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# Today Technologies

- Technology changes everyday, you must keep up with these changes to remain digitally literate
- Digital literacy involves having a current knowledge and understanding of computers, mobile devices, the web, and related technologies

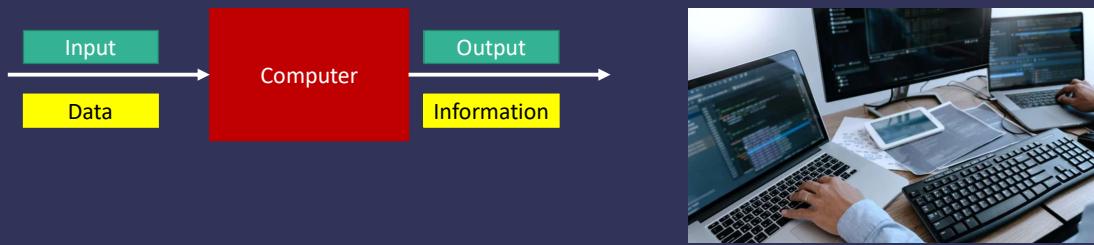
A Venn diagram with three overlapping circles. The top circle is blue and labeled "Device/Internet Access". The left circle is red and labeled "Use". The right circle is purple and labeled "Understand". The intersection of all three circles is yellow and labeled "Digital Literacy". Below the diagram, handwritten text reads "สัมภาระ T/F" and "literacy (n.) - Basic skill of learning" with a signature line.

A photograph of a person standing in front of a large screen displaying a futuristic cityscape with various icons and data points. The URL "https://www.eetimes.com/sensors-technology-of-today-and-tomorrow" is visible at the bottom of the image.

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# Computer

- Computer contains many electric and electronic components (and might contain mechanical components) known as **hardware**
- It operates under the control of instructions stored in its own memory, known as **software**.



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## Class of Computer

କ୍ଲେଶ୍ ଓ ବିଧାନ ରେଣ୍ଡରିଙ୍ଗ

- It can be classified in many ways, such as by purpose, function, usage, generation of technology
- Classified by purpose on the basis of size

Microcomputers  
(Personal Computers)  
ପ୍ରାଇସଲ କ୍ଲାଷ୍ଟର

Minicomputers  
(Mid-range Computers)

for mid-range company/organization

Mainframe Computers

ex. Bank

Supercomputers

For research & Development  
ex. AI Training, Future prediction

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# Data & Information

## Data

Raw data

- It is a raw and unorganized fact that required to be processed to make it meaningful.
- It comprises facts, observations, perceptions numbers, characters, symbols, image, etc.

## Information

- Information is a set of data which is processed and structured in a meaningful way according to the given requirement.

ex. transcript ใบงาน

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# Data & Information

Medium Sodas	฿60.0 each	x 2
Small Chicken Wings	฿100.0 each	x 2
Cesair Salad	฿150.0 each	x 1
Cookies	฿75 each	x 3
Amount Received	฿1,000	

IT.KMITL SuperStore		
1 Soi Chalongkrung 1, Ladkrabang, Bangkok 10520		
Tel: +66 2 723 4900		
Quantity	Item	Total
2	Medium Sodas	120.00
2	Small Chicken Wings	200.00
1	Cesair Salad	150.00
3	Cookies	225.00
Total Due		695.00
Amount Received		1000.00
Change		305.00
Thank You ☺		

Data (Input)

Process/Store

Information (Output/Receipt)



receipt ຮູບຈາກຂະໜາດເຊື່ອທຸກຄວ້ານີ້ ແລ້ວ  
(ເງິນແລ້ວເຫັນໃຫຍ່)

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## Data & Information—Input

- A keyboard contains keys you press to enter data and instructions into a computer or mobile device



Desktop Keyboard



Laptop Keyboard



Onscreen Keyboard



Type Cover Keyboard



Mini Keyboard



Virtual Keyboard

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## Data & Information—Input

- A pointing device is an input device that allows a user to control a small symbol on the screen called the pointer.



