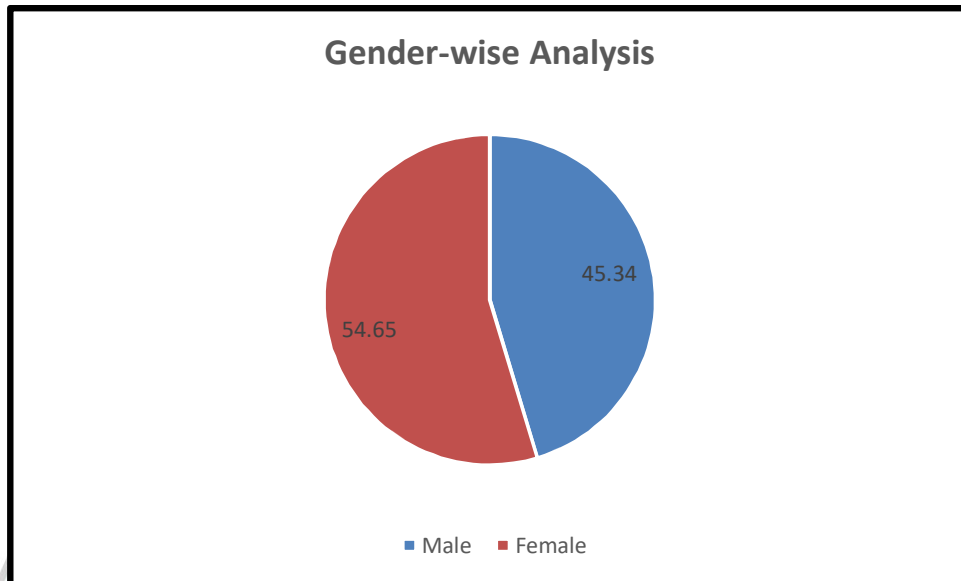
#### VI] Results & Discussions:

##### 1. Age wise Analysis:



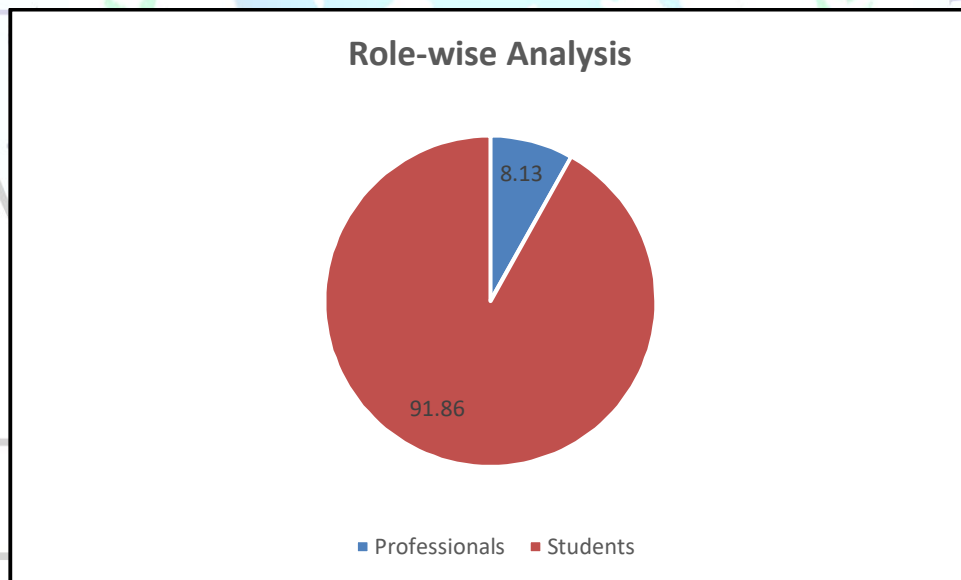
It is observed that WhatsApp is more popular in the age group ranging from 20-30 as compared to other age groups.

