

A REVIEW OF M-BANKING SECURITY IN BANGLADESH

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APPROVAL

This Project titled “**A REVIEW OF M-BANKING SECURITY IN BANGLADESH**”, submitted by Md.Mosabberuzzaman Ovi, Id No: 143-15-160; Abdullah-Al-Noman, Id No:143-15-161; Al Mamunur Rashid, Id No:143-15-176; to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering (B.Sc.) and approved as to its style and contents. The presentation has been held on 07 Nov 2018.

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ABSTRACT

Banks are playing very vital role for the economic development of a country. Mobile banking is a process that has a new dimension in the banking sector. Mobile banking is the convenience of monitoring all activities of bank accounts through mobile phones. Mobile banking to make their customers satisfied and be advance in their world where the common services are account opening, account balance query, fund transfer and PIN related service. All the operators of mobile phone in Bangladesh have started to be involved at a greater extent in this regard. With the rapid growth of the use of mobile phones, transactions in the developed world are now being done through mobile banking, which makes banking easier, faster, and cost-effective. But the security concerns of m-Banking has become an issue in recent time. The project reports on aiming at identifying and classifying the security aspects of m-Banking in Bangladesh.

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LIST OF ABBREVIATION

ATM	=	Alternative Transaction Method
SMS	=	Short Messaging System
WAP	=	Wireless Application Protocol
DBBL	=	Dutch Bangla Bank Limited
IBBL	=	Islamic Bank of Bangladesh Limited
MBL	=	Mercantile Bank Limited
EBL	=	Eastern Bank Limited
MTB	=	Mutual Trust Bank
DEPZ	=	Dhaka Export Processing Zone
CEPZ	=	Chittagong Export Processing Zone
RBC	=	Royal Bank of Canada
ICRM	=	International Conference on Rural Markets
SWOT	=	Strength, Weakness, Opportunities, Threats
NFC	=	Near field Communication
SIM	=	Subscriber Interface Modules

CHAPTER 1

INTRODUCTION

1.1 Overview

Mobile banking is a system that allows customers of a financial institution to conduct a Number of financial transactions through a mobile device such as a mobile Phone or personal digital assistant.

The hurried accrual of information technology, In particular mobile devices have made opportunities for new and innovative mobile banking services. Widely used in short messaging system (SMS) we can communicate one place to another place. Mobile phone banking technology raised banking industry set mobile banking service. With the rapid growth of mobile banking services, the process of money laundering has been made easier. As a result, these people are getting their money in the moment. This makes it easier to move people's daily lives. Mobile banking facility is managed through mobile SMS only. Around (163 million) World Bank people lives in Bangladesh according to 2016. Which only 15 percent people have a bank account? Where 95 percent account holder uses in mobile. It may be a great opportunity to expand the banking system. Through the mobile banking facility, a customer can check his mobile account balance, they can cash in or cash out in any banking agent or ATM booth. Moreover, most of the products that are currently being sold are exchanged for money using mobile banking. Day by day this payment process is more popular every people in this country.

[1] In the previous decade, the quantity of web based managing an account clients has expanded quickly. This has driven numerous designers to research more advantageous techniques for clients to perform remote managing an account exchanges. Versatile managing an account is another helpful plan for clients to perform exchanges, and is anticipated to increment as the quantity of cell phone clients increments. [2] The utilization of cell phone has quickly developed crosswise over different classes of Individuals paying little heed to their instructive capabilities, money related capacities, and innovative

foundations. The responsibility for and exchange of assets between money related organizations are recorded on PC frameworks associated by versatile system or phone lines. [3] Confirmation can be altered by Stick number or client name and Secret phrase, ID card, and so forth. Unique mark acknowledgment framework is a piece of biometric framework. The upside of utilizing unique finger impression is that, correspondence can happen just through approved people and will be secure. Unique mark innovation is the most generally utilized in media transmission industry. [4] It is because of the trend setting innovation and remote innovation clients are more comfort to do their money related administrations through versatile. Versatile managing an account dependent on WAP (Wireless Application Protocol) and SMS (Short Message Service) is prevalent. [5] The mobile phone is even used as a wallet. In Tokyo metro, there exists the “touch and pay” system on mobile phone and this is one example of m-payment. It is used not only for banking but customers also for paying bills, booking movie tickets, mobile recharge etc. It helps banks to communicate with their clients frequently and generate revenue in terms of increased customer’s transactions through mobile banking.

My contribution in this research is to enhance M-Banking security. As a result, the banking facility will be facilitated by mobile banking and people's confidence in banking will be much higher than before.

1.2 Background

Mobile Banking is a service that goes through SMS. We call it SMS Banking. Before 2010, Mobile Banking Service is edited through SMS or Mobile Web. Based on the initial success of the iPhone and Google's Android operating system, faster smartphone usage has increased. Currently, this special banking facility is being provided through mobile apps. As a result, people download this app through mobile devices and they take their desired service. Banks launches web based application to launch their Web-based services. Because the frogs wanted to make their service easier. In 2010, the Bangladesh m-banking facility was introduced. Bangladesh has become popular in mobile banking terms. On average, trading in this sector is 994 crore taka. The transaction is increasing day by day because it is an easy way to deal.

1.3 Research Objectives

1.3.1 Overall objective

Using M-Banking system people get their money very easily. It's an easiest way to send and transaction money. Because it helps you anywhere. You can use this banking system in every sector. Offline and online marketing system you can use this. I think when m-banking service starting their service then people were save their time and money.

1.3.2 Specific objectives

The specific objectives regarding are listed below:

1. To recognize protest in the usage of technology of m- banking.
2. Identify problems of mobile banking in Bangladesh
3. Develop M-Banking security
4. To recognize important multiplier this decides the confession of mobile banking system.
5. To know the perception level of mobile banking system.

CHAPTER 2

LITERATURE REVIEW

Versatile managing an account is otherwise called m-Banking. M-Banking is portrayed as an exchange did by means of cell phone. M-saving money is an element of m-trade which executes

Clients to get to ledger through cell phone to finish bank related exchange. Cell phone is a standout amongst the most very much acknowledged innovations isn't just in the created nation yet in addition in Bangladesh. As of late in Bangladesh it is seen that because of the expansion in portable keeping money, customary branch saving money will lessen. Since the clients are sure about the given administration of portable keeping money. By complimenting administration offered by the keeping money framework. For example, checkbooks, ATMs, voice email/Landline interface, keen card, purpose of offer system, and web assets the portable. segment offers an advantageous extra technique for overseeing cash without taking care of money (karjaluo,2002),debit at (2011) have considered the measure of compelling the reception of portable managing an account in Bangladesh and found that the handset work capacity ,comfort and security are the prime effect factors, while dependability, cost privately, arrange methodology and information additionally have a critical effect.

