

# DATA SECURITY

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## ● ເນື້ອໃນຂອງບົດຮຽນ

### ບົດທີ 3

- I. ປະໂຫຍດຂອງການເຂົ້າລະຫັດ
- II. ປະເພດຂອງການເຂົ້າລະຫັດ
- III. ການໃສ່ລະຫັດໃຫ້ກັບເອກະສານຕ່າງໆ
- IV. ການເຂົ້າລະຫັດຂໍ້ມູນໃຫ້ກັບຂໍ້ມູນຕ່າງໆ
- V. ການເຊິ່ງຊ້ອນຂໍ້ມູນ ແລະ ປິດບັງຂໍ້ມູນ
- VI. ການກຳນົດສິດການນຳໃຊ້ຂໍ້ມູນ
- VII. ການກຳນົດສິດການເຂົ້າເຖິງຂໍ້ມູນຜ່ານລະບົບເຄືອຂ່າຍ

## ບົດທີ 3 ການເຂົ້າລະຫັດຂໍ້ມູນ

ການເຂົ້າລະຫັດຂໍ້ມູນ (Encryption) ເປັນກົດໄກ່ຫຼັກສໍາລັບປ້ອງກັນຂໍ້ມູນທີ່ຢູ່ລະຫວ່າງການສື່ສານ ຖ້າມີການເຂົ້າລະຫັດທີ່ດີ ຂໍ້ມູນກໍຈະຖືກປ້ອງກັນບໍ່ໃຫ້ສາມາດອ່ານໄດ້ຈາກຜູ້ທີ່ບໍ່ມີສິດທິ ຢ່າງໃດກໍຕາມຜູ້ໃຊ້ທີ່ສິ່ງ ແລະ ຮັບຈະຕ້ອງສາມາດເຂົ້າ ແລະ ຖອດລະຫັດຂໍ້ມູນນີ້ໄດ້ ລະບົບການເຂົ້າ ແລະ ຖອດລະຫັດບໍ່ສາມາດຈະຈຳແນກໄດ້ລະຫວ່າງຜູ້ໃຊ້ທີ່ໄດ້ຮັບອະນຸຍາດ ຫຼື ບຸກລຸກຖ້າຜູ້ນັ້ນມີກຸນແຈ (key) ສໍາລັບການຖອດລະຫັດຂໍ້ມູນ ດັ່ງນັ້ນ ການເຂົ້າລະຫັດຂໍ້ມູນຢ່າງດ່ຽວບໍ່ສາມາດປົກປ້ອງຂໍ້ມູນໄດ້ ຖ້າຈະໃຫ້ການເຂົ້າລະຫັດຂໍ້ມູນໄດ້ຜົນຕ້ອງມີລະບົບທີ່ປ້ອງກັນການລັກລອບກຸນແຈທີ່ໃຊ້ຖອດລະຫັດ ແລະ ຕ້ອງມີການປ້ອງກັນລະບົບໂດຍສ່ວນລວມດ້ວຍ ໂດຍຂະບວນການເຂົ້າ ແລະ ຖອດລະຫັດນີ້ເຫຼົ່າເອີ້ນວ່າ “ ຫຼັກການລະຫັດລັບຂໍ້ມູນ (cryptography) ”

## I. ປະໂຫຍດຂອງການເຂົ້າລະຫັດ

ການຮັກສາຄວາມຮັບຂອງຂໍ້ມູນຖືໄດ້ວ່າເປັນອົງປະກອບທີ່ສໍາຄັນຢ່າງໜຶ່ງຂອງການຮັກສາຄວາມປອດໄພຂອງຂໍ້ມູນ ຊຶ່ງການເຂົ້າລະຫັດຂໍ້ມູນຈະເປັນການເຮັດໃຫ້ໃຫ້ຂໍ້ມູນທີ່ເກັບ ຫຼື ສິ່ງຕໍ່ໃຫ້ຜູ້ອື່ນຈະກາຍເປັນຂໍ້ມູນທີ່ຜູ້ບໍ່ມີສ່ວນກ່ຽວຂ້ອງສາມາດເຂົ້າໃຈໄດ້ ໂດຍໃນທາງປະຕິບັດແລ້ວເຮົາຈະໃຊ້ໂປຣແກຣມຕ່າງໆໃນການເຂົ້າລະຫັດ ແລະ ຖອດລະຫັດຊຶ່ງສ່ວນໃຫຍ່ແລ້ວຈະໃຊ້ລະຫັດຜ່ານໃນການຂະບວນການດັ່ງກ່າວ

## II. ລະບົບການເຂົ້າລະຫັດຂໍ້ມູນ

ຮູບແບບຂອງການຮັກສາຄວາມປອດໄພຂອງຂໍ້ມູນ ແລະ ຊັບສິນອື່ນໆ ນັ້ນໄດ້ມີວິວັດທະນາການກັບການເວລາ ເມື່ອກັບສັງຄົມ ແລະ ເຕັກໂນໂລຢີອື່ນໆ ການຮຽນຮູ້ ແລະ ເຂົ້າໃຈວິວັດທະນາການນີ້ຈະຊ່ວຍໃຫ້ເຂົ້າໃຈລະບົບການຮັກສາຄວາມປອດໄພທີ່ມີຢູ່ໃນປັດຈຸບັນ ແລະ ອາຈະເປັນບົດຮຽນທີ່ຊ່ວຍໃຫ້ເຮົາບໍ່ຕ້ອງທຳຜິດເໝືອນກັບທີ່ເກີດຂຶ້ນໃນອາດີດໄດ້

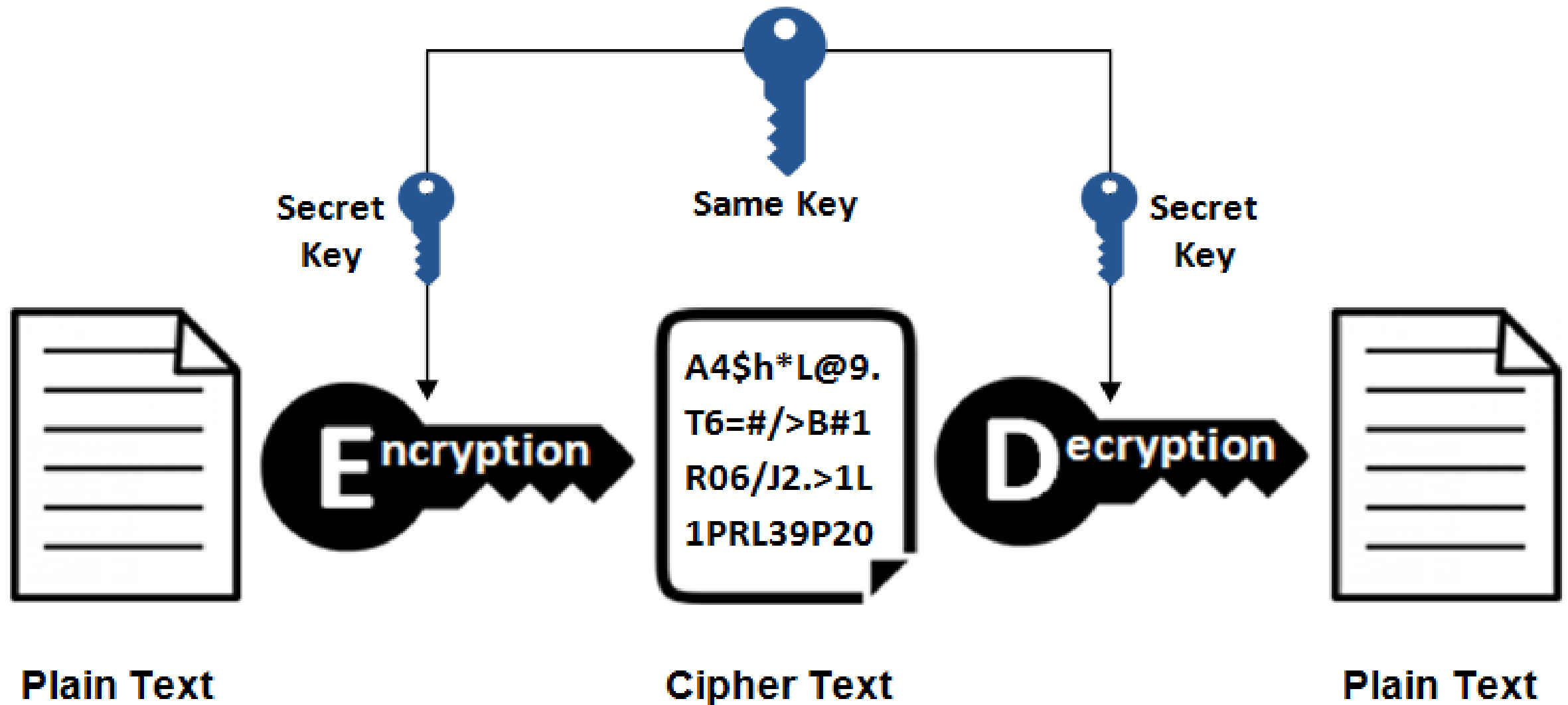


## 2.1. Symmetric key cryptography (ຫຼື Secret key cryptography)

ເປັນທິດສະດີແຫ່ງການເກັບຄວາມລັບທີ່ໃຊ້ key ອັນດຽວທັງການເຂົ້າລະຫັດ cryptography) ແລະການຖອດລະຫັດ (decryption) ນັ້ນຄືຈະໃຊ້ key ຄືກັນທັງຜູ້ສົ່ງ ແລະ ຜູ້ຮັບ ຊຶ່ງ key ທີ່ໃຊ້ຈະມີວິທີຄິດ (algorithm) ແບບບໍ່ຄ່ອຍຊັບຊ້ອນຫຼາຍ ທຳໃຫ້ມີຈຸເດັນຕົງທີ່ສາມາດ encryption ແລະ decryption ໄດ້ຢ່າງວ່ອງໄວ ແຕ່ນີ້ກໍເປັນຂໍ້ເສຍຄືກັນ ເພາະຂໍ້ມູນນີ້ເມື່ອຖືກດັກຈັບ (Wiretapping) ກໍຈະຖືກລັກລອບຖອດລະຫັດໄດ້ບໍ່ຍາກເຊັ່ນກັນ