Trackball - Tom Cranston,  
Fred Longstaff and Kenyon  
Taylor (1952)



Mouseketeer - Douglas  
Engelbart (1963)



Xerox Alto Mouse (1973)  
first commercial

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## Data & Information—Input

Some devices enable you to speak data instructions using **voice** input



Microphone



Built-in Microphone



Ear Phone

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## Data & Information—Input

Some devices enable you to capture live full-motion images using **video** input



Webcam



Built-in Webcam

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## Data & Information—Input

Some devices enable you to capture images



Scanner

Digital Camera

A scanner is a light-sensing input device that converts printed text and images into a form the computer can process

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## Data & Information—Output

- An output device is any hardware component that conveys information from a computer or mobile device to one or more people

Printer

An output device that produces text and graphics on a physical medium, such as paper or other material



3D Printer

A 3-D printer can print solid objects, such as implants, toys, parts, prototypes, and more



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## Data & Information—Output

- A display is an output device that visually conveys text, graphics, and video information



Desktop Display



Laptop Display



Tablet Display



Smartphone Display



Digital Camera Display

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## Data & Information—Output

Speakers allow user to hear audio such as music, voice, and other sounds



Headphone



Earbud



Ear Phone

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## Data & Information—Storage

- Memory consists of **electronic components** that store instructions waiting to be executed and the data needed by those instructions
- Storage media is used to keep data, instructions, and information. These are operated by storage devices (writes/reads).



Harddisk Drive (HDD)



USB Flash Drive



Optical Disc



Solid State Drive (SSD)



Memory Card



Cloud Storage

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## The Web

- The Internet is a worldwide collection of computer networks that connects millions of businesses, government agencies, educational institutions, and individuals.
- The Internet was first invented for military purposes, and then expanded to the purpose of communication among scientists under the development of the Advanced Research Projects Agency Network (ARPANET) in the late 1960s.
  - University of California, Los Angeles (UCLA)
  - Stanford Research Institute's Augmentation Research Center
  - University of California, Santa Barbara (UCSB)
  - University of Utah



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# Surf the Internet—Web Browser

- A browser is software that enables users with an Internet connection to access and view webpages on a computer or mobile device.

The image shows a screenshot of a web browser window displaying a photograph of a modern building with glass walls and a glass fountain in front. Overlaid on the image are several green speech bubbles pointing to different parts of the browser interface:

- Back Button (points to the back arrow icon)
- Refresh Button (points to the refresh/circular arrow icon)
- Address Bar (points to the top bar where 'it.kmit.ac.th/' is typed)
- Link (points to the text 'คณะไอที' and 'ประจำเดือนกันยายน' on the page)
- Scroll bar (points to the vertical scroll bar on the right side of the browser window)

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## Looking for something on the Internet?

- A search engine is software that finds websites, webpages, images, videos, news, maps, and other information related to a specific topic
- It collects the website by using **spiderbot** or **crawler**. The crawler is an Internet bot that systematically browses the World Wide Web for the purpose of Web indexing.

The image shows a screenshot of a Google search results page for the query "kitsuchart pasupa". The search bar at the top contains "kitsuchart pasupa". The results page shows a knowledge panel on the right side with the following information:

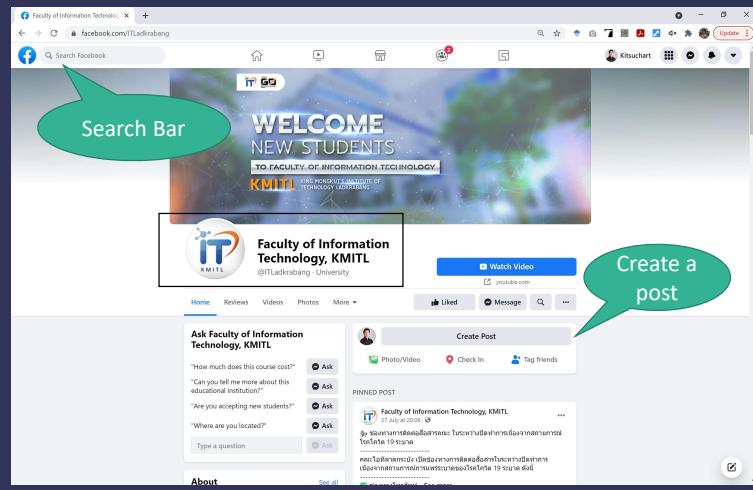
- Kitsuchart Pasupa, PhD**
- Affiliation: King Mongkut's Institute of Technology Ladkrabang
- Research Interests: Machine Learning, Pattern Recognition
- Profiles: Google Scholar, Instagram

Below the knowledge panel, there is a "Images for kitsuchart pasupa" section showing a grid of small profile pictures.