At the point when a client is satisfied with either the item or administration it is named .fulfillment can likewise be an individual's emotions and weight that come about because of contrasting an item seen execution or result with their desire (Kotler and Keller, 2009) consumer loyalty is the client reaction to the assessment of the apparent inconsistency between earlier desire and the genuine execution of the item or administration as saw after its utilization (Tsc and wilton 1988). Administration quality is degree to which client view of administration meet to which client's impression of administration meet and ruler surpass their desire (zenithal et al, 1990). parasuraman (19988) characterizes benefit

quality as **”the difference between customer expectation and perception of service”**.

Service quality is also known as attitude which

is framed based on long haul assessment of the administration quality and demeanor considered as parallel (Bitner and Hubert 1994).

From the above discourse obviously the past looks into discovered connection between portable managing an account benefit quality and consumer loyalty. Be that as it may, no exploration has been done to research the connection between portable managing an account quality and consumer loyalty in Bangladesh.

2.1 Why use Mobile Banking

2.1.1 More ways to access accounts

Banks let you download their user-friendly apps through the phone via text, the web, or downloading the applications. Obtain the apps via text is more suitable for newbies because they are alerted via text, a medium they initially were familiar with, in case of any issue that craves notification. Those who have more promoted knowledge can directly download the apps and utilize them efficiently.[6]

2.1.2 Good Security

Mobile banking is easily certain than any other channels, even more, certain than internet banking. You should be worried of security breaches either with the domination of your phone or not. All data is guarded with solid passwords and most other making off checks. Your phone can also be disabled remotely in case of a security breaking.[6]

2.1.3 No Fees

Mobile banking services are usually free. One is not inferred to pay for the app downloads. This is one of the noticeable merits of using mobile apps for banking. They don't dig into your pockets.[6]

2.1.4 Ramping up Quickly in Mobile Banking

Mobile banking began in 2007 with small banks as prototypes, but now no bank is succeeding without these services. Nowadays these apps offer strong features that can save a lot of time accessing physically, not forgetting the extra add-ons and other saving engines that aid in controlling your general expenditure and gain the ease of use.[6]

2.1.5 Easy Access

You can access money at any shake and anywhere, and this makes mobile banking moving. Checking notifications like deposits, cash usage and control your transactions is guaranteed to be expansive.[6]

2.2 Why Mobile banking is different from Online/Internet banking

2.2.1 Online banking

Online banking is a banking that is managed through internet. Usually it is done through a website of a bank under a personal website. The bank includes these transactions without any exemption in the local branch.

Online banking is generally defined as having the following characteristics:

1. These transactions are done through the internet using the bank's secure website.
2. The bank Might have physical branch locations or it may Stay only online.
3. Users must register online and create a login ID and password.

On account of web based keeping money, purchasers can make distinctive sorts of exchanges, for example, Exchange cash starting with one record then onto the next, paying bill. Other fundamental exercises include:

1. Viewing account balances at any time of day
2. Viewing or printing statements
3. Viewing images of checks
4. Applying for loans or credit cards [7]

2.2.2 Mobile Banking

Mobile banking suit you to do numerous indistinguishable endeavors as internet banking deal with a PDA or tablet in lieu of a PC. In any case, basically value the bank's site on a mobile gadget not just plan of mobile banking. Mobile banking's adaptability incorporates:

1. Logging On a banks mobile web site
2. Using a mobile banking app
3. Text message (SMS) banking

While more banks are making their destinations less demanding to use on mobile gadgets, mobile banking is all the more generally connected with getting to your records through an application.

Apps can offer an extensive variety of administrations that are not constrained to account get to and incorporate the accompanying:

1. Making mobile check deposits.
2. Transferring money.
3. Paying Bills
4. Locating ATMs.[7]

2.3 Use of Mobile banking

Mobile Banking is known as Mobile Banking and M Banking and SMS Banking, which is provided on the mobile phone for a number of necessary banking services, so that customers do not have to go to any bank. In 1999, Europe's banks introduced the first such service and brought services to the first four banks in Bangladesh. BRAC Bank Means bKash, Dutch Bangla Bank, Trust Bank, Markentile Bank has also introduced six mobile phone companies serving the eight banks owned Grameenphone, Robi and Airtel Banglalink banking institution serves as co-operation. By January 2013, the number of mobile phone users of the country was ten crore, which has now spread to 12 million, and this number is increasing every day, so in this situation mobile banking is easily brought to the fore by many people of the country.

Banking is available in all types of emergency services, including taking money deposited in various types of major shopping, pay-allowances, mobile top-up, etc.

Table No 2.3: **Mobile banking Service provider**

Service Provider	Short Code	To Know more Please visit
DBBL Mobile Banking [8]	*322#	https://www.dutchbanglabank.com/rocket/rocket.html
bKash [9]	247#	https://www.bkash.com/
UCash [10]	*268#	http://www.ucash.com.bd/
IBBL(mCash) [11]	*259#	https://ibblportal.islamibankbd.com/indexLogin.do
IFIC Mobile Banking [12]	*255#	http://www.ificbank.com.bd/mbanking/
MBL(My Cash) [13]	*225#	http://www.mycashmbl.com/

2.4 Internet banking

The banking sector is changing rapidly in the world. In order to create a digital environment in this dynamic banking sector, the demand for internet banking has become compulsory. Because customers now want to get fingertip banking facility. By using apps of this bank, people are paying their bills and handing over the funds. We are currently doing all the work using our internet banking apps. Because life has become violent and busy now.