ຕົວຢ່າງທີ່ນິຍົມທີ່ສຸດຄື Data Encryption Standard(DES) ຊຶ່ງ DES ຄິດຄົ້ນ ໂດຍ IBM ແຕ່ກາຍມາເປັນມາດຕະຖານທີ່ຫຼັງ DES ໃຊ້ key  $56 \text{ bits} + 8 \text{ parity bits} = 64 \text{ bits}$  ໂດຍເຂົ້າລະຫັດເປັນ block ຂະໜາດ 64 bits ການເຂົ້າລະຫັດຈະແບ່ງ block ອອກເປັນສອງຊິນ ຊ້າຍ-ຂວາ ແລ້ວເຂົ້າລະຫັດດ້ວຍ key ຈາກນັ້ນສະລັບດ້ານຊ້າຍ-ຂວາ ໄດ້ເປັນ key ໃໝ່ຈາກ key ເດີມ ແລ້ວນຳມາເຂົ້າລະຫັດແບບເດີມ ເຮັດແບບນີ້ 16 ຮອບຖິ່ງຈະໄດ້ອອກມາເປັນ “cipher text” (ຂໍ້ມູນທີ່ຍັງເຂົ້າລະຫັດຈະເອີ້ນວ່າເປັນ “Plain text” ພໍເຂົ້າແລ້ວຈະເອີ້ນວ່າ cipher text)

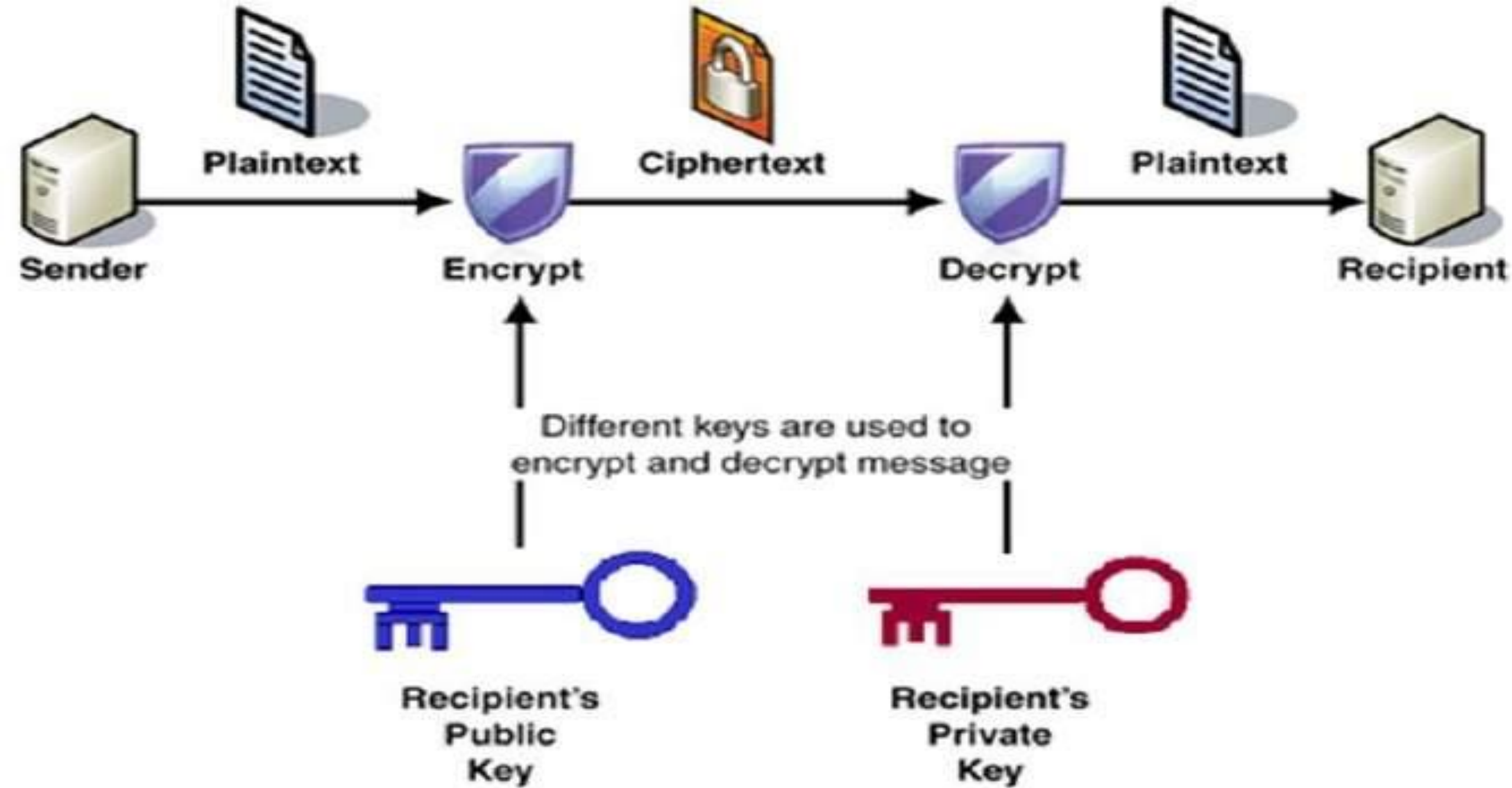
# Symmetric Encryption



## 2.2. Asymmetric key cryptography (ຫຼື Public key cryptography)

ເປັນທິດສະດີແຫ່ງການເກັບຄວາມລັບທີ່ຈະມີ key ອັນໜຶ່ງທີ່ປະກາດໃຫ້ບຸກຄະກອນທົ່ວໄປຮູ້ໄດ້ບໍ່ເປັນຄວາມລັບເອີ້ນວ່າ public key ແລະ ຈະມີ key ທີ່ເຂົ້າຄູ່ກັບ public key ຊຶ່ງເກັບໄວ້ເອງເອີ້ນວ່າ private key ການໃຊ້ງານກໍຄືຖ້າເຮົາຕ້ອງການສົ່ງຂໍ້ມູນກັບໄປໃຫ້ໃຜບາງຄົນກໍເຂົ້າລະຫັດດ້ວຍ Public ຂອງຜູ້ນັ້ນ, ເມື່ອສົ່ງໄປເຖິງຜູ້ຮັບກໍຈະ decryption ຂໍ້ມູນທີ່ເຂົ້າລະຫັດໄດ້ໂດຍໃຊ້ Private key ເຊິ່ງເປັນຄູ່ຂອງ Public key ທີ່ເຂົ້າລະຫັດມາ ດັ່ງນັ້ນເຖິງຈະຖືກດັກຈັບຂໍ້ມູນໄປໄດ້ແຕ່ຖ້າບໍ່ມີ Private key ທີ່ເປັນຄູ່ຂອງມັນກໍຈະ decryption ບໍ່ໄດ້ ໂດຍທີ່ການເຂົ້າລະຫັດຈະໃຊ້ຫຼັກ ຄະນິດສາດທີ່ເອີ້ນວ່າ ຟັງຊັນທາງດ່ຽວ (one-way function)





## 2.3. ການໃສ່ລະຫັດຝ່າຍຂໍ້ມູນ Word

ເຮົາສາມາດເຂົ້າລະຫັດຂໍ້ມູນເອກະສານໄດ້ງ່າຍໆດ້ວຍໂປຣແກຣມ Microsoft Word ຄື ເລືອກເມນູ(ໄອຄອນ File > Info > Protect document> Encrypt with password > ແລ້ວໃສ່ລະຫັດຜ່ານຕ້ອງການຈາກນັ້ນຈຶ່ງເຊບໄຟເອກະສານອີກຄັ້ງ ແລະ ເມື່ອຈະເປີດໄຟເອກະສານດັ່ງກ່າວກໍຈຳເປັນຕ້ອງໄດ້ໃສ່ລະຫັດຜ່ານໃຫ້ຖືກຕ້ອງກ່ອນ ທັງນີ້ມີຂໍ້ຄວນລະວັງກໍຄືຖ້າລື່ມລະຫັດຜ່ານຈະເຮັດໃຫ້ບໍ່ສາມາດເປີດໄຟເອກະສານນັ້ນໄດ້ ຈຳເປັນຕ້ອງຫາໂປຣແກຣມໃນການຖອດການເຂົ້າລະຫັດມາໃຊ້ເພີ່ມເຕີມ



Info

New

Open

Save

Save As

History

Print

Share

Export

Close

Account

Feedback

Options

# Info



Protect  
Document ▾

## Protect Document

Control what types of changes people can make to this document.



