INTRODUCTION TO THE COMPUTER SYSTEM

Introduction

“Simply speaking computer is a calculating device. The name is derived from the Latin word computare meaning *“to compute”,* and can be applied as properly to an abacus or an adding machine as to the modern computer. However, the concept of computer has come to mean a special type of programing machine having some basic characteristics.

1. Fast and reliable
2. Receive, process and store information
3. A multitasking machine perform quickly, accurately

What is Computer

Following are some definitions of computer which will clear your concept

1. An electronic machine can store and process information. It is defined as stored program digital computing system.

2. A Computer is an electronic device of wires, transistors, circuits, instructions and data can transmit, store and manipulate information.

3. A Computer is a machine that accepts data and processes that data (data may be numbers, letters or both or even sounds). Information is turned into electrical pulses so that it may be processed by sorting, collating and deleting mathematical manipulation and other forms of data processing.

Computer System

A computer accepts information using an input device. The information is processed by a central processing unit or stored in a storage unit i.e. Hard Disk and then processed. The result is supplied by an output devices. If the input and output units are connected to a manufacturing process, the computer can control the process and the system is called a computing system.

Functions of Computer Input Storage Process & Output

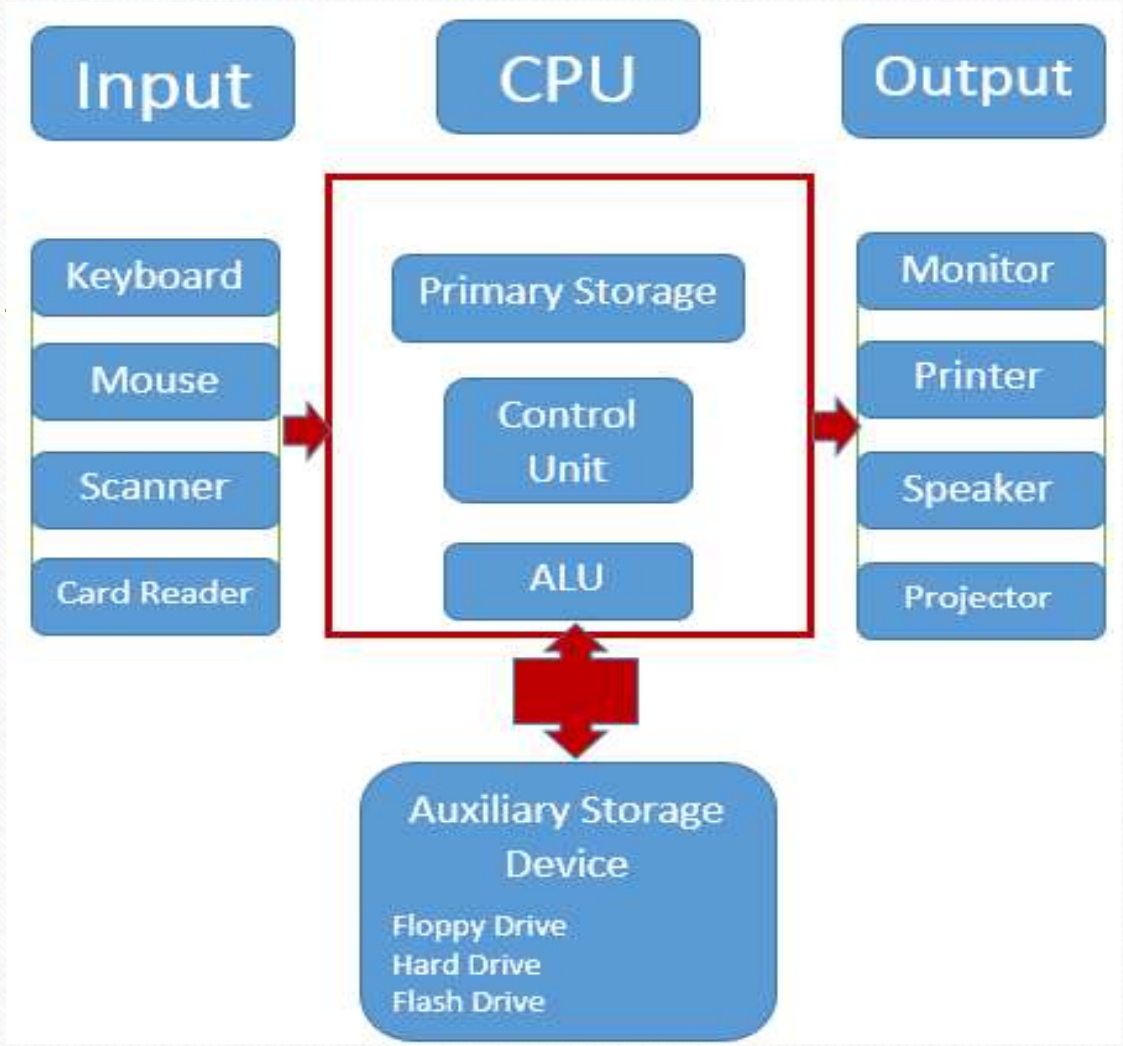
To understand computer basic concept one must know about the 4 functions of computer.

Input. Computer receiver information from users. A user enters information using input devices like keyboard, mouse or any other devices like webcam, punch card, magnetic tapes, joystick or magnetic disk etc. The Input unit accept information using input devices then it convert the given data to readable form and this data moves to Central Processing Unit (CPU).

Storage. The given information stored in a computer using different storage devices i.e. central process unit and auxiliary memory. The auxiliary memory also known as secondary or external storage have hard devices for example Floppy, Hard Disk, Compact Disk and Flash Drive. These different storage devices have both advantages and disadvantages. Auxiliary storage speed up information and store it long term and permanently.