In our country, Banks have brought their internet banking apps to provide internet banking facility to the customers

1. City Bank (City Touch)

City Bank is one of the oldest commercial private banks in Bangladesh. This Bank is one of the top five commercial banks in Bangladesh. City Bank has taken a step for their customers to make Bangladesh Banking facility safer, faster and safer. They launched a digital banking application called City Touch. This app did not connect more of the old consumers to the banking system of City Bank. Many new customers have started taking advantage of this app for its convenience and performance. They have transferred their accounts to the City Bank [14]

Features that City Touch app contain:

1. Fund transfer and account details.
2. Deposits, loans and card management.
3. Customer ministration request through app
4. Personalization, customization and transaction security check by customers.
5. Internet banking is available for hundreds of sellers across the country

2. Eastern Bank Ltd (EBL SKYBANKING)

Eastern Bank Bangladesh is another prominent trading bank which follows the cost-effective management. This bank operates through the promotion of balanced integration of business to promote productivity and they concentrate on expanding the banking facility to increase continuous growth. They have a phone app-based service that we know about EBL Sky Banking. This app can access anytime anywhere from smart phones or tabs. By clicking on the menus in these apps, customers can take banking services when they needed [14]

Features that EBL Sky Banking app contains:

1. Transaction and account information check
2. Bills were paid through transfer from EBL and other banks to the fund
3. Anytime top-up to mobile phone
4. Positive pay prescription and area service request
5. EBL zip and discount partners search.

3. Mutual Trust Bank (MTB Smart Banking)

Another affiliated bank of Mutual Trust Bank (MTB) was included on 29 September 1999 as a public limited company. They are continuously doing this to provide better services to their customers. That's why they launched their mobile app for smartphones. Which allow users to have continuous access. Due to this facility financial transactions can be done from any selected place in the world.[14]

Features that MTB Smart Banking contains:

1. Detailed Account representation
2. Check Book Requests services
3. Transferring Fund to other MTB bank accounts
4. Easy mobile top-ups facility
5. Use Bill Payments

4. Standard Chartered Bank (SC Mobile Bangladesh)

Standard Chartered Bank is one of the largest international banks in Bangladesh. This bank has 26 branches and booth and 83 ATMs. The bank is present in six major cities of the country including Dhaka Export Processing Zone (DEPZ) and the only Offshore Banking Unit of Chittagong Export Processing Zone (CEPZ). Standard Chartered Bank launched their internet banking application in SC Mobile Bangladesh. So that the internet banking application has become easier for customers. It has a lot of development opportunities in the future [14]

Features that SC Mobile Bangladesh contains:

1. Quick access to user accounts.
2. All kind of bill payments
3. Fund transfer
4. Supervise online transaction histories

4. BRAC Bank (BRAC BANK Mobile)

Established in 2001, BRAC Bank has proved their customer to be the fastest growing bank in 17 years. Today the bank has 176 branches and more than 500 ATM booths across the country. There are 448 SME Unit Offices. Customers use their mobile apps for BRAC Bank services. As a result, they get all types of banking services through these apps. The services made through these apps make the banking sector much easier [14]

Features that BRAC BANK Mobile contain:

1. Transfer Fund of any BRAC Bank Account
2. Rapid Mobile Top-up
3. BRAC Bank Credit Card Bill Payment facility (BDT)
4. Utility Bill Payment
5. SMS Banking Facility via app

2.5 Global Comparison

In our country people are satisfied with their banks ATM, Internet, SMS banking facilities. Now people free less tension to transfer their money from Dhaka to Chittagong Or even where the banks are on lined. They need not carry the money whenever go for Shopping. They can use Visa Card, Master Card and they are able to draw money from the nearest booth of market through ATM Card.

The cards are like **Plastic Money** as the bankers say it. But in Comparing with the international standard there are some gaps of online banking with other foreign banks. The causes are infrastructure, knowledge of use, term and conditions, slow bandwidth of radio link in money transferring and so on

Global Comparison in m-banking below the table:

Table No 2.5: **Global Comparison in Mobile Banking**

Banks	Facilities	Web address
Dutch-Bangla Bank Ltd (Local) [9]	Internet Banking, ATM & Q-Cash Credit card, Debit card etc.	https://www.dutchbanglabank.com/
ICICI Bank(India) [15]	Bill-payment, Ticket Booking, Fund, Transfer (On-net/Off net) Online Tex Payment	https://www.icicibank.com /
RBC Royal Bank(Canada) [16]	Online Banking, Direct Banking, Online Tax, Payment, Regional Online Banking, Credit card, Enquiry, Mobile Banking	https://www.rbcroyalbank.com/personal.ht

CHAPTER 3

SECURITY ISSUES OF M-BANKING

Mobile banking is gorgeous because it is a suitable approach to perform remote banking, but there are security issue problem in the present mobile banking application. This paper discusses some of these issues in mobile banking Security (Glaessner, T., and et al. 2003). The mobile banking related wireless communication information security will be as follows:

3.1 intelligence leakage, loss and distort

Versatile managing an account exhibitions transfer knowledge by remote information organize. Remote information systems prerequisite radios that get in advanced information, zeros-and ones, accord and arrange the information as radio swell, take out the radio waves, demodulate the flag, and convert them back to ones. Present remote system innovation gives extremely kept instruments to impenetrable the remote transmit media. Covert managing an account data maybe departure, lost or contort in the everyday abuse gadgets. assailant power gets top mystery insight on the motivation of portable correspondences organize through covering and establishment admissible gadgets of in the electromagnetic radiation, at that point erase, tone down, include or re-played some fundamental knowledge to squander the ordinary utilization of legitimate clients (Schwidorski-Grosche, S. what's more, Knospe, H. 2002).

3.2 Virus attacks

Current infections of portable activities essentially wiping out cell phone capacities, potential dangers of versatile keeping money will probably be clarified than system managing an account.

Right off the bat, the infection that spreads through versatile terminal just influences the radio system. In the meantime, certain system terminals are harmed; furthermore Antivirus programming is hard to use because of as far as possible for cell phones; thirdly, there are

numerous remote systems that have no antivirus framework. Russia as of late found the PC infection that spread through portable systems. The infection cannot just harm the portable working framework by associating with Symbian through the radio system. Be that as it may, it very well may be spread through Bluetooth. Which can enact the infection and spread the cell phone, at that point discharge a secured record containing infections close other Bluetooth-skilled cell phones.

3.3 The Mobile Banking Information Security Protection Methods

By dissecting the information insurance issues of portable managing an account, we discover the distinction between versatile keeping money and system saving money security. Versatile keeping money faces more intricate security issues. We can't plant the security keeping money organizing procedures just on the versatile saving money framework; We should make reference to the data security of our system managing an account and after that based on highlights of portable banks, the Proksidians-Universal Meeting ICRM 2010 71 ought to present new advances and safety efforts to guarantee the security of versatile saving money.