### Mark as Final

Let readers know the document is final and make it read-only



### Encrypt with Password

Password-protect this document



### Restrict Editing

Control the types of changes others can make



### Restrict Access

Grant people access while removing their ability to edit, copy, or print.



### Add a Digital Signature

Ensure the integrity of the document by adding an invisible digital signature


## Properties ▾

Size	Not saved yet
Pages	1
Words	0
Total Editing Time	0 Minutes
Title	Add a title
Tags	Add a tag
Comments	Add comments

## Related Dates

Last Modified	
Created	Today, 10:49 AM
Last Printed	

## Related People

Author	 phonesavat
	Add an author
Last Modified By	Not saved yet

[Show All Properties](#)



Info

New

Open

Save

Save As

History

Print

Share

Export

Close

Account

Feedback

Options

# Info



Protect  
Document ▾

## Protect Document

Control what types of changes people can make to this document.



Check for  
Issues ▾

## Inspect Document

Before publishing this file, be aware that it

- Document properties and author's name



Manage  
Document ▾

## Manage Document

There are no unsaved changes.

### Encrypt Document

Encrypt the contents of this file

Password:

...

Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding document names in a safe place.  
(Remember that passwords are case-sensitive.)

OK

Cancel

### Properties ▾

Size Not saved yet

Pages 1

Words 0

Total Editing Time 0 Minutes

Title Add a title

Tags Add a tag

Comments Add comments

### Related Dates

Last Modified

Created Today, 10:49 AM

Last Printed

### Related People

Author



phonesavat

Add an author

Last Modified By Not saved yet

Show All Properties



Info

New

Open

Save

Save As

History

Print

Share

Export

Close

Account

Feedback

Options

# Info



Protect  
Document ▾

## Protect Document

Control what types of changes people can make to this document.



Check for  
Issues ▾

## Inspect Document

Before publishing this file, be aware that it

- Document properties and author's name



Manage  
Document ▾

## Manage Document

There are no unsaved changes.

Confirm Password

Encrypt the contents of this file

Reenter password:

...

Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding document names in a safe place. (Remember that passwords are case-sensitive.)

OK Cancel

## Properties ▾

Size	Not saved yet
Pages	1
Words	0
Total Editing Time	0 Minutes
File	Add a title
Tags	Add a tag
Comments	Add comments

## Related Dates

First Modified	
Created	Today, 10:49 AM
First Printed	

## Related People

Author	 phonesavat
	Add an author
Last Modified By	Not saved yet

Show All Properties





Info

New

Open

Save

Save As

History

Print

Share

Export

Close

Account

Feedback

Options

# Save As



Recent



OneDrive



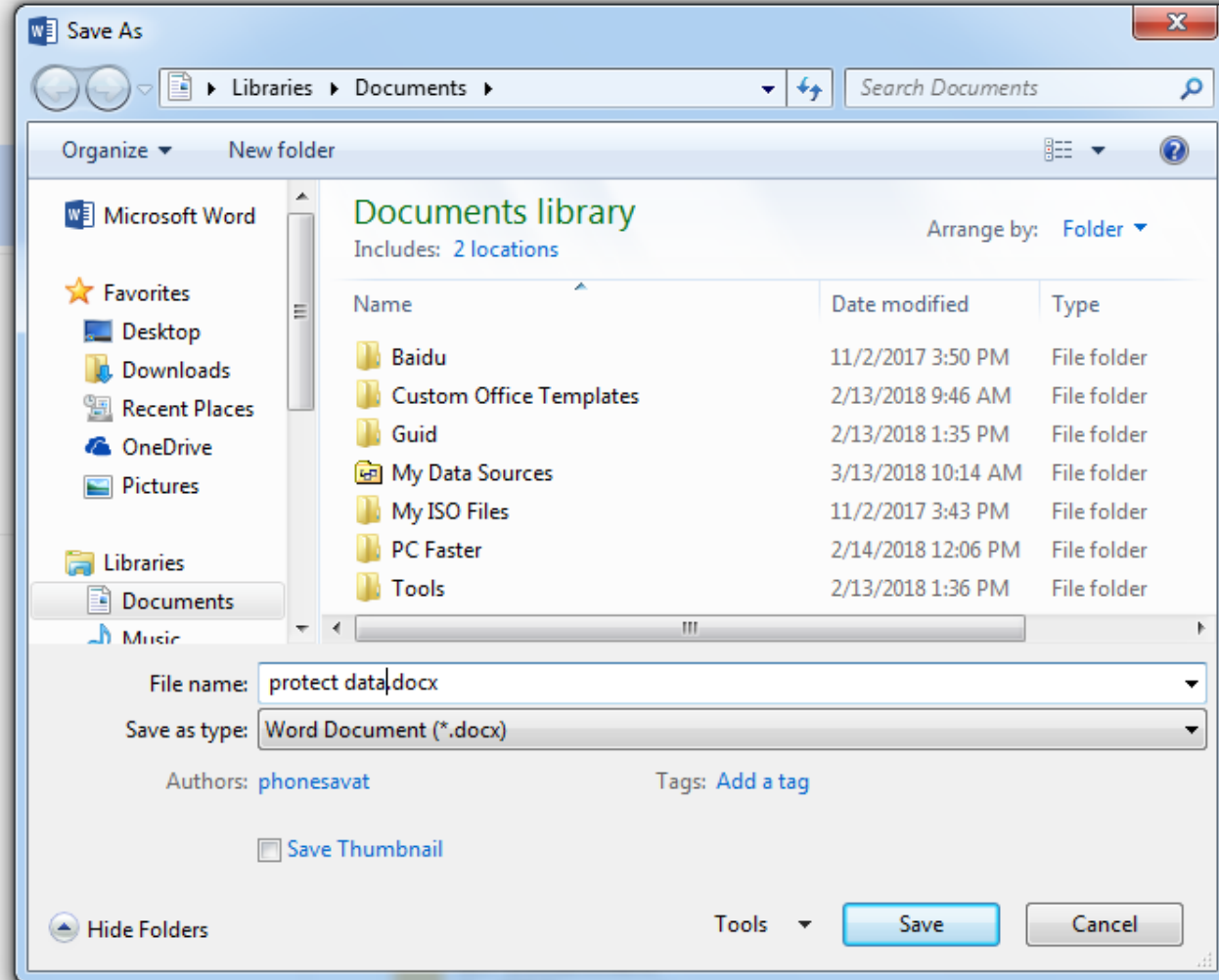
This PC



Add a Place



Browse



D: » ICT Document

Older



Desktop



ໂຄງການຝຶກອົບຮົມ E-learning part 2 2018

## 1.2. ການໃສ່ລະຫັດຝ່າຍຂໍ້ມູນ Excel

The screenshot shows the Microsoft Excel interface with the 'Info' ribbon selected. The 'Protect Workbook' button is highlighted, and its dropdown menu is open, displaying several protection options. The background shows the 'Properties' and 'Related Dates' sections of the ribbon.

**Protect Workbook**  
Control what types of changes people can make to this workbook.

- Always Open Read-Only**  
Prevent accidental changes by asking readers to opt-in to editing.
- Encrypt with Password**  
Require a password to open this workbook.
- Protect Current Sheet**  
Control what types of changes people can make to the current sheet.
- Protect Workbook Structure**  
Prevent unwanted changes to the structure of the workbook, such as adding sheets.
- Restrict Access**  
Grant people access while removing their ability to edit, copy, or print.
- Add a Digital Signature**  
Ensure the integrity of the workbook by adding an invisible digital signature.
- Mark as Final**  
Let readers know the document is final.

**Properties**

Size	Not saved yet
Title	Add a title
Tags	Add a tag
Categories	Add a category

**Related Dates**

Last Modified	
Created	Today, 10:24 PM
Last Printed	

**Related People**

Author	Phonesavat
	Add an author
Last Modified By	Not saved yet

[Show All Properties](#)

# Info



Info

Save

Save As

History

Print

Share

Export

Publish

Close

Account

More...

Protect  
Workbook ▾

## Protect Workbook

Control what types of changes people can make to this workbook.

Check for  
Issues ▾

## Inspect Workbook

Before publishing this file, be aware that it contains:

- Author's name and absolute path

Manage  
Workbook ▾

## Manage Workbook

There are no unsaved changes.