Processing. It is considered the basic computing operation. It execute the instructions, control storage data and input or output devices attached the computer.

Output. Last but not the least the output unit which represents results from the operations of central processing unit CPU. The result may be in hard or soft form i.e. visual display unit, printers and headphones.


Input
CPU
Output
Keyboard
Mouse
Scanner
Card Reader
Primary Storage
Control Unit
ALU
Monitor
Printer
Speaker
Projector
Auxiliary Storage Device
Floppy Drive
Hard Drive
Flash Drive

Classification of Computers

Analog Computers. It accepts analog input and provide analog output information. it represents physical quantities like acceleration, temperature, distance or voltages in mechanical or electrical circuits and does not need any storage device. Examples of analog computer are thermometer, speedometer and analog clock.

Digital Computer. This computer accept digital input and provide digital output after processing information and the operation are in binary system of 0 and 1. By manipulating the binary digits and numbers it can perform any task like analyze data, mathematical calculations etc. Examples of digital computers are Apple Macintosh, IBM PC.

Hybrid Computer. This computer is the combination of both analog and digital computers in terms of speed and accuracy. Hybrid computers can measure physical and digital quantities. Examples of hybrid computer is the machine measure heartbeat in hospital, devices installed fuel pumps." [1]

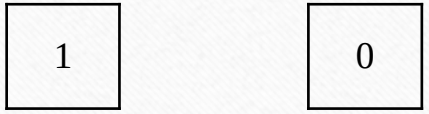
Reference

[1] Umar Farooq, “What is Computer - Definition & Basic Concept of Computer”, Study Lecture Notes, 2016.

http://www.studylecturenotes.com/computer-science/what-is-computer-definition-basic-concept-of-computer

Computer Units

1. The bit (b): it is the smallest memory storage.

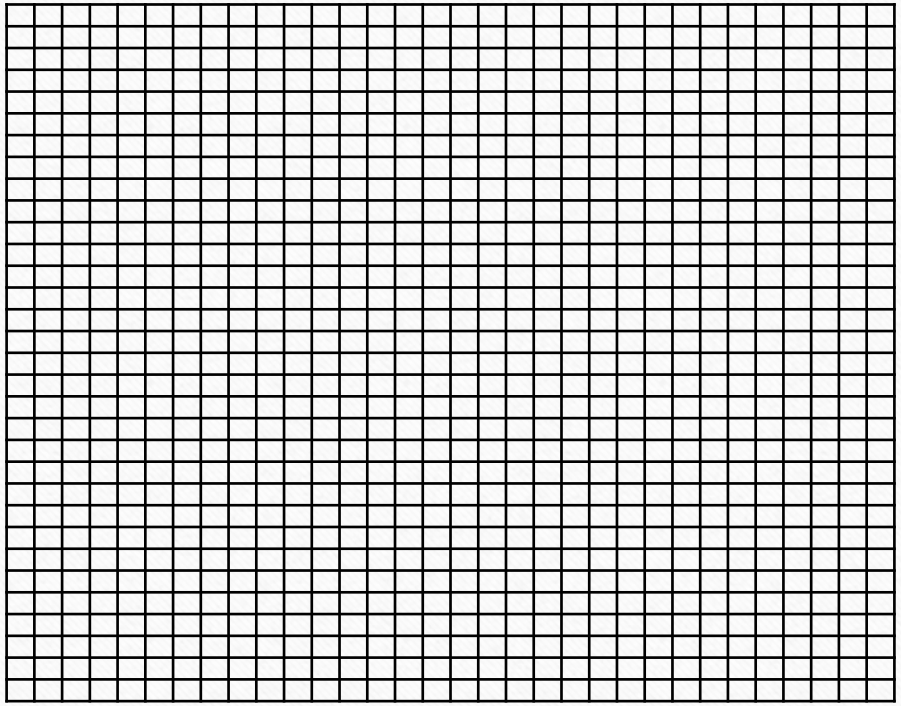


2. The Byte (B): it is the smallest character storage.

0	1	0	0	0	0	0	1	≡	A

Computer Units

3. The Kilo Byte (KB), Mega Byte (MB), Giga Byte (GB) and Tera Byte (TB): they are storage groups of bytes.



Computer Units

1 B = 8 b

1 KB = 1024 B

1 MB = 1024 KB

1 GB = 1024 MB

1 TB = 1024 GB

Example (1)

Convert 8589934592 bits to GB

8589934592 bits / 8 = 1073741824 B

1073741824 B / 1024 = 1048576 KB

1048576 KB / 1024 = 1024 MB

1024 MB / 1024 = 1 GB

Example (2)