3.4 System and data integrity

For deficient data because of the contact procedure, the portable correspondence framework will give suitable systems to the lead of non-reasonableness. A transporter channel, versatile terminal, portal, server, and different instruments undermine the continuation of malignant infection assaults and different pernicious assaults. Security of the versatile managing an account framework will guarantee security like firewall, entrance discovery framework and fast security recuperation process. Framework respectability procedures ought to have the capacity to test the uprightness of the framework and record coding to guarantee the honesty of the portable managing an account framework. In the information transmission process, disappointment of deficient information transmission and records ought to be always checked to discover framework blunders.

3.5 SWOT Analysis of Mobile Banking

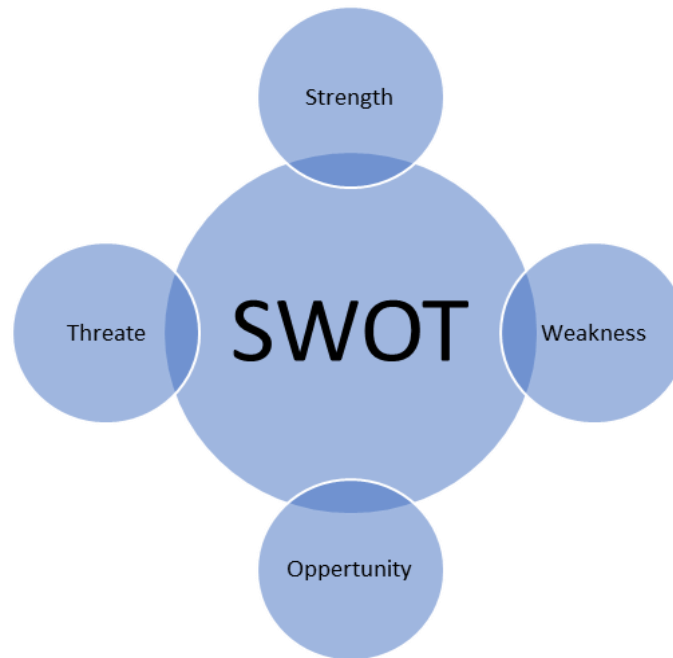


Figure 3.5: SWOT Analysis of Mobile Banking

Strength:

1. Time saving.
2. Provide multiple service.
3. Better optimize use of resources.
4. To increase productivity and efficiency.
5. Easy to use.
6. Standardize working procedure.

Weakness:

1. People confused because of machine availability of mobile banking service.
2. Required expert staff to control complex banking operation.
3. Low awareness level among customer because of digital device in our society.
4. Need huge investment to develop mobile banking system.

Opportunities:

1. To provide user friendly and convenient Banking service.
2. To provide value added service.
3. Standardization of service.
4. Faster flow of information.
5. Reduction in costs.
6. Gain in efficiency and profitability.

Threats:

1. Short life of technology.
2. Lack of expert staff.
3. Organizational risks.
4. Operational risks.
5. Security risks.
6. Legal risks.

3.6 Customer Liability in the Age of Digital Banking

When fraud occurs with customer's bank account through illegal access, who is liable for? The appropriate response relies upon the nation where the record is being worked. At the point when a client reports an extortion happens her/his records she/he isn't subject for the full finances lost.

Some of the highlights in the communication:**Mandatory by Banks for All Digital Transactions**

- Registration of customers for text alerts and email wherever available, for electronic transactions.
- Text alerts to customers for all electronic transactions and email alerts to customer registered email.

- Ability for customer to report unauthorized transactions 24X7 through multiple channels (including website, phone banking, SMS, email, IVR, toll-free helpline, home branch).
- Enable customers to instantly respond by Reply to text alert for unauthorized transactions.

Zero Liability of Customer:

The customer has zero liability for the loss where unauthorized transaction occurs in case of:

- Contributory fraud/negligence/deficiency on part of bank irrespective of whether the transaction is reported by the customer.
- Third party breach, where the deficiency lies neither with the bank nor with the customer but lies elsewhere in the system and the customer notifies the bank within 3 working days of receiving the communication from the bank regarding the transaction.

Limited Liability of Customer:

The customer has limited liability for the lost funds due to unauthorized transactions in the following cases:

- Where misfortune is because of carelessness of the client, for example, sharing installment qualifications, the client will bear the whole misfortune until the point when client reports the unapproved exchange to the bank. Any misfortune happening after client reports unapproved exchange ought to be borne by the bank.
- Where the duty regarding the unapproved electronic banking exchange lies neither with the bank nor with the client, however lies somewhere else in the framework and when there is a postponement (of 4 to 7 working days in the wake of getting the correspondence from the bank) with respect to the client in informing the bank of such an exchange, the per exchange risk of the client will be constrained to the

scope of INR 5000 to INR 25,000 dependent on the kind of the records and the normal parity/credit limit.

- Where the postponement in revealing is past 7 working days, the client obligation will be resolved according to the bank's Board endorsed strategy.

Customer Liability – Summary:

Time Taken to Report Fraudulent Transaction from Date of Receiving the Communication
Customer's Liability inside 3 working days Zero risk Within 4 to 7 working days the exchange esteem or the sum referenced in Table 1, whichever is bring down Beyond 7 working days according to the bank's Board affirmed approach

Additionally, the bank should credit the sum engaged with unapproved exchanges to the client's record inside 10 working days from the date of revealing by the client.

These measures will absolutely take advanced appropriation to the following dimension for the BD banking part and the general economy.

While banks must put resources into the empowering innovation and procedures, the advantages of expanded client trust in computerized reception far exceed the empowered expenses.

CHAPTER 4

RESULT AND DISCUSSION

Challenges for secure Mobile banking transaction:

Adoption of Mobile banking:

1. Secure transaction required for payment.

Challenges:

1. Use a safe approach to identification
2. Make mobile banking safer by reducing fraud.
3. Hideout.
4. Data indivisibility.
5. Soul-efficiency.
6. To prevent mobile banking from attacking the virus

4.1 Interview Phase

After reviewing the literature, review and find out the current security issues of mobile banking. It has been realized that the company's skills are involved and their behavior from managing the interview has found how security level mobile banking is improved.