Browser View  
Options

## Browser View Options

Pick what users can see when this workbook is viewed on the Web.

### Encrypt Document



#### Encrypt the contents of this file

Password:

•••

Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding document names in a safe place.  
(Remember that passwords are case-sensitive.)

OK

Cancel

### Properties ▾

Size Not saved yet

Title Add a title

Tags Add a tag

Categories Add a category

### Related Dates

Last Modified

Created

Printed

Today, 10:24 PM

### Related People

Author



Phonesavat

Add an author

Last Modified By Not saved yet

[Show All Properties](#)

# Info



Home

New

Open

Info

Save

Save As

History

Print

Share

Export

Publish

Close

Account

More...

Protect  
Workbook ▾

## Protect Workbook

Control what types of changes people can make to this workbook.

Check for  
Issues ▾

## Inspect Workbook

Before publishing this file, be aware that it contains:

- Author's name and absolute path

Manage  
Workbook ▾

## Manage Workbook

There are no unsaved changes.

Browser View  
Options

## Browser View Options

Pick what users can see when this workbook is viewed on the Web.

### Encrypt Document



#### Encrypt the contents of this file

Password:

•••

Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding document names in a safe place.  
(Remember that passwords are case-sensitive.)

OK

Cancel

### Properties ▾

Size Not saved yet

Title Add a title

Tags Add a tag

Categories Add a category

### Related Dates

Created

Modified

Printed

Today, 10:24 PM

### Related People

Author



Phonesavat

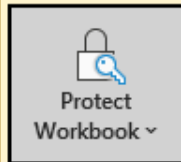
Add an author

Last Modified By Not saved yet

[Show All Properties](#)



# Info



Protect  
Workbook ▾

## Protect Workbook

A password is required to open this workbook.



Check for  
Issues ▾

## Inspect Workbook

Before publishing this file, be aware that it contains:

- Author's name and absolute path



Manage  
Workbook ▾

## Manage Workbook

There are no unsaved changes.



Browser View  
Options

## Browser View Options

Pick what users can see when this workbook is viewed on the Web.

## Properties ▾

Size	Not saved yet
Title	Add a title
Tags	Add a tag
Categories	Add a category

## Related Dates

Last Modified	
Created	Today, 10:24 PM
Last Printed	

## Related People

Author	Phonesavat
	Add an author
Last Modified By	Not saved yet

[Show All Properties](#)



## 1.2.1 ການໃສ່ລະຫັດ Sheet ໃນ Excel

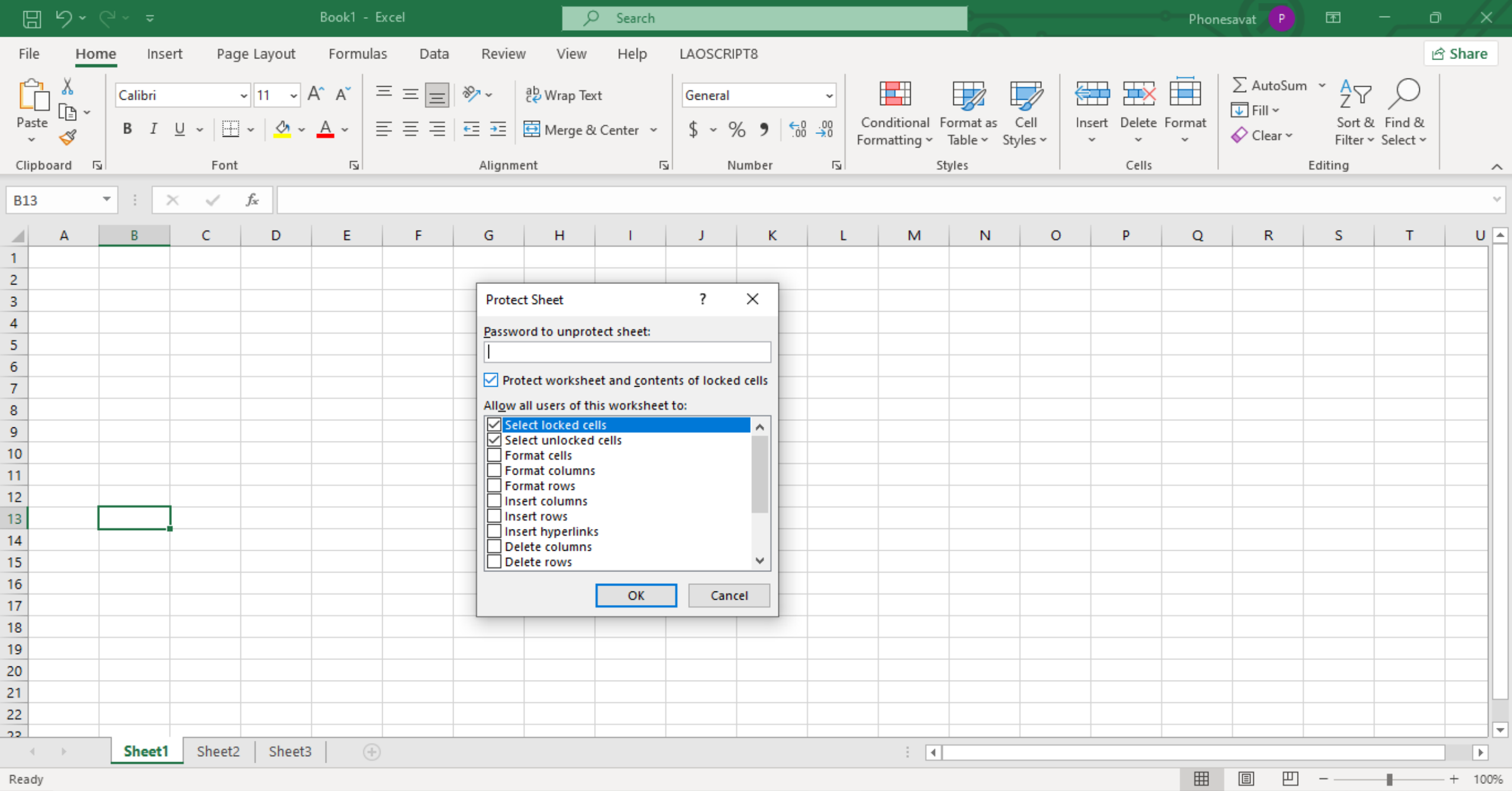
The screenshot displays the Microsoft Excel interface. On the left is a green sidebar with navigation options: Home, New, Open, Info (selected), Save, Save As, History, Print, Share, Export, Publish, Close, Account, and More... The main area is titled 'Info' and shows a yellow banner for 'Protect Workbook' with the message: 'A password is required to open this workbook.' Below this banner, a dropdown menu is open, listing several protection options:

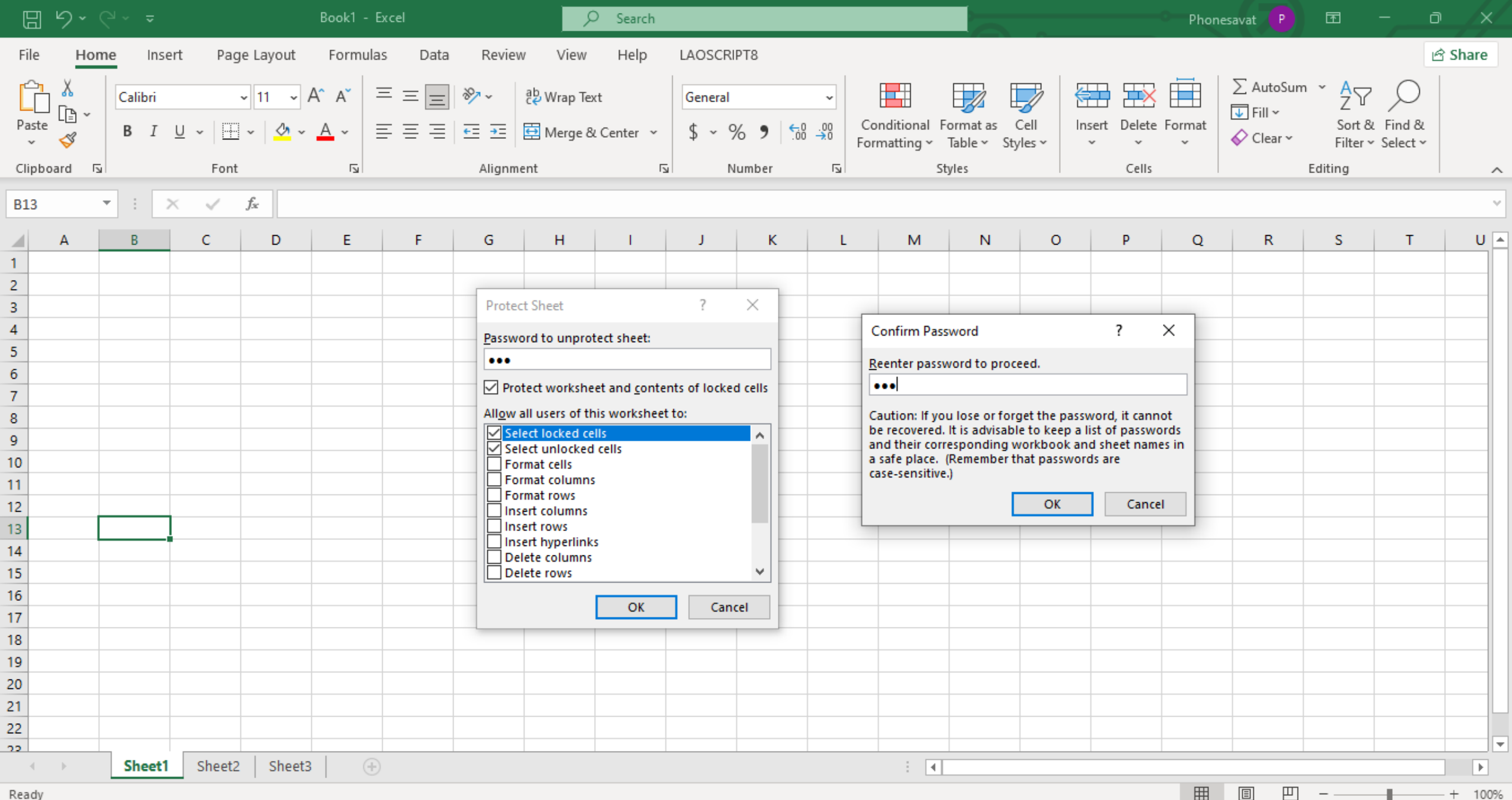
- Always Open Read-Only**: Prevent accidental changes by asking readers to opt-in to editing.
- Encrypt with Password**: Require a password to open this workbook.
- Protect Current Sheet**: Control what types of changes people can make to the current sheet.
- Protect Workbook Structure**: Prevent unwanted changes to the structure of the workbook, such as adding sheets.
- Restrict Access**: Grant people access while removing their ability to edit, copy, or print.
- Add a Digital Signature**: Ensure the integrity of the workbook by adding an invisible digital signature.
- Mark as Final**: Let readers know the document is final.