Convert 0.00000009 GB to bits

0.00000009 GB * 1024 = 0.00009216 MB

0.00009216 MB * 1024 = 0.09437184 KB

0.09437184 KB * 1024 = 96.63676416 B

96.63676416 B * 8 ≈ 773 bits

Wish You All Happy Years, Months and Days

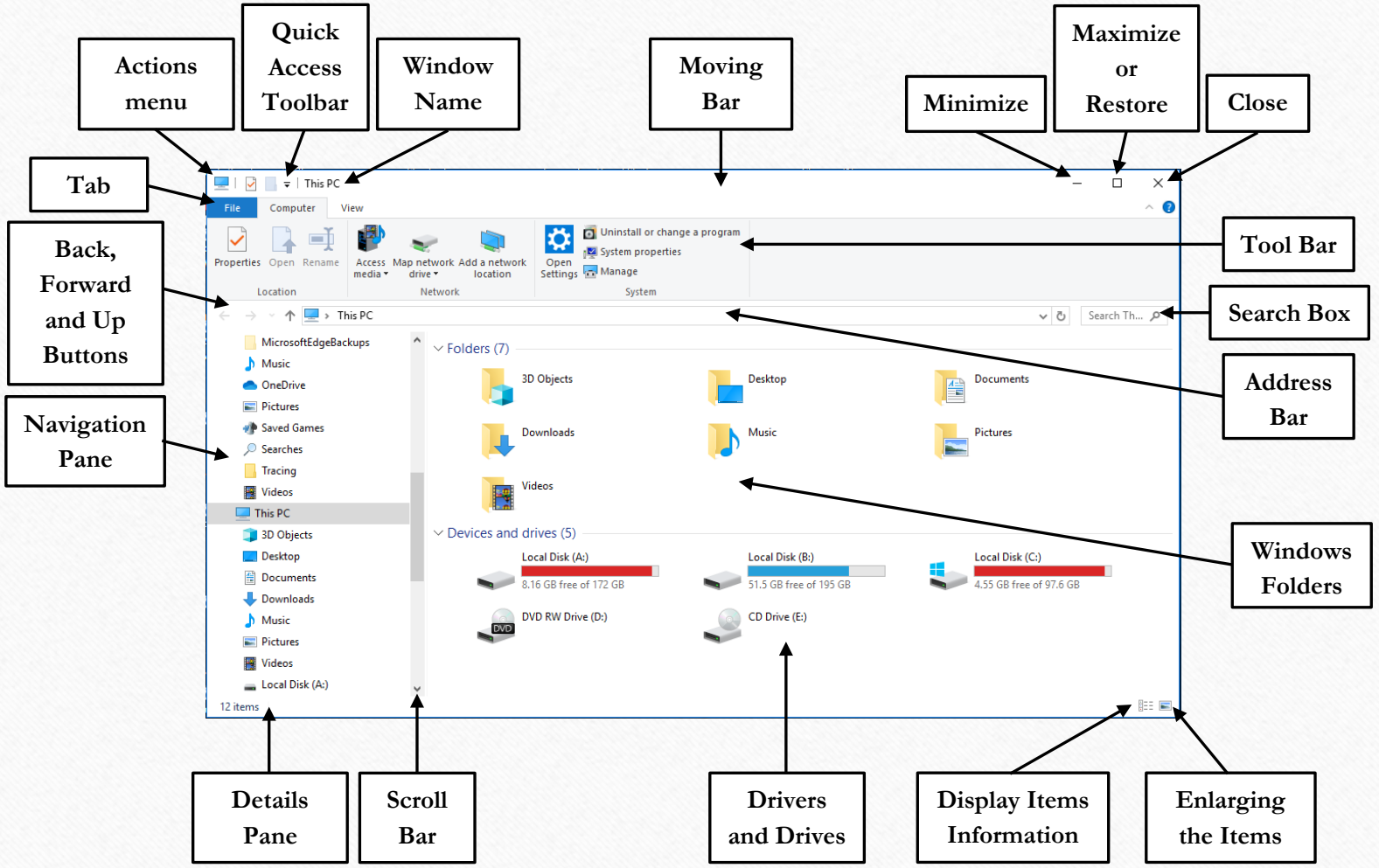
WINDOWS

Getting started:

Windows is an Operating System (OS), it is adopted by Microsoft. It has many versions such as Windows 95, Windows 98, Windows 2000, Windows Millennium (Windows Me), Windows XP, Windows 7 and Windows 10. Here we will focus on Windows 10.

Window:

An example of a window (This PC or My Computer) is shown as follows:

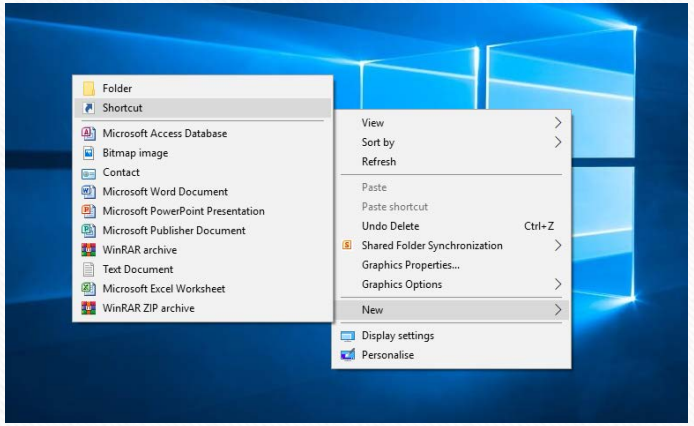

Actions menu
Quick Access Toolbar
Window Name
Moving Bar
Minimize
Maximize or Restore
Close
Tab
Back, Forward and Up Buttons
Navigation Pane
Tool Bar
Search Box
Address Bar
Windows Folders
Details Pane
Scroll Bar
Drivers and Drives
Display Items Information
Enlarging the Items
This PC
File
Computer
View
Properties
Open
Rename
Access media
Map network drive
Add a network location
Open Settings
Uninstall or change a program
System properties
Manage
Location
Network
System
Search Th...
MicrosoftEdgeBackups
Music
OneDrive
Pictures
Saved Games
Searches
Tracing
Videos
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Folders (7)
Devices and drives (5)
Local Disk (A:)
8.16 GB free of 172 GB
Local Disk (B:)
51.5 GB free of 195 GB
Local Disk (C:)
4.55 GB free of 97.6 GB
DVD RW Drive (D:)
CD Drive (E:)
12 items

Definitions:

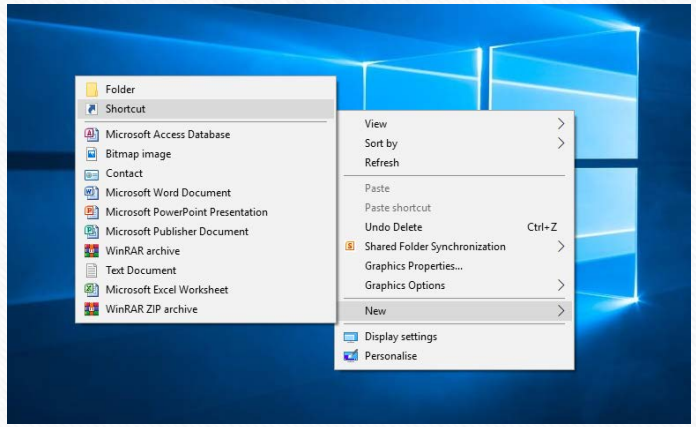
- Drive (local disk) or root: it represents a local disk and it can be considered as the main arrangement of the hard disk memory. It has different labels such as C:, D: and E:. A special software (example: pqmagic) can partition the hard disk into drives or roots.
- Folder or directory: this is a second level of arrangement. It can hold different number of files (data) and different number of folders. It uses to categorize the different information.
- File: it holds a special data. This data could be a text, picture, video, … etc. It can be recognized according to its extension (type) or icon. Examples of file extensions or types: txt, docx, jpg, bmp, wav, mp3, mp4, avi.
- Shortcut: this is a special type of icons. The shortcut reduces the efforts of following a path into the information.

Examples:

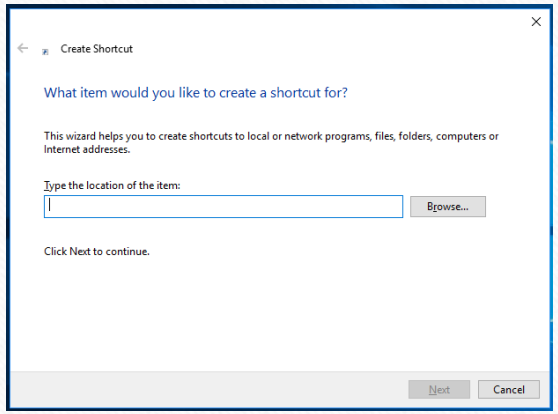
- A right click in an empty place can be used to create a file, folder or shortcut.



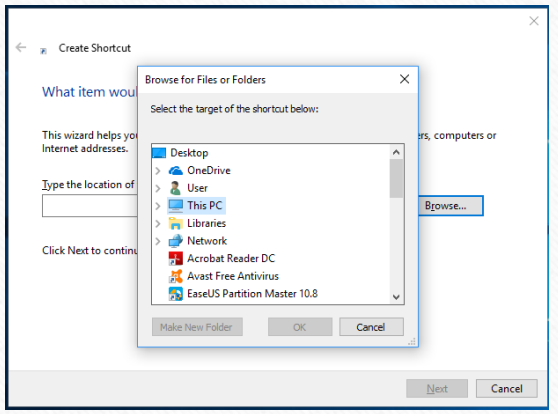
To get a shortcut, you can follow such steps:



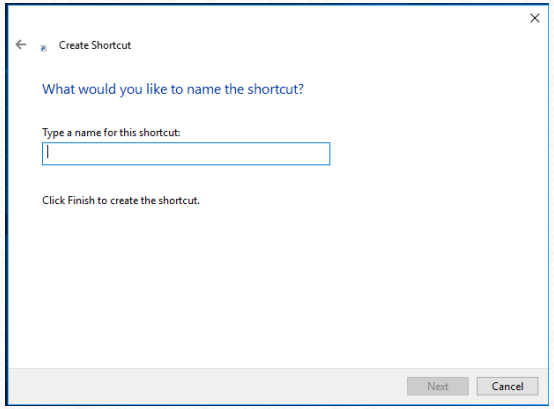
(1)



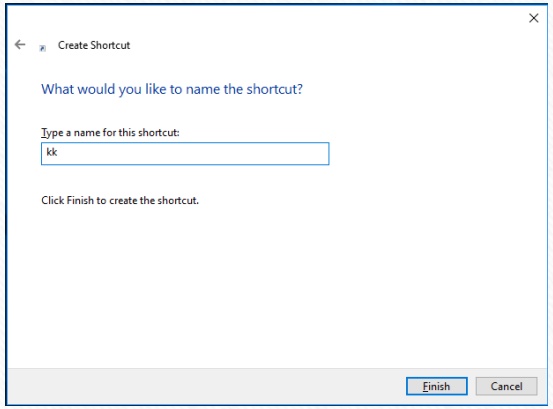
(2)



(3)