4.2 Interviewing

Each interview is indicated by specialist men in 25-30 minutes. We select the question before the interview and mention the important points. Ultimately, analysis of results revealed more about mobile banking security

4.2.1 Selecting Question for Interview

Question A:

The first question about mobile banking and its impact on customers, when they got mobile banking, what was the relationship between other applications like mobile applications etc.?

Question B:

The second question is about the role of mobile companies for the development and design of safe mobile handsets for sensitive services such as mobile banking, guaranteed transactions, secure confirming processes etc.

Question C:

And the last question is how to make safe transactions, find out safe methods.

4.2.2 Analysis of the Interview

In this area, art interviews and literary analysis are presented. Interviews help us to know the security issues for our payment system transactions. Another scope of the industry is to make the mobile banking safer to understand the person's viewpoint so that everyone can easily do their activities.

Reliability:

Customer does not want to wait, so slow trading can be effective for mobile banking.

Security:

1. The transaction will fail if the message is lost.
2. Hacker can hack SMS so SMS cannot be encrypted so plain text.

Customer satisfaction:

1. Most of the customers prefers for mobile banking.
2. Customer does not transfer big amount of money because they hesitate due to security threats.

Fraud:

Through banking security is developing day by day but still fraud occurs.so need to improve security system to minimize fraud chance.

Self-Efficiency:

Contact the security risk associated with mobile banking for any confrontation. So low for customer self-skill transactions.

We also researched various types of paper. What they wanted to do in their papers and what they could do. We have verified them. These are given below as charts.

4.2.3 Survey Report:

We have taken survey from different types of people from different types of Occupation
Their ages were 18-29

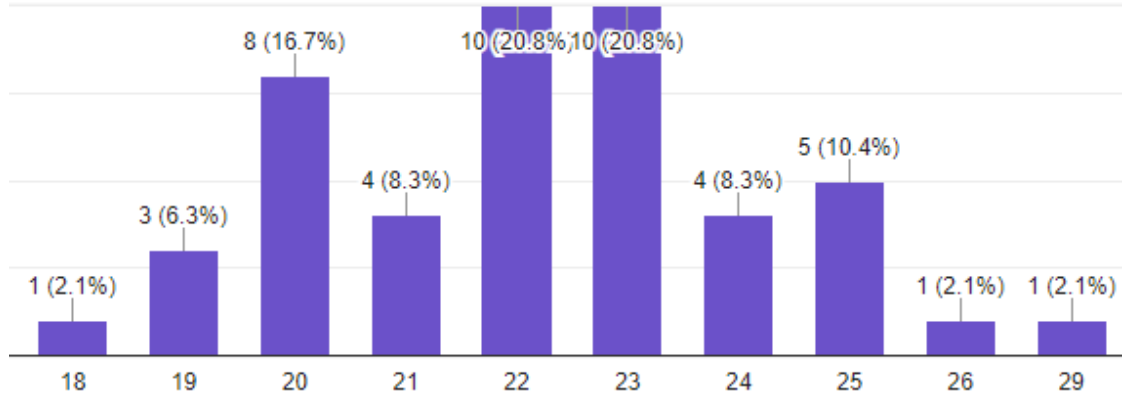


Figure 4.1: Age of Respondents

They were students, Businessman and Employees

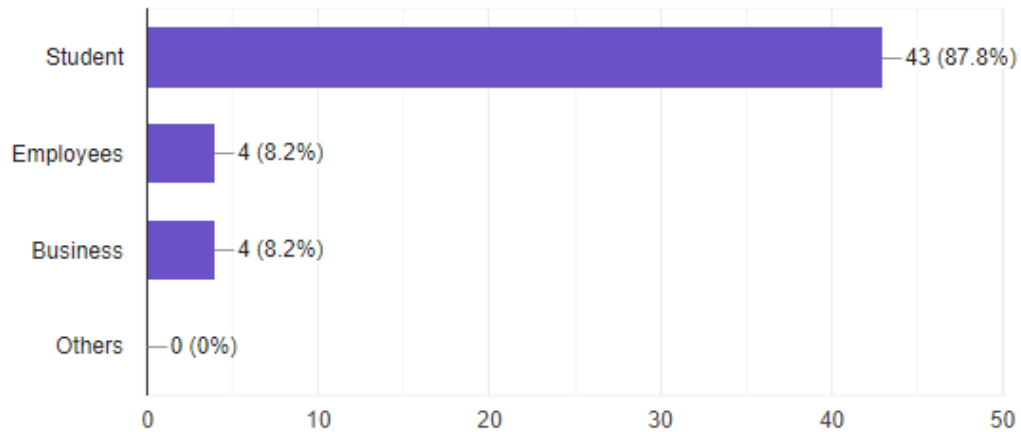


Figure 4.2: Occupation of Respondents.

50% off people using DBBL, 45.8% of people are using bkash and others.

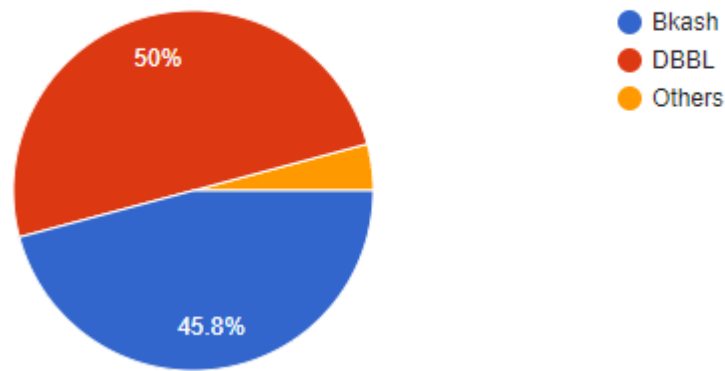


Figure 4.3: Different M-Bank Using Percentage

We asked them couple of question here is it with result!

How you are motivated to open an account in Mobile Banking?