On the right side of the interface, there is a 'Properties' section with the following details:

- Size**: Not saved yet
- Title**: Add a title
- Tags**: Add a tag
- Categories**: Add a category
- Related Dates**:
  - Last Modified**: (blank)
  - Created**: Today, 10:24 PM
  - Last Printed**: (blank)
- Related People**:
  - Author**: Phonesavat (with a profile icon)
  - Last Modified By**: Not saved yet

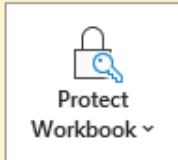
At the bottom of the Properties section, there is a link that says 'Show All Properties'.







# Info



## Protect Workbook

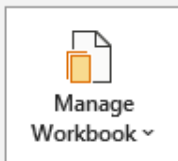
- A password is required to open this workbook.
- The structure of the workbook has been locked to prevent unwanted changes, such as moving, deleting, or adding sheets.
- One or more sheets in this workbook have been locked to prevent unwanted changes to the data.
  - Sheet1

[Unprotect](#)

## Inspect Workbook

Before publishing this file, be aware that it contains:

- Document properties, author's name and absolute path
- Content that people with disabilities find difficult to read



## Manage Workbook

- There are no unsaved changes.



## Browser View Options

Pick what users can see when this workbook is viewed on the Web.


## Properties ▾

Size	Not saved yet
Title	Add a title
Tags	Add a tag
Categories	Add a category

## Related Dates

Last Modified	Today, 10:47 PM
Created	Today, 10:24 PM
Last Printed	

## Related People

Author  Phonesavat  
[Add an author](#)

Last Modified By  Phonesavat

[Show All Properties](#)

## 1.3. ການໃສ່ລະຫັດຝ່າຍຂໍ້ມູນ PowerPoint

The screenshot shows the Microsoft PowerPoint application window titled "Presentation1 - PowerPoint". The left-hand ribbon is visible with the "Info" tab selected. The main area displays the "Info" section, which includes a "Protect Presentation" button and a dropdown menu. The dropdown menu is open, showing five options: "Always Open Read-Only", "Encrypt with Password", "Restrict Access", "Add a Digital Signature", and "Mark as Final". The "Encrypt with Password" option is currently selected and highlighted. To the right of the "Info" section, there is a "Properties" panel with a dropdown arrow. Below it, the "Related Dates" section shows "Last Modified" as "Today, 10:54 PM". The "Related People" section shows the "Author" as "Phonesavat".

**Protect Presentation**  
Control what types of changes people can make to this presentation.

- Always Open Read-Only**  
Prevent accidental changes by asking readers to opt-in to editing.
- Encrypt with Password**  
Require a password to open this presentation.
- Restrict Access**  
Grant people access while removing their ability to edit, copy, or print.
- Add a Digital Signature**  
Ensure the integrity of the presentation by adding an invisible digital signature.
- Mark as Final**  
Let readers know the presentation is final.

**Properties**

**Related Dates**

Last Modified: Today, 10:54 PM

**Related People**

Author: Phonesavat

Last Modified By: Not saved yet

[Show All Properties](#)



# Info



Home

New

Open

Info

Save

Save As

History

Print

Share

Export

Close

Account

Feedback

Options

Protect  
Presentation ▾

## Protect Presentation

Control what types of changes people can make to this presentation.

Check for  
Issues ▾

## Inspect Presentation

Before publishing this file, be aware that it contains:

- Document properties and author's name
- Content that people with disabilities are unable to read

Manage  
Presentation ▾

## Manage Presentation

There are no unsaved changes.

### Encrypt Document



#### Encrypt the contents of this file

Password:

●●●

Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding document names in a safe place.  
(Remember that passwords are case-sensitive.)

OK

Cancel

### Properties ▾

Size Not saved yet

Slides 4

Hidden slides 0

Add a title

Add a tag

Add a category

### Related Dates

Last Modified

Today, 10:54 PM

Last Printed

### Related People

Author

P

Phonesavat

Add an author

Last Modified By

Not saved yet

[Show All Properties](#)

# Info



Home

New

Open

Info

Save

Save As

History

Print

Share

Export

Close

Account

Feedback

Options

Protect  
Presentation ▾

## Protect Presentation

Control what types of changes people can make to this presentation.

Check for  
Issues ▾

## Inspect Presentation

Before publishing this file, be aware that it contains:

- Document properties and author's name
- Content that people with disabilities can't see

Manage  
Presentation ▾

## Manage Presentation

There are no unsaved changes.

### Confirm Password



#### Encrypt the contents of this file

Reenter password:

•••

Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords and their corresponding document names in a safe place.  
(Remember that passwords are case-sensitive.)

OK

Cancel

### Properties ▾

Size Not saved yet

Slides 4

Hidden slides 0

Add a title

Add a tag

Add a category

### Related Dates

Modified

Today, 10:54 PM

Printed

### Related People

Author

P

Phonesavat

Add an author

Last Modified By Not saved yet

Show All Properties



# Info



## Protect Presentation

A password is required to open this presentation.



## Inspect Presentation

Before publishing this file, be aware that it contains:

- Document properties and author's name
- Content that people with disabilities are unable to read



## Manage Presentation

There are no unsaved changes.

## Properties

Size	Not saved yet
Slides	4
Hidden slides	0
Title	Add a title
Tags	Add a tag
Categories	Add a category