### 2. Gender wise Analysis:



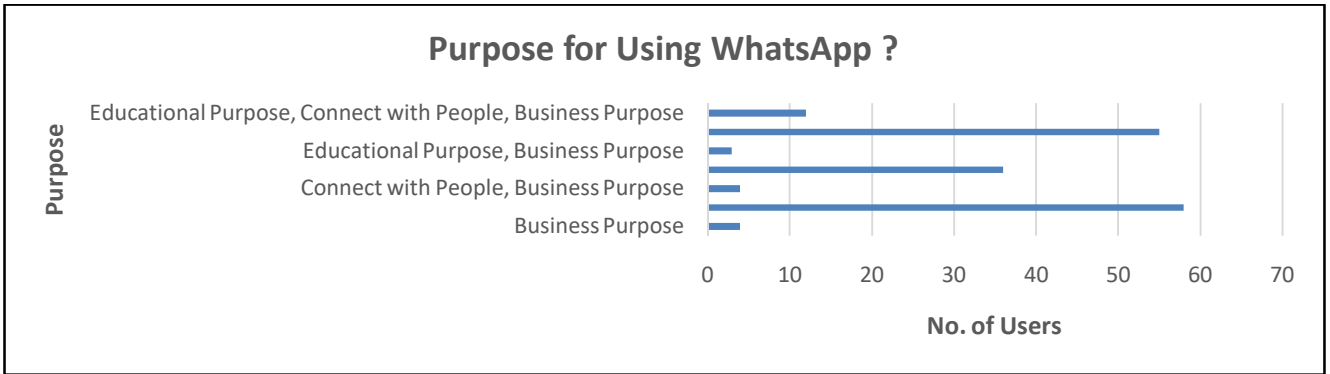
As per our survey Female WhatsApp users (54.65%) are more than Male users(45.34%)

### 3. Role wise Analysis:



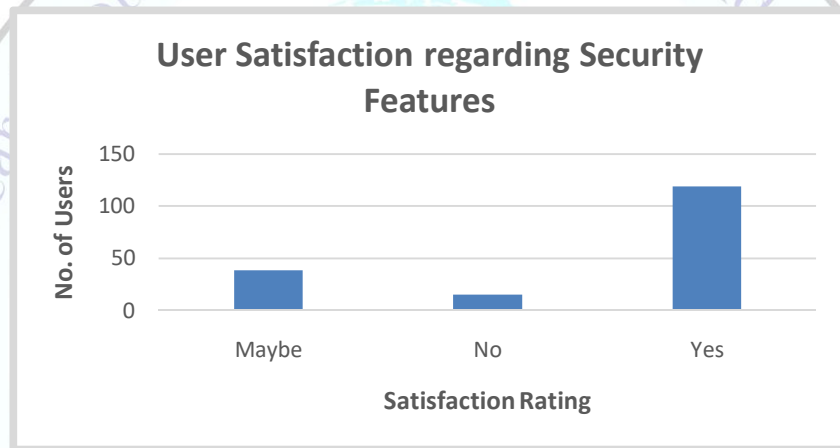
As per study WhatsApp users contain more no. of student users(91.86%)(for regular WhatsApp version) than professional users(8.13%) because WhatsApp has individual application for business purpose and most of the professionals are having more than 1 account.

### 4. Purpose wise Analysis:



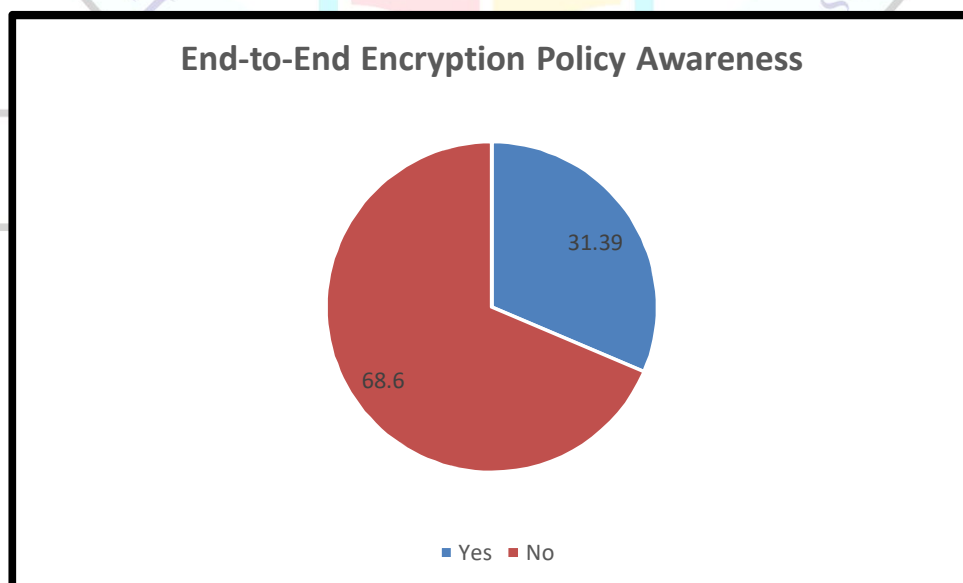
More no. of WhatsApp users uses it for communication purpose while Student users use it for educational purpose. Only few people use regular WhatsApp version for business purpose