48 responses

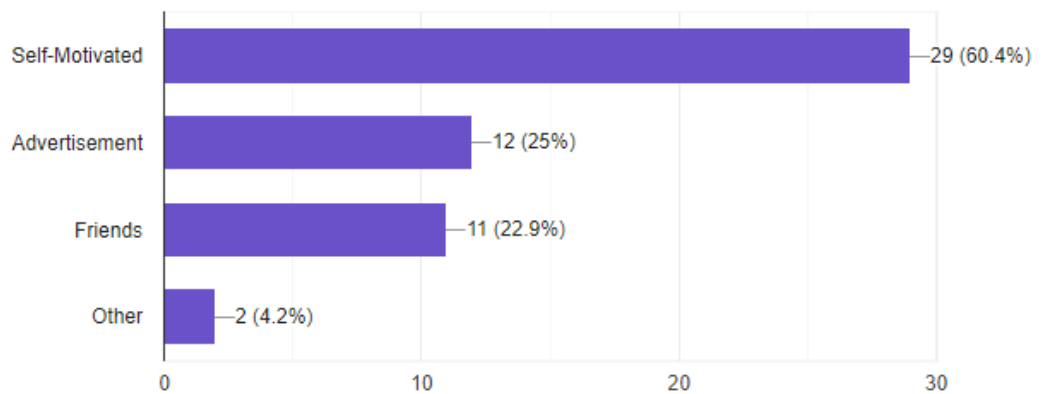


Figure 4.4: Using methods for motivate to open M-Banking Account.

What factors affect you to open Mobile Bank account?

48 responses

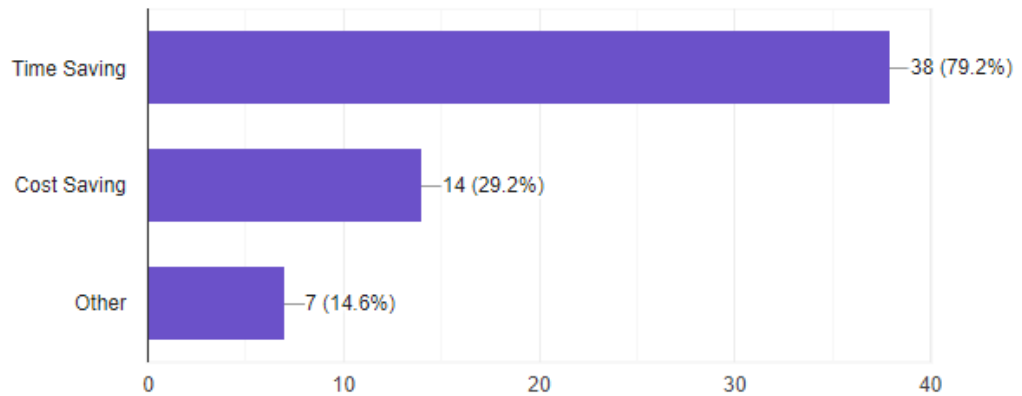


Figure 4.5: Factors affect to open M-Bank Account

Using mobile banking enables me to utilize banking services more quickly and enhance effectiveness

48 responses

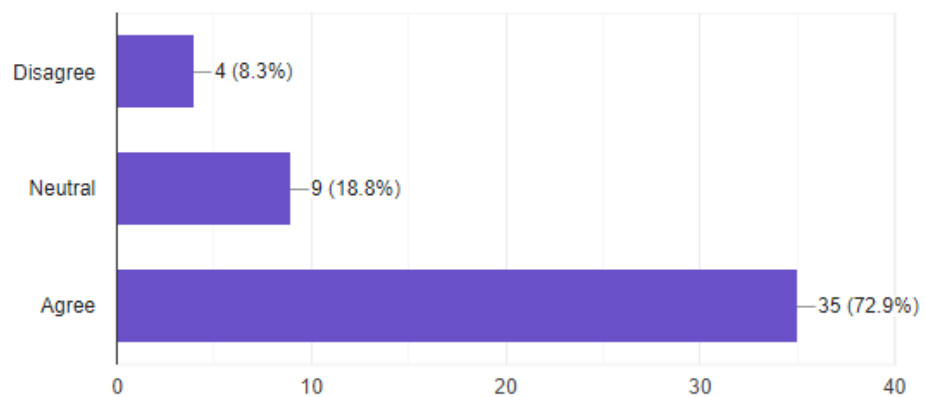


Figure 4.6: percentage of respondents

Security Concern/Risky

47 responses

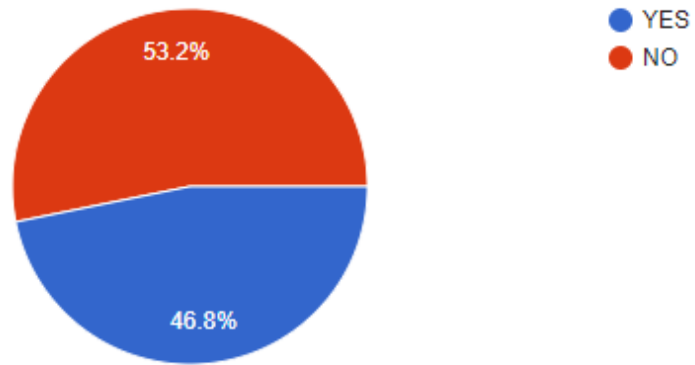


Figure 4.7: Security Concern

Are you comfortable using mBanking besides the General Banking?

47 responses

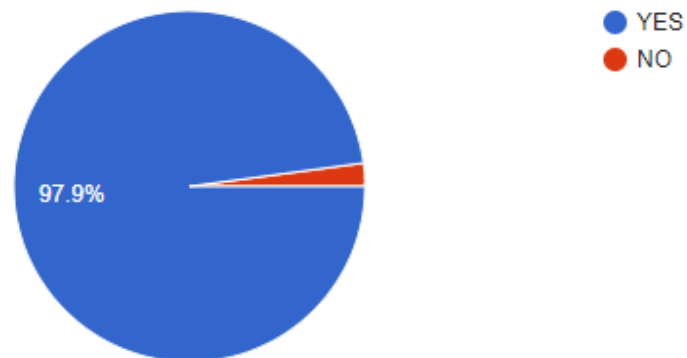


Figure 4.8: Respondents percentage of Comfortable using M-Banking

Is it easy to use?

