

A NEW APPROACH OF SECURITY MODEL IN E-MAIL

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Abstract:

Electronic mail is online message transferring technique in which messages or documents exchange between user and one or more recipients. In Internet there are several company provides Email service like google, yahoo, hotmail etc. Every user must have to create email account in particular Email service providers to receive and transferring their mail. Every user can login to their email account by User Id and password.

Login to Email account with user id and password is not safe process because password is not unique for every login. So every time same password is used for login. Then data related to password transmitted over the network may be intercepted by any strangers. If any strangers get the user id and password of any particular user then strangers can misuse the E mail account.

In this paper we give a proposed idea for make Email account more secure. In this new idea user give their own security code instead of password, security code is unique for each login. Every User is aware about the logic behind the code. Security code and the logic behind it are unique for every user. There is also another idea to provide security question and answered.

Keyword: Email, Email security, 2-step verification,

Introduction:

Email: Email means Electronic mail system where user can exchange their electronic documents or messages to one or more recipients across the Internet. In earlier Email

system required that user and recipients must be connected with their email account in online at the same time for exchange their messages or documents. Today there is store and forward service used in email system. So there is email server used in email system to receive, transfer, store and forward the messages. So User and recipients are no need to be online at the same time[2].

Email account: Email account provides services such as store, send, forward, receive messages or documents of user.

So every user has individual Email account. This Email account created by every user before use it. So there is a sign up process to create email account. User provides their profile along with user Id and password to create their Email account. After creation of Email account user can login to their account and use their account for exchange electronic documents or messages. User Id is unique for all users. Login by User Id and password is not safe process today.

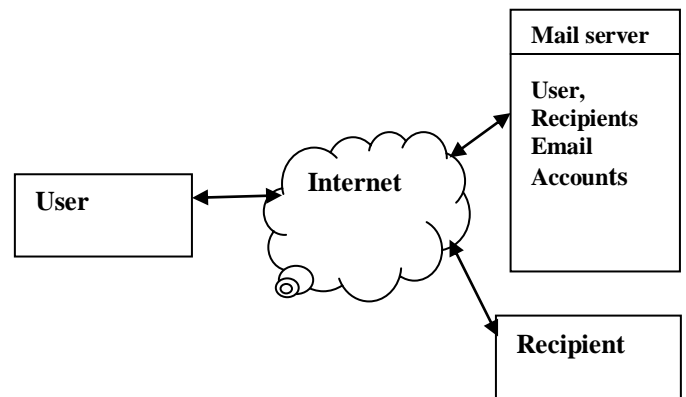


Fig 1: Electronic mail System

2-step verification: 2-step verification provides security of email account for every user. In this technique user create their email account by their valid mobile number. When user want to login to their Email account mail server send 4 digit numeric codes in user mobile number after User Id and password enter by user. Then user login to their account by provide this 6 digit code. So 2-step verification process is more secure because valid user can login to their Email account by 6 digit SMS code send by email server.

Proposed Idea:

In this idea user can login to their individuals email account by User id and security code instead of password. This security code unique for every login process to email account of every user. When user create their Email account at that time logic behind the security code is generated by particular mail server and send it to the user mobile no or any other email account. Security code is unique for every user .This code is changed after 5 login process .At the time of login user enter their user id with 6 to 8 character long security code .If user fail to login then user have to enter answer of security question .If user again fail to login then mail server send 6 digit long code to user mobile or other email account of user.

Security code:

Security code is used at the time of login instead of password. It is unique for each login to email account. User can give security code with user id to login to their account .New security code is generated after 5 login .When user create their email account they give their particular information .Mail server create account of each user after submit all the particulars and send security code details to user mobile phone or their other email id. When user login to their account at that time user id and this security code are given within short period of time.

There is a logic behind security code .This security code is create with two fields

a) Code: This part of code is uniquely changed for every login .This code is numeric or character type. There is no fractional part in this code. Maximum length of this code is 8 characters and minimum length is 6 characters. Code length is different for each user. This code represent in Fig 1.

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| X/Y | X/Y | X/Y | X/Y | X/Y | X/Y | X/Y | X/Y |
|-----|-----|-----|-----|-----|-----|-----|-----|

X: Any digits 0 to 9 or any character A to Z given by user but not alphanumeric code. This part of code given by the user at the time of login. The value of X is changed uniquely for every login. Any digit or character used at any position only once.