## Related Dates

Last Modified	
Created	Today, 10:54 PM
Last Printed	

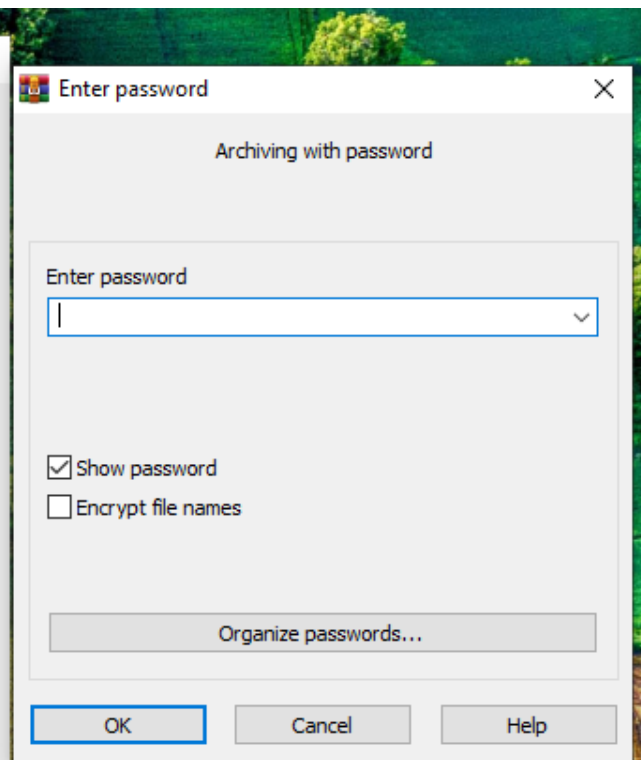
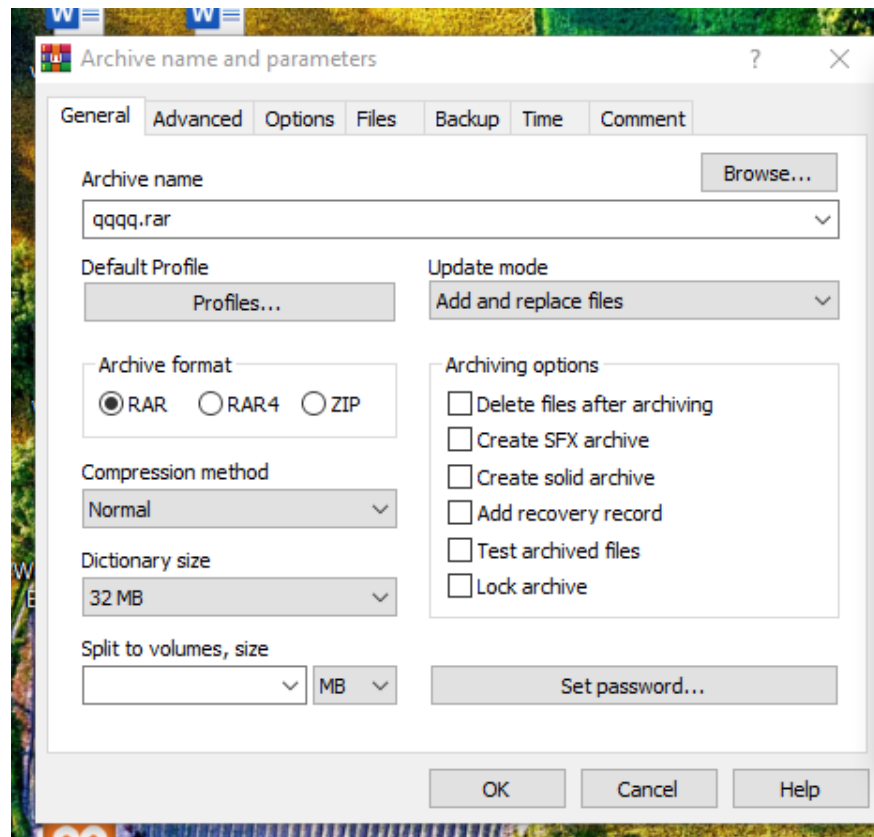
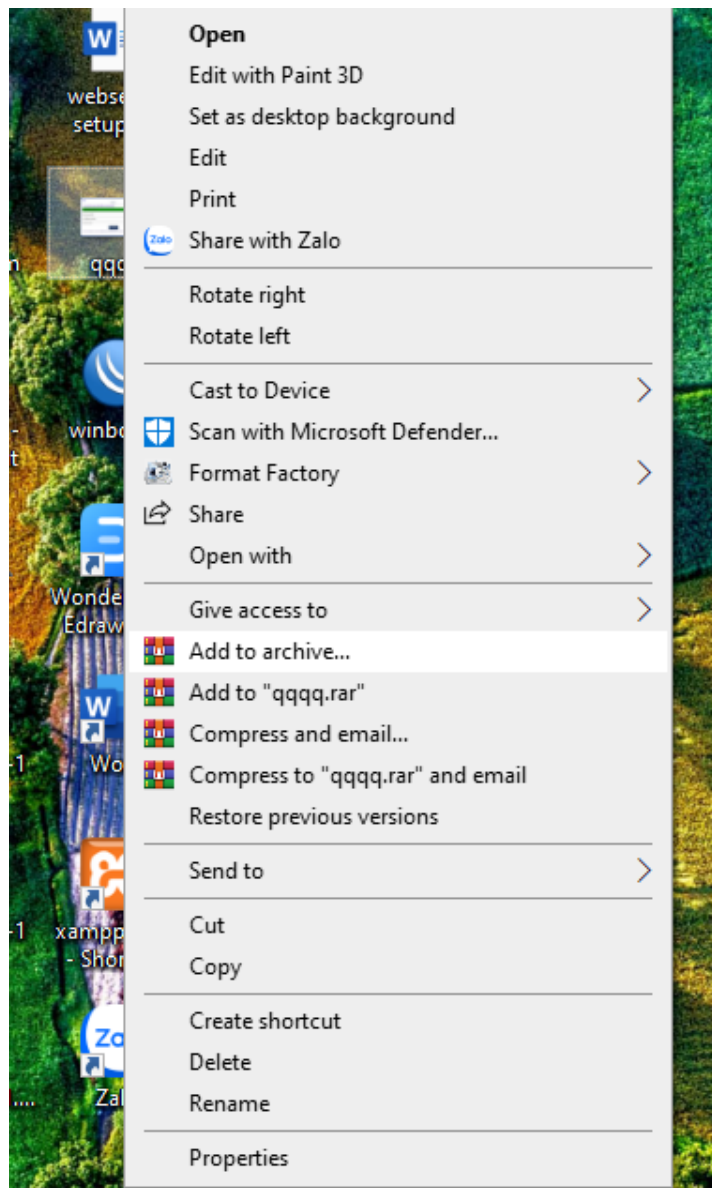
## Related People

Author	Phonesavat
	Add an author
Last Modified By	Not saved yet

[Show All Properties](#)

## 2.4. ການໃສ່ລະຫັດໃຫ້ກັບຟາຍ ແລະ ໂຟນເດີດ້າຍໂປແກຣມ Winra

1. ເລືອກເອົາຟາຍ ແລະ ໂຟນເດີທີ່ຕ້ອງການເຂົ້າລະຫັດ
2. ຄຣິກເມົ້າຂວາມືແລ້ວເລືອກ Add to archive
3. ຄຣິກທີ່ Set password
4. ໃນລະຫັດ ແລ້ວ ຄຣິກ OK
5. ຄຣິກ OK ອີກຄັ້ງເພື່ອດຳເນີນການບິບຟາຍ





### III. ການເຊື່ອງ ຫຼື ອຳພຣາງຂໍ້ມູນ

Steganography ເປັນແທດນິດການເຊື່ອງຂໍ້ຄວາມໃນຮູບພາບຄ້າຍລາຍນ້ຳເທິງຖານະບັດ ຫຼື ການນຳສະບູມາໃຊ້ ຂຽນຂໍ້ຄວາມລົງໃນເຈ້ຍຊຶ່ງເຈ້ຍຍັງຄົງເບິ່ງຄືເຈ້ຍທຳມະດາທົ່ວໄປ ແຕ່ເມື່ອເຮັດໃຫ້ເຈ້ຍປຽກນ້ຳກໍ່ຈະປະກົດ ຂໍ້ຄວາມທີ່ຖືກຂຽນດ້ວຍ ສະບູຂຶ້ນ ແຕ່ໃນເຊິ່ງດິຈິຕອນແລ້ວກໍ່ຄ້າຍນັກຄຶກການເຊື່ອງໄຟ ຫຼື ຂໍ້ຄວາມລົງລົງໄຟຮູບພາບແບບດິຈິຕອນຊຶ່ງເບິ່ງພາຍນອກກໍ່ຄ້າຍກັບໄຟຮູບພາບທຳມະດາແລະຍັງມີການເຂົ້າລະຫັດຂໍ້ມູນທຳໃຫ້ບຸກທີ່ບໍ່ມີລະຫັດຜ່ານທີ່ຖືກຕ້ອງກໍ່ຈະບໍ່ສາມາດເຂົ້າຖິ່ງຂໍ້ຄວາມທີ່ຊ່ອນຢູ່ ພາຍໃນພາບໄດ້ເຊັ່ນກັນ

### 3.1. ການເຊື່ອງຟາຍຫຼືໂຟນເດີ

1. ເລືອກ files or folder ທີ່ເຮົາຕ້ອງການຊ້ອນອໍາພຣາງ
2. ຄຣິກເມົ້າຂວາມື ແລ້ວເລືອກ Properties
3. ຄຣິກແທ້ບ General
4. ຄຣິກຕິກ checkbox next to Hidden in the Attributes section
5. ຄຣິກ Apply
6. ຄຣິກ OK

Computer Network Security

File Home Share View

Navigation pane Preview pane Details pane

Layout: Extra large icons, Large icons, Medium icons, Small icons, List, Tiles, Content

Current view: Sort by, Group by, Add columns, Size all columns to fit

Show/hide: Item check boxes, File name extensions, Hidden items, Hide selected items, Options

Search Computer Network Security

Quick access: Desktop, Downloads, Documents, Pictures, Computer Network, lesson, System Administration, ວຽກຄຳມະນຸດ

This PC: 3D Objects, Desktop, Documents, Downloads, Music, Pictures, Videos, Local Disk (C:), New Volume (D:), New Volume (E:), CD Drive (F:)