48 responses

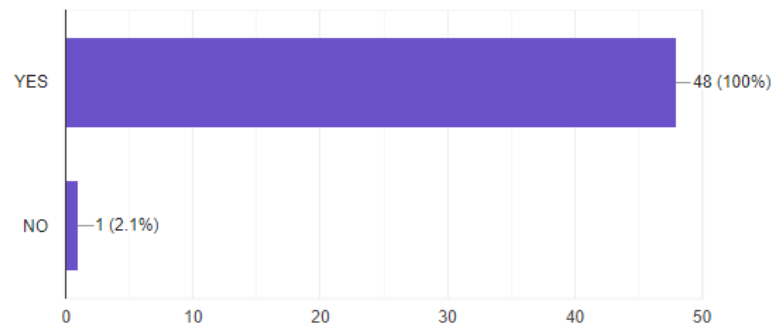


Figure 4.9: Using percentage of easy to use M-Bank

Is there transaction fee costly?

48 responses

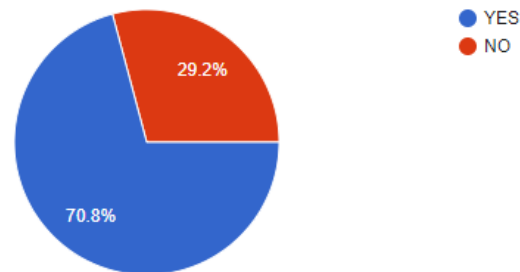


Figure 4.10: Respondents Percent of Survey

Also we asked them couple of question. After reviewed their opinion we decided they have concern about security. They are worried about their account security. Most of the user told us M-Banking service Provider Company are charging transection much more. Sometimes M-banking doesn't access network. They request us to improving network quality. They don't want to see network problem during the transection time. Overall we need to update and add some extra security on the M-banking system.

4.3 Recent Research Status

Table 4.3: Recent research status:

SL	Title of paper	Year	Objectives	Outcome
1	Mobile Technology in Banking Process [17]	2016	<ul style="list-style-type: none"> • How they should depend and trusted m-banking. • This manuscript investigate the differences between using Smart phone as a platform for authentication, using near field communication (NFC) and other applications in banking processes as well as security of each. 	<ul style="list-style-type: none"> • Development of different applications in banking processes. • ATM development • .Security • Credit cards Security
2	Handheld Cash Deposit and Withdrawal Mobile Banking Device [18]	2016	<ul style="list-style-type: none"> • A touch screen is utilized for giving the client points of interest. • .Unique mark of each client is confirmed for each exchange utilizing unique mark scanner. • After the exchange, the rest of the equalization in the record is sent as a SMS to the server utilizing GSM. 	<ul style="list-style-type: none"> • Since this device has a fingerprint scanner and pin security, the unauthorized persons cannot misuse the device. • this device will help the rural area people to withdraw or deposit amount easily
3	A STUDY ON MOBILE BANKING IN INDIA [19]	2016	<ul style="list-style-type: none"> • These papers are arranged into five principle classifications: m keeping money outline and reasonable issues, Highlights and Advantages of Portable Managing an 	<ul style="list-style-type: none"> • The fundamental goal of this paper is to investigation of examine the versatile keeping money in

			account, Current working practices of business banks, and Versatile saving money/installment rehearses in Indian Business Banks and Difficulties in India vital, legitimate and moral issues.	India and practices and difficulties in portable managing an account. • To think about the apparent utility of different Portable saving money administrations
4	M-Services in India: A Study on Mobile banking and applications [20]	2016	<ul style="list-style-type: none"> • To study the trends in mobile banking in terms of numbers of users and transactions • To study the recent progress by various banks with respect to mobile banking. 	
5	EVALUATION OF EXPERIENCE REGARDING THE USE OF MOBILE BANKING: AN APPLICATION ON ACADEMICS [21]	2016	<ul style="list-style-type: none"> • Mobile banking is evaluated as the most effective banking application that provides competitive advantages for banks. 	<ul style="list-style-type: none"> • In this direction, that banks present their products and services to their customer through internet in accordance with the law and regulations will increase the competitive power of banks.
6	A study on utility of mobile banking technology in Tiruchirappalli city, Tamil Nadu [22]	2015	<ul style="list-style-type: none"> • To know the perception level of mobile banking system. • To identify important factors this decides the acceptance of mobile banking system. 	
7	Factors Affecting Consumer Perception Towards Mobile Banking [23]	2009	<ul style="list-style-type: none"> • To design develop and standardize the measure to evaluate the determinants of factor affecting customer perception towards mobile banking • To find out the determinants of factors affecting customers perception towards using 	<ul style="list-style-type: none"> • To contemplate the utilization example of portable keeping money administrations. • To decide the components which impact the reception of portable saving money

			mobile banking.	administrations. <ul style="list-style-type: none"> • To discover relationship, if any between the socioeconomics, utilization design and the components brought out from the investigation.
8	Mobile Banking – Adoption and Challenges in Nigeria [24]	2016	<ul style="list-style-type: none"> • To decide those components that impacts the dimension of selection of m-keeping money in Enugu State • To learn the dimension of administration standard with the utilization of cell phones in leading keeping money exchanges in Enugu State. • To distinguish difficulties in the use of innovation of m-keeping money. 	<ul style="list-style-type: none"> • To determine those factors that influences the level of adoption of m-banking in Enugu State. • To identify challenges in the usage of technology of m- banking • To proffer solution to the identified challenges in the implementation of m-banking system in Enugu State.
9	Prospects and Challenges of Mobile Banking in Bangladesh [25]	2014	<ul style="list-style-type: none"> • The perceived advantages and disadvantages of mobile banking to the customers. • Expectations regarding future development of mobile banking. 	<ul style="list-style-type: none"> • Expectation regarding future development of mobile banking. • Factors that may hinder its implementation in Bangladesh • Factors that may enhance its implementation in Bangladesh.
10	Security of Mobile Banking: Secure SMS Banking [26]	2006	<ul style="list-style-type: none"> • The GSM arrange has some security instrument to forestall exercises like Endorser Interface Module (SIM) cloning, and stop unlawfully utilized handsets. GSM has strategies to verify and 	<ul style="list-style-type: none"> •The system allows user to carry out all banking transaction securely from anywhere, anytime. •The evaluation of the system was studied for varying

			scramble information traded on the system	banking transaction and under various security threatening malicious activities were recorded.
11	Problems and prospects of mobile banking in Bangladesh [27]	2011	<ul style="list-style-type: none"> • To identify prospect of mobile banking in Bangladesh • To detect problems of mobile banking in Bangladesh • To make suggestions on the basis of findings 	<ul style="list-style-type: none"> • Takes Time by Mobile Banking than Traditional Banking. • Trust Worthy. • Time Saving and cost effective.