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# Online Social Network

- An online social network encourages members to share their interests, ideas, stories, photos, music, and videos with other registered users



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# Online Social Network Platforms



Facebook



Instagram



LinkedIn



Medium



X



Clubhouse



Youtube



TikTok

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# Digital Safety and Security

- It is very important that all users should protect their computers and mobile devices

Virus and Other Malwares

Privacy

Health Concern

Environmental Issues

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# Digital Safety and Security

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## Virus and Other Malwares

### Virus

- a piece of code that inserts itself into an application and executes when the app is run.

### Ransomware

- disables victim's access to data until ransom is paid

ຈຸດ access ຂອງລາຍການຕ່າງໆ

### Spyware

- collects user activity data without their knowledge

### Adware ໜີ້ຕາມການກ່ຽວຂ້ອງ Web

- serves unwanted advertisements

• pop-ups ແລ້ວ

### Trojans

- ດາວໂຫຼວດຫຼັບຫຼຳ remote control
- disguises itself as desirable code
- ປູກເຄີຍ software ອີ່ user ດິນໂນໄສ

### Worms

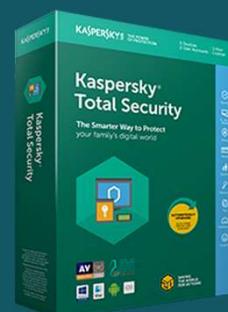
- CPU ຢື່ງ
- spreads through a network by replicating itself
- ເພີ້ນ resource, data integrity

### Keyloggers

- monitors users' keystrokes

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## Antivirus



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# Digital Safety and Security

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## Privacy

- Crimes Opportunities
  - Social Media is fostering a big rise in real-world stalking
- Cybercrimes Opportunities
  - identity theft
  - financial fraud
  - revealing of personal information—messages, images, and video and audio recordings—with individuals' consent or permission (cyberstalking, cyberharassment/cyberbullying)



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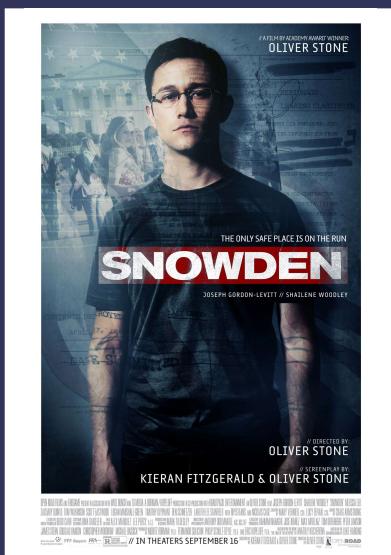
# Privacy—Password

- It keeps your personal information safe (including emails, files, other content) and prevent someone else from getting into your account.
- Create a **strong, long, and unique** password that can be memorable to you but nearly impossible for someone else to guess
  - Use a combination of letters, numbers, and symbols (ASCII-standard characters only)
  - Avoid personal information and common words
- Hide written passwords
- Manage your passwords with a tool



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# Privacy



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# Digital Safety and Security

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Virus and Other Malwares

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# Health Concern

## Technology addition

- Someone becomes obsessed with using technology. Tech dependence can lead to teen consequences that span from mild annoyance when away from technology to feelings of isolation, extreme anxiety, and depression.



## Technology overload

- It is the device proliferation and/or information overload that causes cognitive and physical burdens on human beings due to the use of multiple gadgets with multiple functions to accomplish multiple tasks in everyday activities. You may feel distracted, anxious, fatigued, or even depressed.