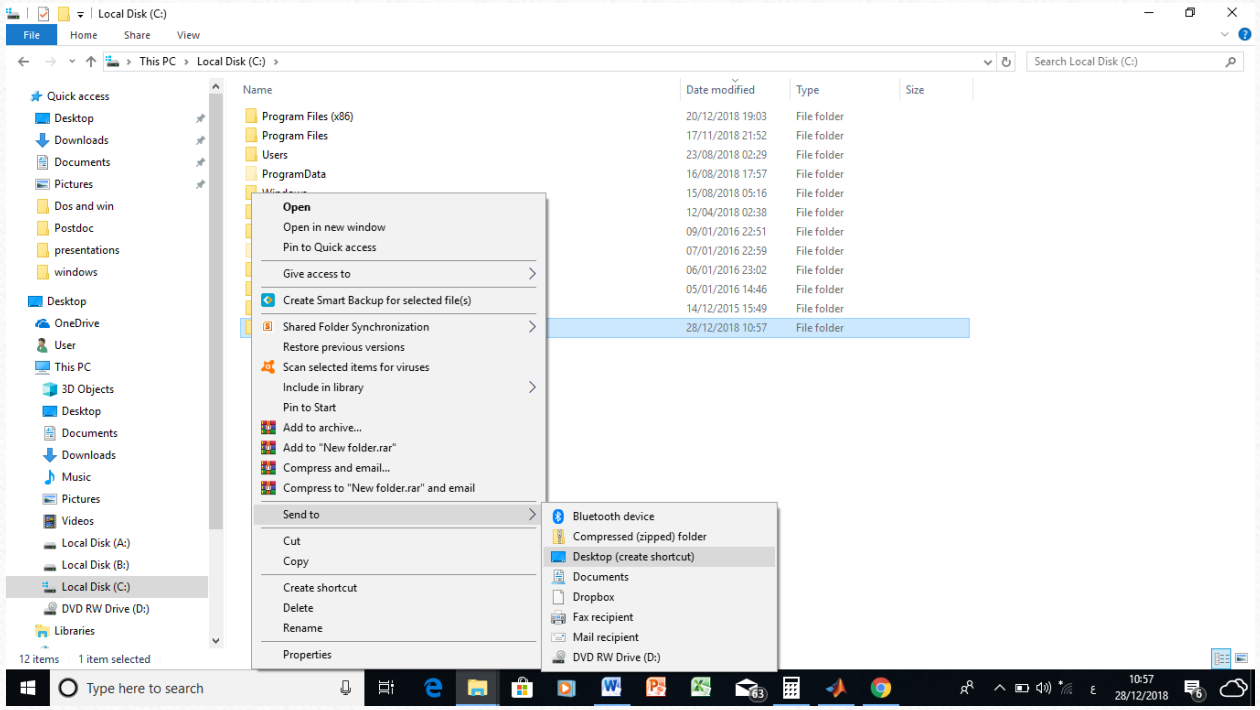


(4)



(5)

Or: go to the specific file or folder → right click → Send to → Desktop (create shortcut)



Or: go to the specific file or folder → right click → Copy. Then, go to the certain place (where you need to put the shortcut) → right click → Paste shortcut.

Wish You All the Best

COMPUTER KEYBOARDS

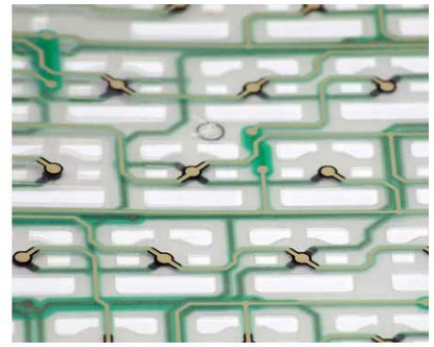
Computer Keyboards

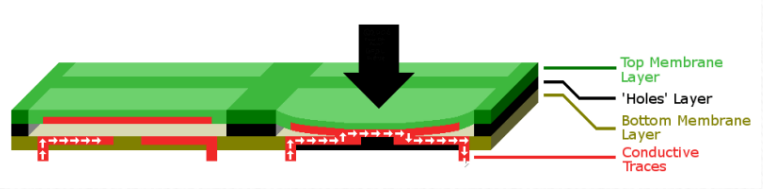
A computer keyboard is considered as an input device. It is able to input information into a computer.

There are different types of keyboards such as [1]:

1- Membrane Keyboard:

This type of keyboards uses two layers of rubber or silicone shell. Conducting is established between the two layers by pressing any key, where a current of the pressed key position is passing. Membrane keyboard keys are sensitive to the pressure.





2- Mechanical Keyboard:

The keys in this type of keyboards are working as switches. Conducting is established based on the idea of switching. That is, a current of the pressed key position is passing after pressing the certain key and stopping after releasing the certain key. This keyboard can provide a keystroke style.

3- Ergonomic Keyboard:

This type of keyboards provides ergonomic using of keys by a user. It is created to be more comfortable to a personal body design. It can cause less stressing for wrists, fingers and hands.

4- Left Handed Keyboards:

This type of keyboards is designed for the left handed people. Basically, the positions of its keys are exchanged to the reverse direction.

5- Gaming Keyboard:

This type of keyboards has more facilities comparing to normal keyboards. This is because that the gaming keyboards are created for gaming.

6- Wireless Keyboard:

This type of keyboards does not require a connecting wire to the computer. So, it reduces clutter and allows controlling its computer from a distance. It utilizes a bluetooth or wifi connection.

7- Roll-up Keyboard:

This type of keyboards is very flexible as it can be bended. Roll-up keyboards resist to liquid spills as they are generally waterproofed. It can be exploited for travelling.

8- Projection Keyboard:

This type of keyboards usually utilizes the laser to provide a virtual keyboard view on a surface. When a virtual key is selected, it is considered by a camera or an optical sensor. Then, it is translated to the computer.

9- Tablet Keyboard:

This type of keyboards is assigned to be used for tablets. Tablet Keyboards are compact standalone keyboards. They help in making tablet typing more conveniently.

Types of Keyborad Keys:

(1) Symbol keys

(2) Control keys

(3) Spare keys

A desktop computer keyboard is shown below [2]:

References:

[1] http://ergonomictrends.com/different-types-of-computer-keyboards/

[2] https://en.wikipedia.org/wiki/Computer_keyboard#/media/File:LenovoKeyboard.jpg

Wish You All the Best

WINDOWS 10 DESKTOP

Windows 10 Desktop:

"Upon logging into your computer, you will be taken to the computer's *Desktop*. The Desktop layout is as follows:

1. **Desktop Shortcuts** – Shortcuts to files, folders, and the Recycle Bin (See Figure 1).

2. **The Taskbar** – Like in previous versions of Windows, the *taskbar* provides access to the *Start Menu*, shortcuts to programs, as well as volume and date/time control (See Figure 1).