15 items 1 item selected

Homework Properties

General Sharing Security Previous Versions Customize

Homework

Type: File folder

Location: E:\ວຽກ 2024\ການຮຽນ-ການສອນ\Computer Network

Size: 3.71 MB (3,895,500 bytes)

Size on disk: 3.73 MB (3,915,776 bytes)

Contains: 3 Files, 0 Folders

Created: 9 September, 2024, 3:45:43 PM

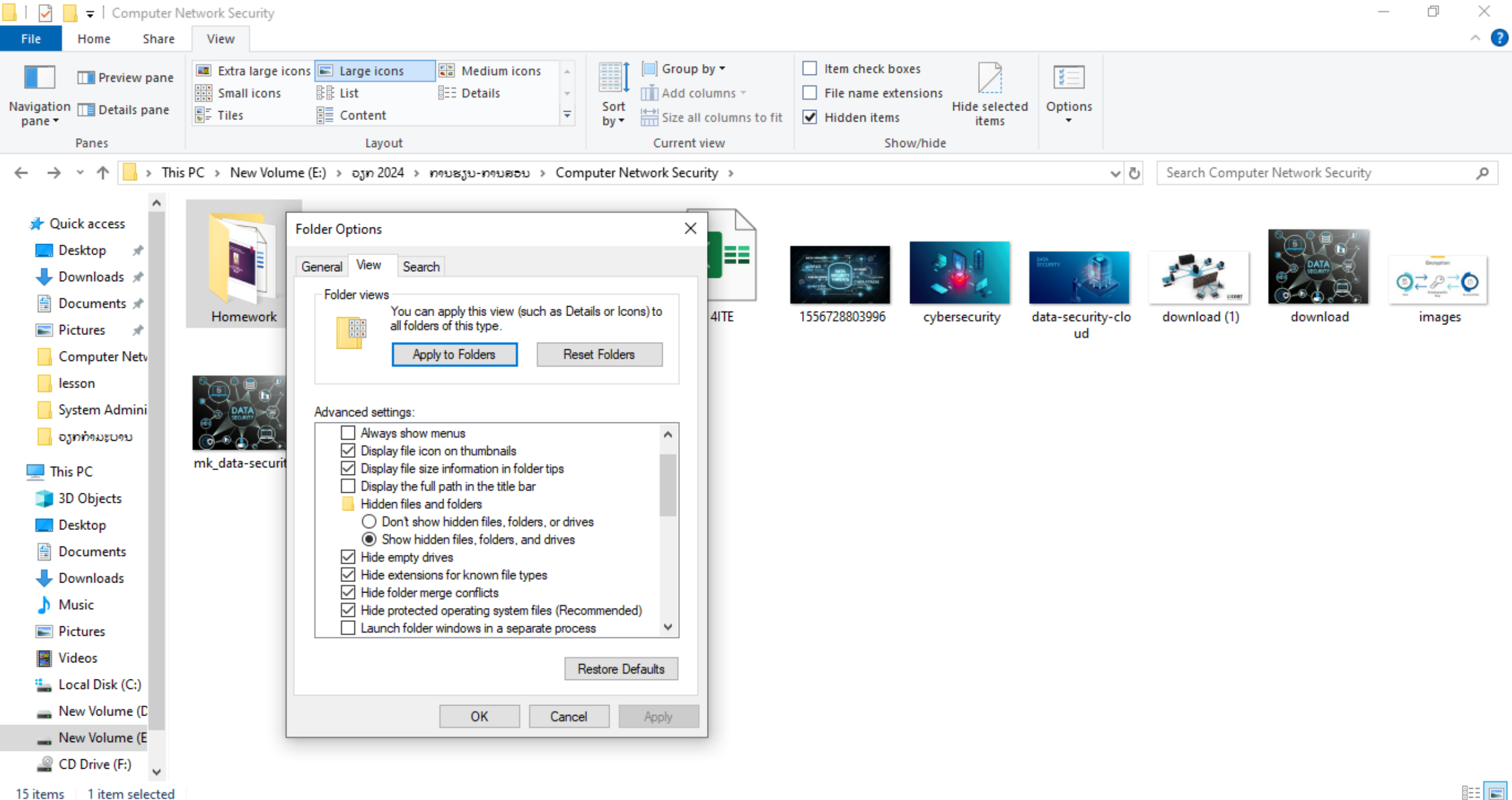
Attributes: ☒ Read-only (Only applies to files in folder) ☒ Hidden Advanced...

OK Cancel Apply

4ITE 1556728803996 cybersecurity data-security-cloud download (1) download images

## 3.2. ການສະແດງຝາຍຫຼືໂຟນເດີທີ່ເຊື່ອງຫຼືອ່າພາງ

1. ເປີດໜ້າຕ່າງ Explorer ໃນຄໍາແນ່ງທີ່ມີຂໍ້ມູນເຊື່ອງຢູ່.
2. ຄຣິກແທັບ View.
3. ຄຣິກເມນູ Options
4. ຄຣິກແທັບ View ໃນຫົວຂໍ້ Under Advanced settings, ໃຫ້ເລືອກ Show hidden files, folders, and drives ຫຼັງຈາກນັ້ນໃຫ້ຄຣິກ OK



### 3.3. ການເຊື່ອງຟາຍຫຼືໂຟນເດີໂດຍໃຊ້ຄໍາສັ່ງຈາກ Command Prompt

1. ກົດຄື Win + Rໃນຄືບອດ ແລ້ວພິມ cmd ແລ້ວກົດ Enter
2. ໃຊ້ຄໍາສັ່ງເພື່ອເຂົ້າໄປຫາຕໍາແໜ່ງທີ່ຕ້ອງການຈະເຊື່ອງອໍາພາງຟາຍ ຫຼື ໂຟນເດີ
3. ພິມຄໍາສັ່ງ dir ແລ້ວກົດ Enter
4. ຈາກນັ້ນກໍ່ຈະເຫັນບັນດາຟາຍ ແລະ ໂຟນເດີຕ່າງໆ
5. ພິມຄໍາສັ່ງ attrib +h +s +r ຊື່ຂອງຟາຍ ແລ້ວກົດ Enter
6. ຖ້າເປັນໂຟນເດີໃຫ້ພິມຄໍາສັ່ງ attrib +h +s +r “ຊື່ຂອງໂຟນເດີ” ແລ້ວກົດ Enter



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.4894]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Phonesavat>cd Desktop

C:\Users\Phonesavat\Desktop>attrib +h +s +r test.docx

C:\Users\Phonesavat\Desktop>attrib +h +s +r "test"

C:\Users\Phonesavat\Desktop>
```

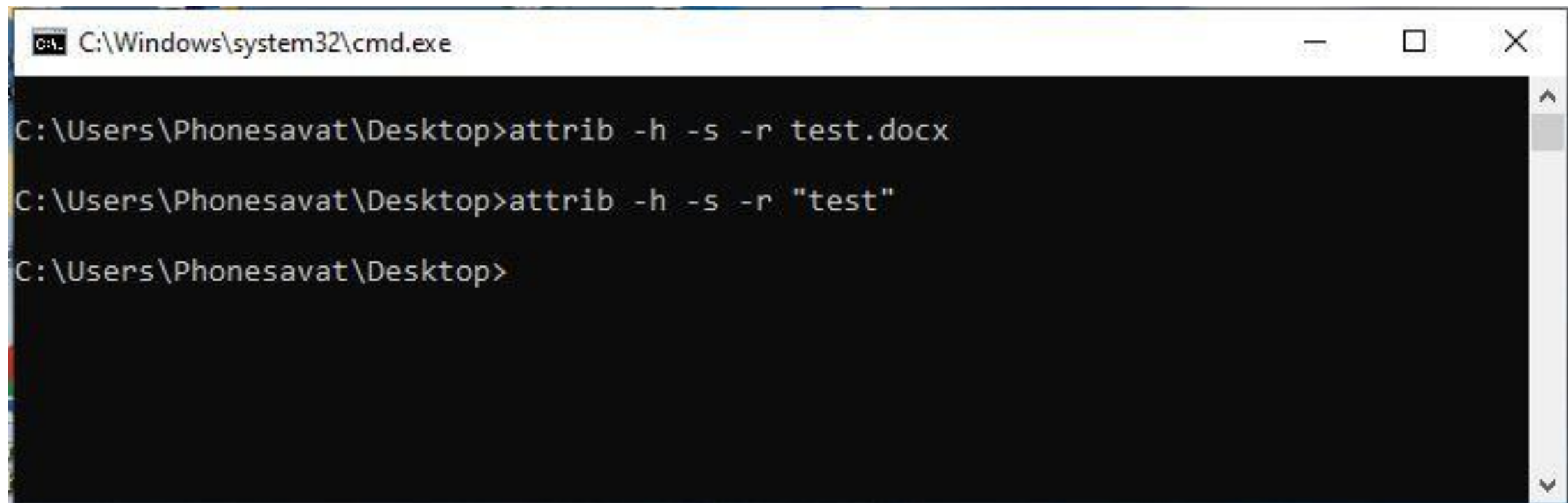
### 3.4. ການໂຊຟາຍຫຼືໂຟນເດີໂດຍໃຊ້ຄໍາສັ່ງຈາກ Command Prompt

1. ກົດຄື Win + Rໃນຄືບອດ ແລ້ວພິມ cmd ແລ້ວກົດ Enter
2. ໃຊ້ຄໍາສັ່ງເພື່ອເຂົ້າໄປຫາຕຳແໜ່ງທີ່ຕ້ອງການຈະສະແດງຟາຍ ຫຼື ໂຟນເດີທີ່ເຊື່ອງອຳພາງ
3. ພິມຄໍາສັ່ງ attrib -s -h -r ຊື່ຂອງຟາຍການສະແດງ ແລ້ວກົດ Enter
4. ຖ້າເປັນໂຟນເດີພິມຄໍາສັ່ງ attrib -s -h -r “ຊື່ຂອງໂຟນເດີສະແດງ” ແລ້ວກົດ Enter
5. ຄໍາສັ່ງເພີ່ມເຕີມ

dir /a                   ສະແດງຟາຍແລະໂຟນເດີທັງໝົດ.

dir /a:d               ສະແດງໂຟນເດີທັງໝົດ.

dir /a:h               ສະແດງຟາຍທີ່ເຊື່ອງອຳພາງທັງໝົດ.