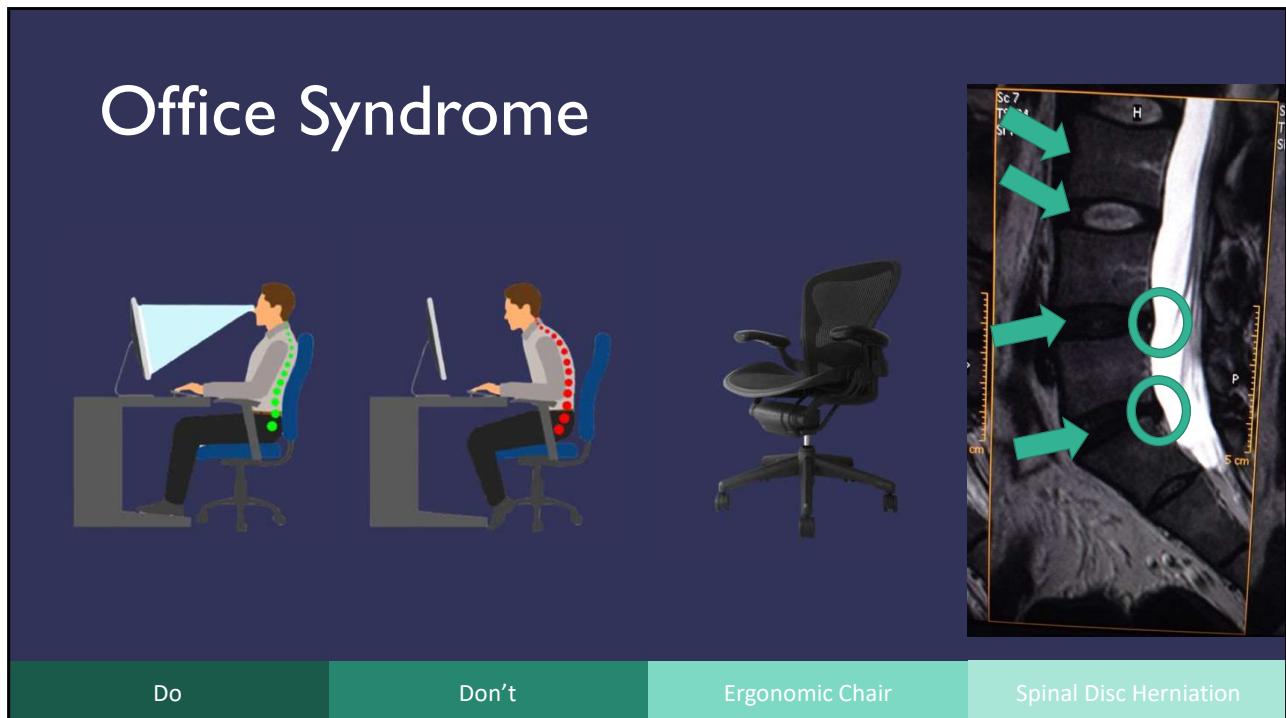


## Office syndrome

- Office Syndrome refers to a group of various symptoms including the inflammation of neck, shoulder and back muscles. These symptoms are caused due to repetitive muscle strain during having long period of unhealthy positions such as sitting in front of a computer screen for several hours.



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## Environmental Issues

- Green computing is an approach to reduce the electricity consumption and environmental waste generated when using a computer