3. **The Start Button** – Found on the bottom left of your screen, the **Start** button allows you to access computer programs and configuration options such as *Windows Settings* (See Figure 1).

4. **Windows Search** – Allows you to search for prog[r]ams, folders, and files (See Figure 1).

5. **Task View** – A new feature in Windows 10 that gives you access to a *task switcher* tool as well as a *Virtual Desktop* (See Figure 1).

6. **File Explorer** – Formerly known as *Windows Explorer*, File Explorer is a file manager application that allows you to access files and folders on the computer (See Figure 1).

7. **Taskbar Programs** – Provides quick access to open or pinned programs (See Figure 1).

8. **Volume Adjustment** – Allows you to adjust the computer's volume (See Figure 1).

9. **Date/Time** – Access the *Date/Time* options(See Figure 1)." [1]

Figure 1: Desktop for Windows 10 [1]

"The Desktop is split into two areas. The strip at the bottom, with the clock to the right and the square, window shaped **Start button** to the left, is called the **Taskbar**." [2]

Figure 2 shows a taskbar for Windows 10.

Figure 2: Taskbar for Windows 10 [2]

“The rest of the Desktop is the space where all your programmes will appear when you start them up. This space contains default background wallpaper, but it can also contain shortcuts to programmes, documents and folders.

Desktops can be customized and can look different depending on which computer you’re using. For example a public network like the library may have a computer setup to use their own logo on the Desktop and use different software to access the internet. What is best to do is take your time to familiarise yourself with the computer you are using.

Imagine your Desktop is just that the top of a desk, computers are designed around the working world the office in particular. The Desktop was designed so you have everything at hand just like sitting at your desk.” [2]

Windows Taskbar:

"The **Taskbar** is the thin strip that runs across the bottom of your screen. It is split into a number of different areas: a Start button, Quick Launch icons, a notification area, and a clock. All other areas are the Taskbar itself." [2]

Figure 3 demonstrates taskbar components and their descriptions.