Y: Any digits 0 to 9 or any character A to Z given by user but not any alphanumeric code. This part of code is given by user at the time of creation of email account. In this part User give two or three characters which embedded in code at any position.

Code: XX13XX

1 and 3 are value of Y given by user at the time of creation of email account. Position of Y in the code is fixed for first login.

Example of 1st login User Id: abc_xyz
Code : 921355

In The above example of code value of X are 9,2,5,5 and value of Y are 1, 3

Example of 2nd login User Id: abc_xyz
Code : 151732

In The above example of code value of X are 1,5,7,2 and value of Y are 1, 3.The value of Y are may be repeated in X also. In 2nd login the value of X changed in every position .So every digits or character are used in different position of X only once. User can change the position of Y after first login. So this security code

is unique for each login and the logic behind the code must be remembered by user.

After every 5 login the new security code is generate for every user .Only the value of Y are changed in this new code but the logic behind the value of X are always same. The new value of Y are given by the user again .After creation of new security code the position of Y in the code are fixed as first login when a user creates their email account. After that login process followed by user same as first 5 login process when user creates their email account .

Example of 1st login User Id: abc_xyz
Code : 439102

In The above example of code value of X are 4,3,0,2 and value of Y are 9, 1.

Example of 2nd login User Id: abc_xyz
Code : 951830

In 2nd login value of X are 5,8,3,0 and value of Y are 9, 1.

If the user fails to give their correct user id and security code at the time of login then there is a security Question. If the user can give the answer of this security question then user can login to their email account, otherwise the new 6 digit code is generated and send it to the users mobile. This 6 digit code is totally different from security code. It is used only for the purpose of fail to login in the email account.