#### 5. User Satisfaction Analysis:



Most of the people are satisfied with WhatsApp's Security settings & few people are not satisfied with those due to various reasons like lack of awareness regarding such settings

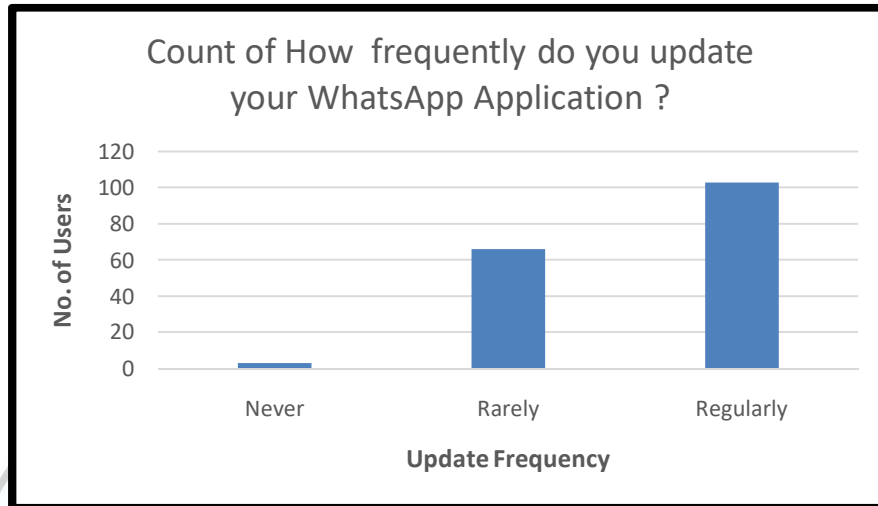
#### 6. Awareness regarding End-to-End Encryption Policy:





From the above results 31.39% people are not aware about WhatsApp's End-to-End Encryption policy in order to keep user data safe and secure from an unauthorized access.

### 7. Regular WhatsApp Updates:



WhatsApp frequently releases updates in order to provide new features as well as security patches and few bug fixes. People are aware about updates are only for introducing new features but it is also needed to get new security patches to keep it more secure and safe.

WhatsApp is more popular in the youngster and is most widely used for communication and educational purpose. Public awareness is required in order to avoid illegal WhatsApp clone version (GB WhatsApp). It is necessary to spread awareness regarding End-to-End encryption policy of WhatsApp. Updates of WhatsApp version comes with security patches and bug fixes. So it is required to update your WhatsApp regularly. More than half percentage of WhatsApp users are satisfied with its security settings.

### Conclusion:

As we all know Communication is an integral part of human life. Internet and social media have made Communication is very easy and fast. Through various social media platforms like WhatsApp, it has become possible over only single click to anyone and anytime. Every single people use WhatsApp at least once a day for sharing personal as well as professional information. Cyber Crimes and hacking cases are increasing along with increase in information and data sharing over social media platforms. Also privacy and digital identity theft issues are arising. This study is really helpful in finding out such security issues and cybercrimes. This study also includes solutions to solve such issues and to overcome those crimes in order to avoid future threats. This study shows how many account user had and how much user spend time on it. Security features are not worth it until user know about it. So, this study shows how much they know about security features on WhatsApp and how many of them use to protect their account.

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