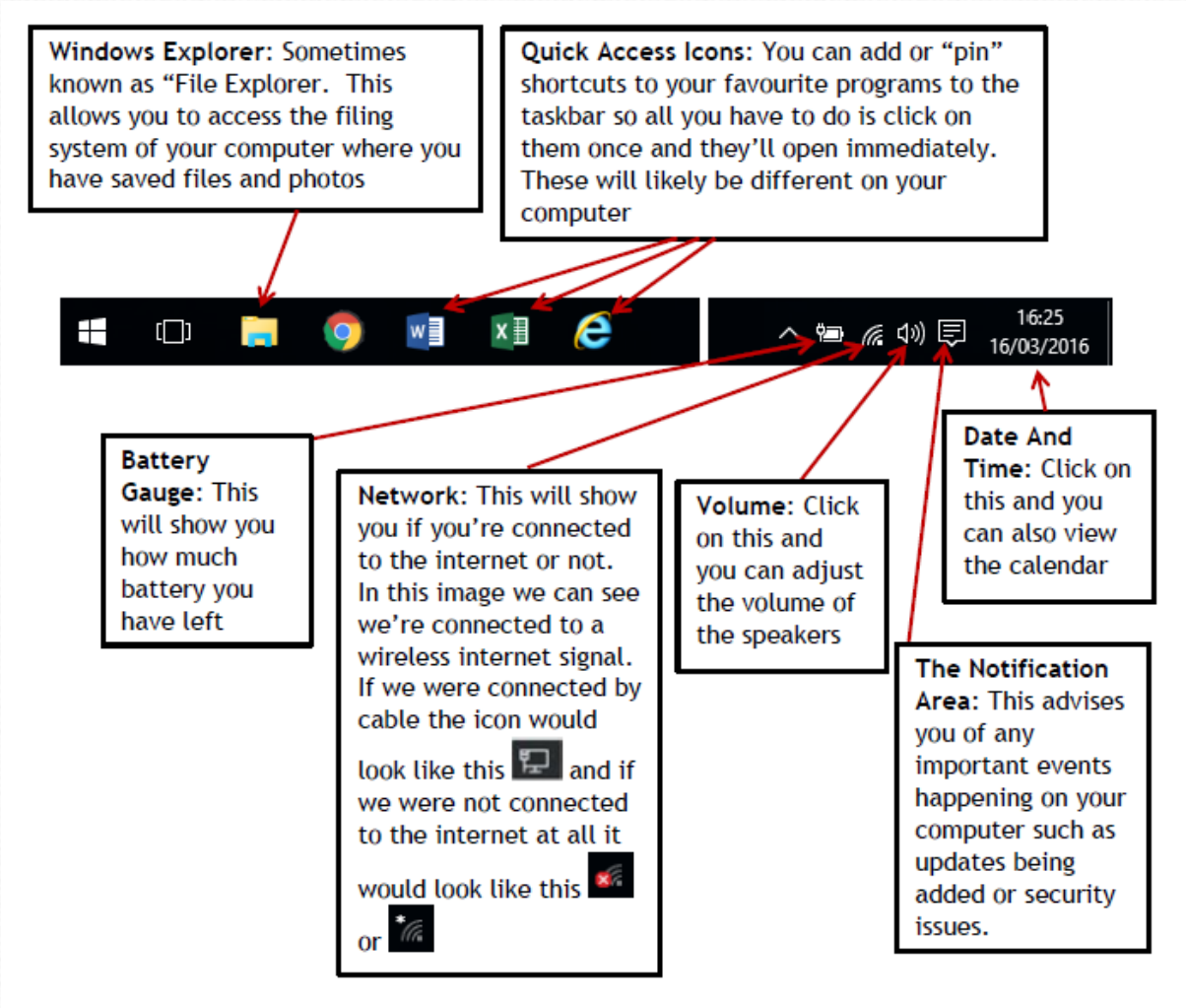


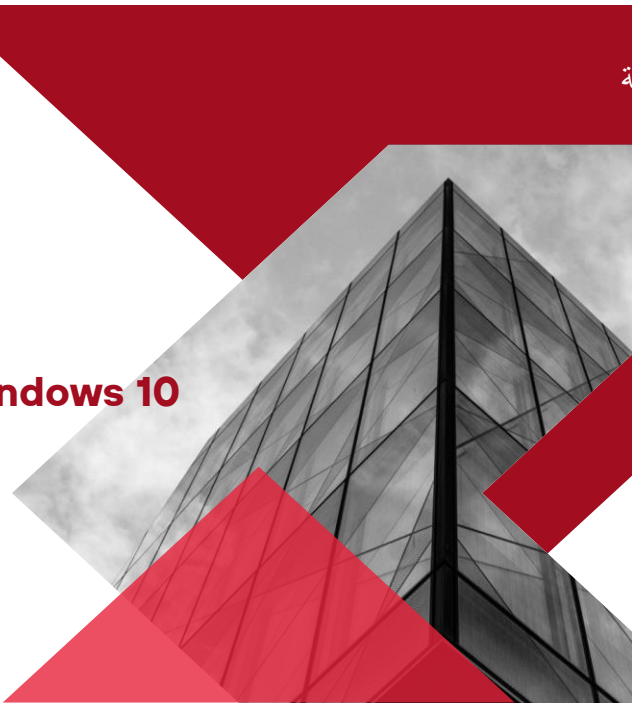
Figure 3: Taskbar components and their descriptions [2]

References:

[1] University Information Technology Services, “Microsoft Windows 10, Getting Started Guide”, Kennesaw State University – UITS, 2016.

[2] Cre8te Opportunities, “Introduction To Computers (Windows 10)”, Digital Skills Academy, 2016.

Wish You All the Best



تطبيقات الحاسوب

Lecture5: Continuing To Windows 10

Dr. Darin Mhalla

Agenda

1	Change the Desktop Background
2	Changing Your Screen Saver
3	Changing Screen Resolution
4	Start Menu
5	Searching for Programs and Files from the Start Menu

6	Searching for files from Windows Explorer
7	Accessories for Windows 10:
8	References

Change the Desktop Background

The following explains how to change the desktop background (a.k.a wallpaper) in Windows 10:

1. Right-click the **desktop**.
2. Click **Personalize** in the window that appears.

.

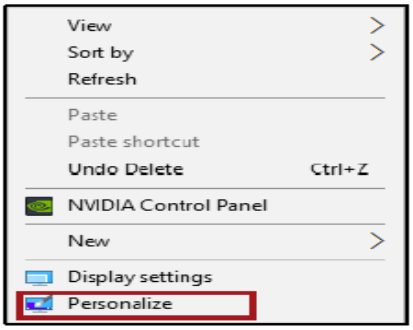


Figure 38 - Click Personalize

Back to Agenda

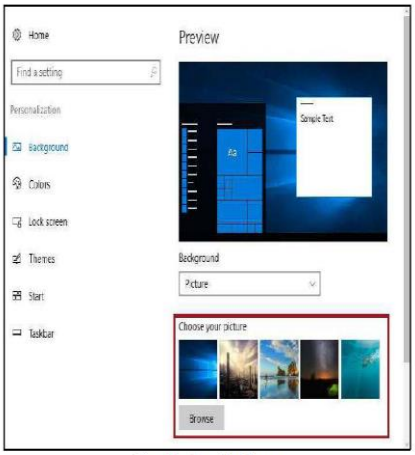


Figure 39 - Choose Your Picture

Change the Desktop Background

3. You will be taken to the *Personalize Desktop* window. Here, you may toggle the type of desktop background in the **Background** drop-down. If you wish to select a different picture, you can choose from the *Choose your picture* fields.

.

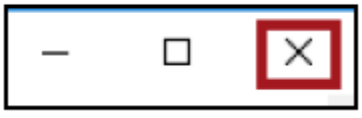


Figure 40 - Click Close

4. Your desktop background will be changed. Click **X** to close the window.

.

Back to Agenda

Changing Your Screen Saver

Windows comes with several screen savers. These screen savers may appear when your computer goes idle. The following explains how to change your screensaver in Windows 10:

1. Right-click the **desktop**.
2. Click **Personalize** in the window that appears

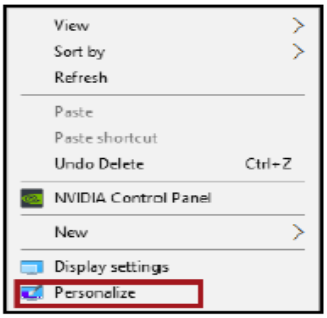
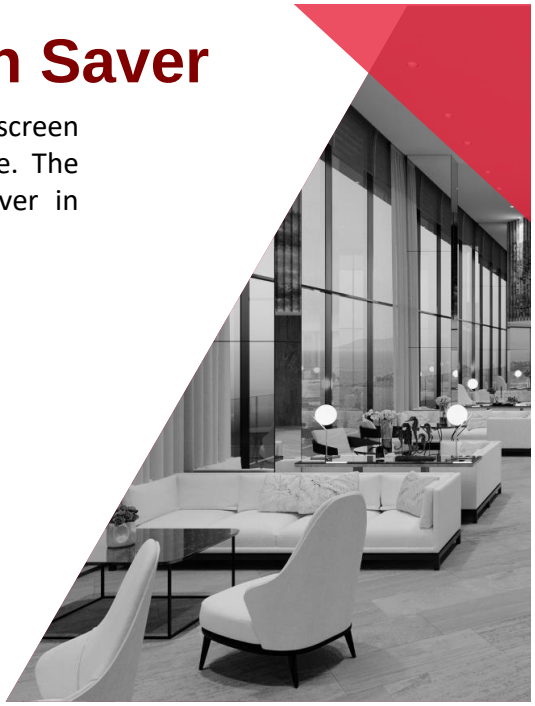