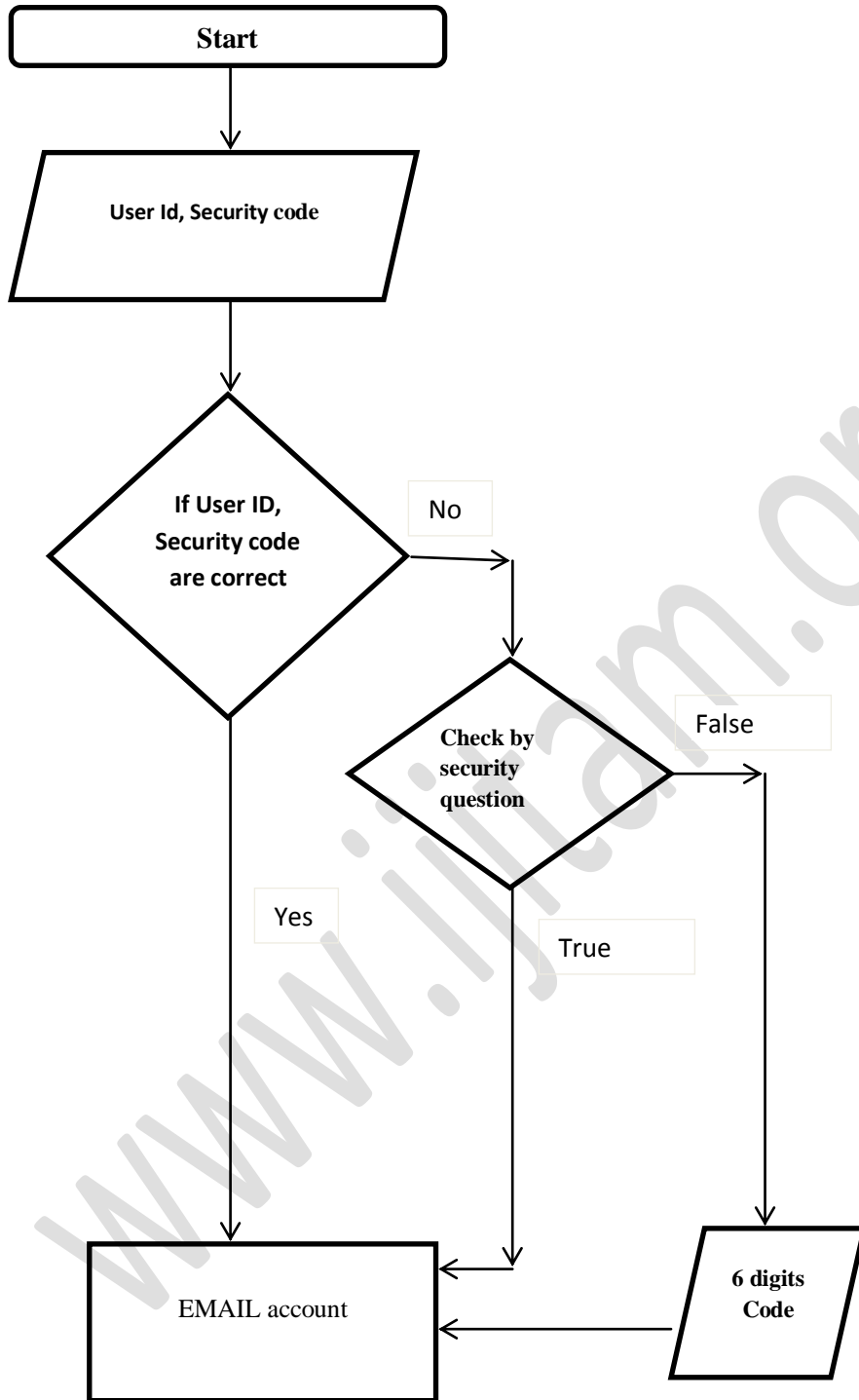


Fig 3: Proposed Email Login System

Result Discussion:

Mr Roy wants to create a email account .At first He sign up with following details

Name: Mr Roy

Address: street: X, city: Y, State: Z,

Contact No: xxxxxxxx01

User Id: abc_xy

Security code (min 2 character max 3 character): 13

Etc.

Mr Roy submits all these information to mail server. Mail server store all information and send 6 character codes to his mobile.

Mr Roy received this code in his mobile

Code: xx13xx

After that Mr Roy login to his mobile as follows

1. User Id: abc_xy

Code: 571390

After verification this user id and Security code by mail server then Mr Roy can login to his mail account.

2. Mr Roy second time login to his email account as

User Id: abc_xy

Code: 214637

After fifth login When Mr Roy wants to login to his account he enter two or three character code of Y for change his Security code.

6. User Id: abc_xy

Enter your Code (min 2 char, max 3 char):

After submit his code successfully then Mr Roy login to his account as follows

7. for 7th login

User Id: abc_xy

Code: 027930

Position of 7, 9 are fixed as first login after creation of email account by Mr Roy.

8. for 7th login

User Id: abc_xy

Code: 170529

Position of 7, 9 are changed as sameway after first login by Mr Roy. In this way Mr Roy login to his email account repeatedly.

Suppose Mr Roy enter wrong code like that

9. for 9th login

User Id: abc_xy

Code: 196321

In this login first digit 1 repeat from previous login and position of 2 is also same as previous login and the value of Y 7 is not present in this code.

So at that time Mr Roy can not login to his account. If Mr Roy can give the answer of Security question then he can login to his account.

Question: What is your pet name

Ans: xyz

After that mail server check this answer is correct or not.

After verification Mail server check this answer is not correct then mail server generate 6 digit unique code is 357920 and send it to Mr Roy's mobile no

xxxxxxx01. Mr Roy then enter this code for login like that

Code: 357920

After this login the security question changed and updated by the user.

Mr Das wants to create a email account .At first He sign up with following details

Name: Mr Das

Address: street: X, city: Y, State: Z,

Contact No: xxxxxxxx55

User Id: xy_das

Security code (min 2 character max 3 character): 956

Etc.

Mr Das submits all these information to mail server. Mail server store all information and send 7 character codes to his mobile.

Mr Das received this code in his mobile

Code: x9x5x6x

After that Mr Das login to his mobile as follows

1. User Id: xy_das

Code: 1905264

After verification this user id and Security code by mail server then Mr Das can login to his mail account.

2. Mr Roy second time login to his email account as

User Id: xy_das

Code:2095673

After this login Mr Das follows same login process as Mr Roy .

Conclusion:

In this new idea every time user provide their own unique code at the time of login to Email account. So this new technique is secured than previous technique because the code enters at the time of login is not same like password. In previous technique password is same for each login for a user. So this password may be intercept by other at the time of login across the internet .In future this Security code may be changed with some new logic or new technique.

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