CONCLUSION

In this paper, we have said about mobile banking security and risks. Through mobile banking, we can make money transactions very soon. Presently, mobile banking services have contributed a lot to the country's economic growth. It is already proved that mobile banking is more useful than the country's traditional banking, to reach the banking service to the working class and the vast population. The number of subscribers who can accept financial services through mobile banking can be approximately 4 million people, but the number of current subscribers is one-fourth of the total, so the mobile banking activities will be expanded to these people as quickly as possible. According to credit-debit card for product trading, it is possible to deal with mobile. And the big retailer Swap Company is now paying the price of the products purchased through mobile phone. Increasing the amount of transactions in mobile banking by about 15 percent every month. Currently paying electricity bill by mobile phone, if the service is further expanded, then hourly hours will not waste time in the front of the bank. One statistics show that only 30 or more of the country's adult population is in banking service; on the other hand, 70 percent of the total population is using mobile phones, regardless of low-income city-wide, mobile phones are used in all areas, Neither will the branch of the bank branch but the mobile network is the country Due to the wide spread of mobile network users across the country, many of the countries in our country have been able to bring the huge population out of banking facilities to the financial services and make it available to them. Conclusion In this paper, we have said about mobile banking security and risks. Through mobile banking, we can make money transactions very soon. Presently, mobile banking services have contributed a lot to the country's economic growth.

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REFERANCE

- [1] Kelvin Chikomo, Ming Ki Chong, Alapan Arnab, Andrew Hutchison “Security of Mobile Banking PROCEEDINGS-INTERNATIONAL CONFERENCE ON RURAL MARKETS – ICRM 2010
- [2] Md. Saifur Rahman Bhuiyan, Md. Mizanur Rahman. “Implementation of mobile banking in Bangladesh: Opportunities and challenge’s”. IOSR Journal of Electronics and Communication Engineering (IOSR-JECE).
- [3] Muhammad Bilal, Ganesh Shankar “Trust & Security issues in Mobile banking and its effect on Customers”
- [4] Sameer Hayikader , Farah Nurafiqah Hanis binti Abd Hadi , Jamaludin Ibrahim “Issues and Security Measures of Mobile Banking Apps” International Journal of Scientific and Research Publications, Volume 6, Issue 1, January 2016
- [5] “Security on M-Banking and M-Payment: A Literature Review” December 2012
- [6] Reasons to Use Mobile Banking [Online]. Available:
<https://www.seventhgenerationadvisors.org/2018/05/15/reasons-to-use-mobile-banking/>
Retrieve Date: 15 May, 2018
- [7] What’s the Difference between Online and Mobile Banking? [Online] Available:
<https://www.discover.com/online-banking/banking-topics/whats-the-difference-between-online-and-mobile-banking/> Retrieve Date: 04 September, 2016
- [8] DBBL Mobile Banking. [Online]
Available: <https://www.dutchbanglabank.com/rocket/rocket.html>
- [9] bKash. Available: <https://www.bkash.com/>
- [10] UCash. Available: <http://www.ucash.com.bd/>
- [11] IBBL (Islami Bank Bangladesh Ltd).
Available: <https://ibblportal.islamibankbd.com/indexLogin.do>

[12] IFIC (The International Finance Investment and Commerce Bank Limited) Mobile Banking

Available: <https://www.ificbank.com.bd/home.php>

[13] MBL (Mercantile Bank Limited) My Cash

Available: <http://www.mblbd.com/>

[14] Top 5 Internet Banking Apps in Bangladesh [Online].

Available: <http://www.brainstation-23.com/internet-banking-apps/>

Retrieve Date: 17 September, 2018

[15] ICIC Bank of India Available: <https://www.icicibank.com/>

[16] Royal Bank (Canada) Available: <https://www.rbcroyalbank.com/personal.html>

[17] Aody SH. Mahmoud “Mobile Technology in Banking Process” International Journal of Engineering Science and Computing, March 2016 ISSN 2321 3361 © 2016 IJESC Volume 6 Issue No. 3

[18] B. Darshini and E. Esakki Vigneswaran “Handheld Cash Deposit and Withdrawal Mobile Banking Device” Middle-East Journal of Scientific Research 24 (S1): 83-87, 2016 ISSN 1990-9233

[19] Mr.K.Lohith Kumar, M.Sreekanth , K.Venugopal Naidu “A STUDY ON MOBILE BANKING IN INDIA” International Journal of Science Technology and Management, February 2016 ISSN 2394-1537 © 2016 IJSTM Volume 5 Issue No. 1

[20] Nisha Sharma And Rupinderdeep Kaur “M-Services in India: A Study on Mobile banking and applications” GIAN JYOTI E-JOURNAL, Volume 6, Issue 2 (Apr-Jun 2016) ISSN 2250-348X

[21] Vural ÇAĞLIYAN, Muammer ZERENLER, Zeynep ERGEN IŞIKLAR, Mehmet ÇOBAN “EVALUATION OF EXPERIENCE REGARDING THE USE OF MOBILE BANKING: AN APPLICATION ON ACADEMICS” The Online Journal of Science and Technology - July 2016 Volume 6, Issue 3

[22] Amola Bhatt, Shahir Bhatt “Factors Affecting Consumer Perception towards Mobile Banking” Journal of Internet Banking and Commerce ISSN: 1204-5357

[23] AGU, Bertram Onyebuchi, Ph.D, SIMON N, P, Nwankwo, Ph.D., ONWUKA, Ifeanyi Onuka, Ph.D. “Mobile Banking – Adoption and Challenges in Nigeria” International Journal of Innovative Social Sciences & Humanities Research 4(1):17-27, Jan.-Mar. 2016

[24] Md Akram Hossain, Md. Ziaul Haque “Prospects and Challenges of Mobile Banking in Bangladesh” Journal of Business studies Vol:XXXV , No:02 August 2014

[25] Kelvin Chikomo, Ming Ki Chong, Alapan Arnab, Andrew Hutchison “Security of Mobile Banking”

[26] Reyan, Quazi Aritra, Problems and Prospects of Mobile Banking in Bangladesh [Online].

Available:https://www.researchgate.net/publication/301852620_Problems_Prospects_of_Mobile_Banking_in_Bangladesh