### GREEN COMPUTING



Saving/Efficiency



Monitoring



Maintenance



Recycle



Green Disposal

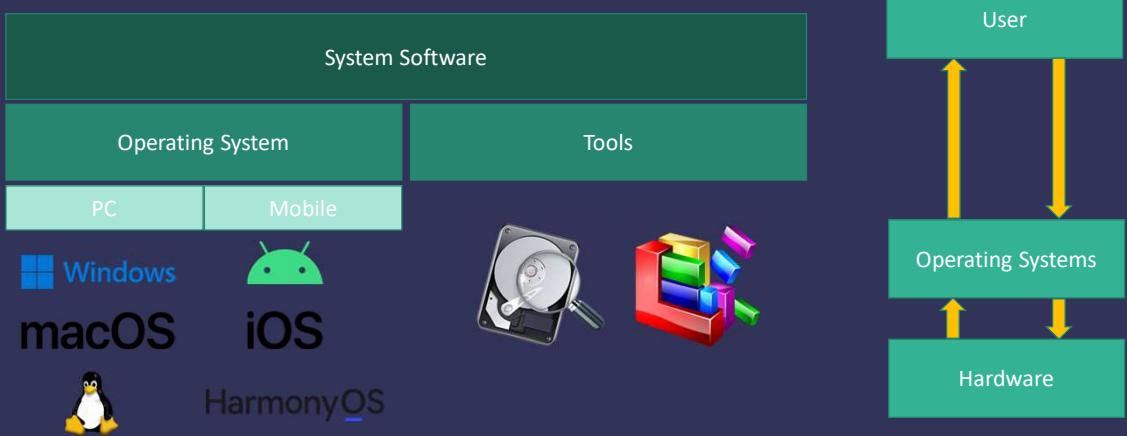


Cloud Computing

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## Programs & Apps

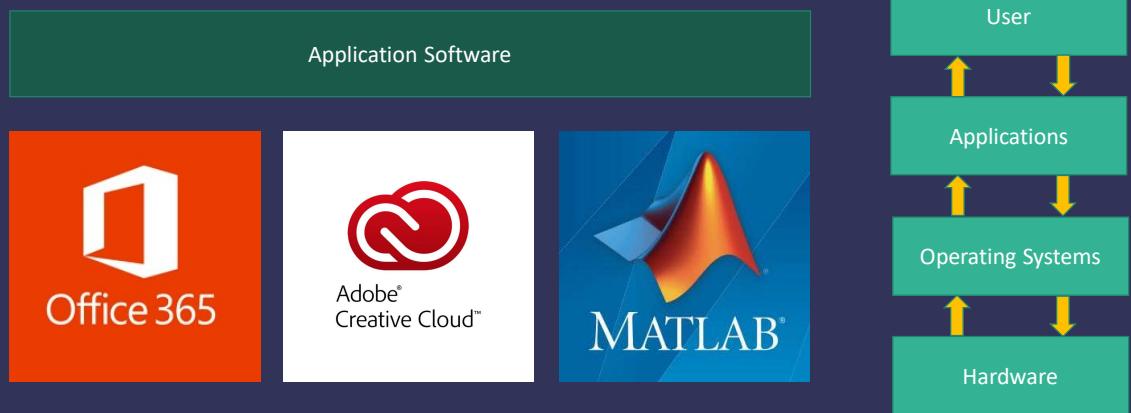
- The software known as a program, tells the computer which tasks do it required to perform and how to perform them



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## Programs & Apps

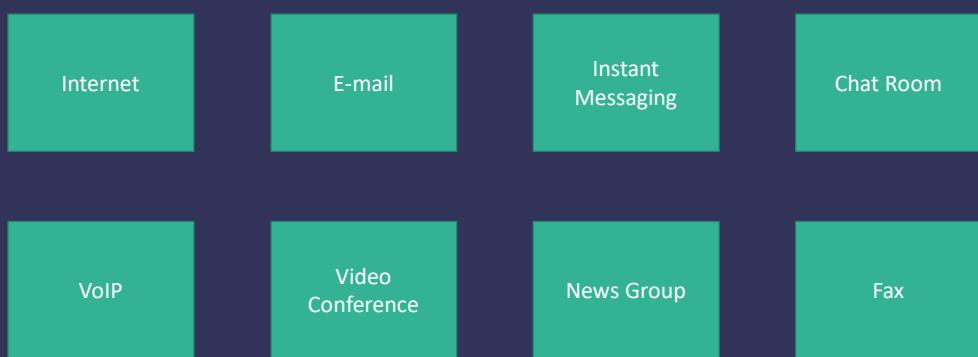
- The software known as a program, tells the computer which tasks do it required to perform and how to perform them



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## Communications and Networks

- Information can be generated by, one or more of these communications technologies:



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# Communications and Networks

- A communications device is hardware that is capable of transferring items from computers and devices to transmission media and vice versa
- A network is a collection of computers and devices connected together, often wirelessly, via communications devices and transmission media



Cellular Radio  
Wi-fi  
Bluetooth



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# Technology Uses

Education

Finance

Retail

Government

Entertainment

Healthcare

Research

Manufacturing

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# Technology Users



Home User



Small Home/Office User



Mobile User



Power User



Enterprise User

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# Lecture 01 Introducing Today Technology—Completed

Information Technology Fundamentals  
IT-06016301 DSBA-06026100

Assoc. Prof. Dr. Kitsuchart Pasupa

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