```
C:\Windows\system32\cmd.exe  
C:\Users\Phonesavat\Desktop>attrib -h -s -r test.docx  
C:\Users\Phonesavat\Desktop>attrib -h -s -r "test"  
C:\Users\Phonesavat\Desktop>
```

## IV. ການເຊື່ອງເອກະສານໄວກັບຮູບພາບ

### 4.1. ການເຊື່ອງເອກະສານໄວກັບຮູບພາບ

1. ກະກຽມຝ່າຍຂໍ້ມູນແລ້ວໜີບຝ່າຍໃຫ້ຢູ່ໃນຮູບແບບຂອງຝ່າຍ Winrar
2. ກະກຽມຮູບ .jpg ເກັບໄວ້ຢູ່ໃນຕຳແໜ່ງດຽວກັບທີ່ຢູ່ຂອງຝ່າຍ Winrar
3. ກົດຄື Win + Rໃນຄືບອດ ແລ້ວພິມ cmd ແລ້ວກົດ Enter
4. ເຂົ້າໄປຫາຕຳແໜ່ງຝ່າຍທີ່ເກັບຂໍ້ມູນດ້ວຍການພິມຄຳສັ່ງ cd ຕາມດ້ວຍທີ່ຢູ່ຂອງຝ່າຍຂໍ້ມູນ
5. ພິມຄຳສັ່ງ copy /b picturename.jpg + foldername.rar outputfilename.jpg ແລ້ວກົດ Enter

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.4894]
(c) Microsoft Corporation. All rights reserved.

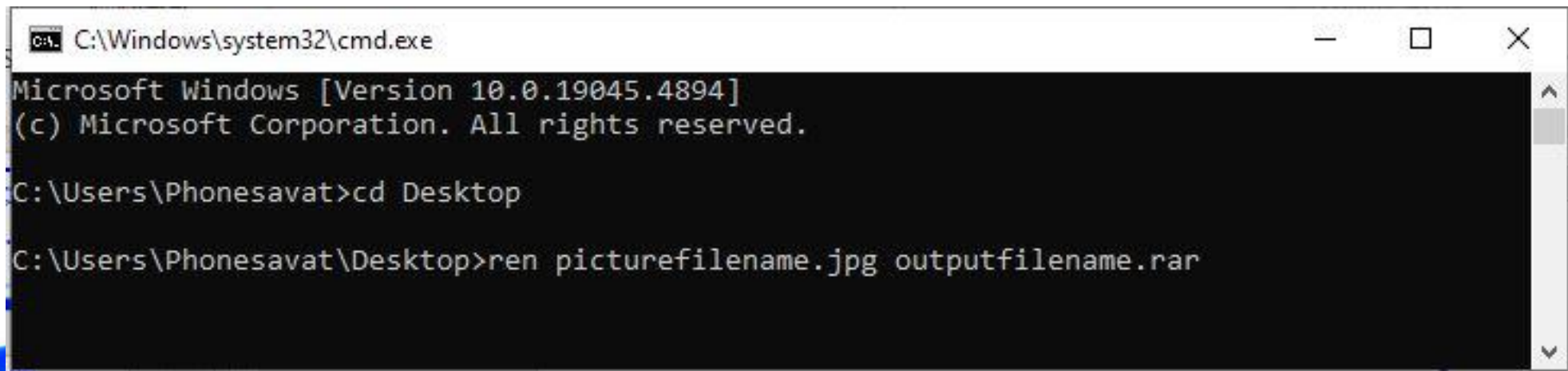
C:\Users\Phonesavat>cd Desktop

C:\Users\Phonesavat\Desktop>copy /b picturename.jpg + foldername.rar outputfilename.jpg
```



## 4.2. ການສະແດງຝາຍເອກະສານທີ່ເຊື່ອງໄວໃນຮູບພາບ

1. ກະກຽມຝາຍຂໍ້ມູນແລ້ວໜີບຝາຍໃຫ້ຢູ່ໃນຮູບແບບຂອງຝາຍ Winrar
2. ກະກຽມຮູບ .jpg ເກັບໄວ້ຢູ່ໃນຕຳແໜ່ງດຽວກັບທີ່ຢູ່ຂອງຝາຍ Winrar
3. ກົດຄື Win + Rໃນຄືບອດ ແລ້ວພິມ cmd ແລ້ວກົດ Enter
4. ເຂົ້າໄປຫາຕຳແໜ່ງຝາຍທີ່ເກັບຂໍ້ມູນດ້ວຍການພິມຄຳສັ່ງ cd ຕາມດ້ວຍທີ່ຢູ່ຂອງຝາຍຂໍ້ມູນ
5. ພິມຄຳສັ່ງ ren picturefilename.jpg outputfilename.rar ແລ້ວກົດ Enter



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.4894]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Phonesavat>cd Desktop

C:\Users\Phonesavat\Desktop>ren picturefilename.jpg outputfilename.rar
```



## V. Network Security with Data share

### ❖ Create Data share and Permission access

1. ຄຣິກເນົ້າຂວາມືໂຟນເດີທີ່ຕ້ອງການແປງປັນ ແລ້ວເລືອກ Properties
2. ຄຣິກແທ້ບ Sharing
3. ຄຣິກເລືກປະເພດທີ່ຕ້ອງການແປງປັນຂໍ້ມູນນຳແລ້ວຄຣິກ Add
4. ຄຣິກກຳນົດລະດັບສິດຂອງການຈັດການກັບຂໍ້ມູນທີ່ແປງປັນ ແລ້ວຄຣິກ Share >> Done
5. ຄຣິກທີ່ Advanced Sharing >> ຄຣິກເລືອກ Share this Folder
6. ກຳນົດຈຳນວນຜູ້ເຂົ້າເຖິງຂໍ້ມູນພ້ອມກັນເທື່ອລະຈັກຄົນ, ກຳນົດສິດເພີ່ມ Permissions
7. ກຳນົດສິດເພີ່ມເຕີມ ແລ້ວຄຣິກ Apply >> OK >> OK

## ❖ Create Network Connection

1. ເຂົ້າໄປທີ່ Open Network & Internet Setting
2. ຄຶກທີ່ Ethernet
3. ຄຶກ Change Adapter Option
4. ຄຶກເມື່ອຂວາ Ethernet>>Properties>>Internet protocol version 4 (TCP/IP4)>>Properties
5. ຄຶກເລືກ Use the flowing IP Address ແລ້ວກຳນົດ IP, Netmask, Gateway

## ❖ Create Permission Access Network share

1. ເຂົ້າໄປທີ່ Open Network & Internet Setting
2. ຄຶກທີ່ Network and sharing Center
3. ຄຶກ Change Advanced Sharing Setting
4. Private: ໃຫ້ຄຶກເລືອກ Turn on Network Discover && Turn on file and printer sharing
5. Public : ໃຫ້ຄຶກເລືອກ Turn on Sharing so everyone with network access can read and write file in the Public folder
6. Password protect sharing : ຄຶກ Turn on password protect sharing

## ❖ Access Data share on Network

1. ເຂົ້າໄປທີ່ໜ້າຕ່າງ Run ຫຼື ກົດ Win + R
2. ພິມຊື່ຄອມພິວເຕີເຄື່ອງທີ່ແຊ ຫຼື ມີໝາຍເລກໄອໄພ \\192.168.1.1 ແລ້ວກົດ Enter
3. ປ້ອມຊື່ ແລະ ລະຫັດຜ່ານແລ້ວກົດ Go ຖ້າມີການ share ແບບບໍ່ມີການກຳນົດສິດແມ່ນຈະເຂົ້າເຖິງຂໍ້ມູນເລີຍບໍ່ຈຳເປັນຕ້ອງປ້ອນຊື່ ແລະ ລະຫັດຜ່ານ





Thank  
you!