Figure 41 - Click Personalize



Changing Your Screen Saver

3. In the *Settings* window, click **Lock Screen**.

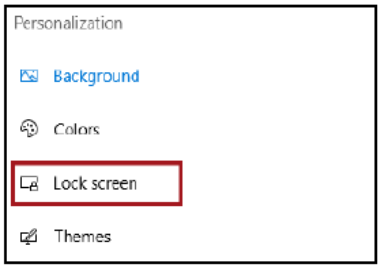


Figure 42 - Lock Screen

4. Click Screen saver settings, located at the bottom of the window.

Back to Agenda

Changing Screen Resolution

Windows chooses the best display settings, including screen resolution, refresh rate, and color, based on your monitor. The following explains how to adjust the screen resolution in Windows 10:

Steep # 1

Right-click the desktop

Steep # 2

Click Display Settings.

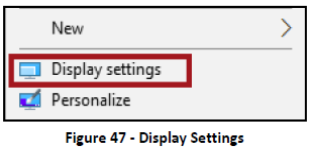


Figure 47 - Display Settings

Steep # 3

You will be taken to the Customize your display window. Click Advanced display settings for additional display settings.

Back to Agenda

Changing Screen Resolution

Steep # 4

To adjust the screen resolution, select the resolution from the Resolution drop-down menu (See Figure 49).

Steep # 5

Click **Apply** (See Figure 49).

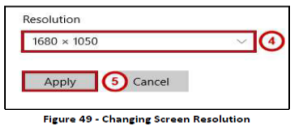


Figure 49 - Changing Screen Resolution

Steep # 6

To keep the changes, click **Keep Changes**.

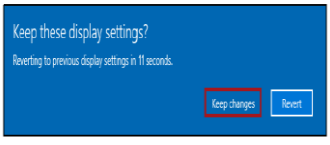
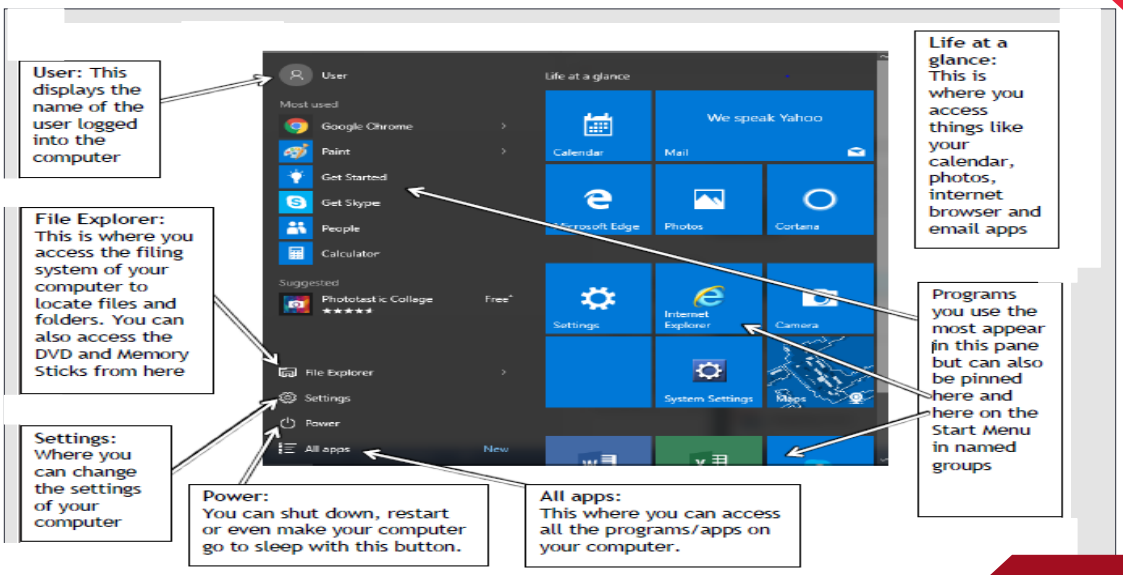


Figure 50 - Keep Changes

Back to Agenda

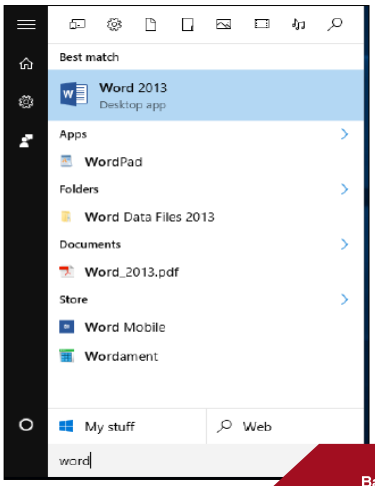
Start Menu



Back to Agenda

Start Menu

search your computer for a certain
or specific file by simply typing in the
it after you've clicked on the start
Type Word now and the computer will
for it. A list should appear with
oft Word" as the first result. If you
click on this it will open up the
(we'll be doing this later).



Back to Agenda

Searching for Programs and Files from the Start Menu

You may quickly access programs, files and/or folders from your *Start Menu*. The following explains how to do so:

1. Click the **Start** button.
2. Begin typing the **name of the program**, **file**, or **folder** that you wish to open.
3. Your search results will appear. Click the **program**, **file**, or **folder** that you wish to open.

Back to Agenda

Start Menu

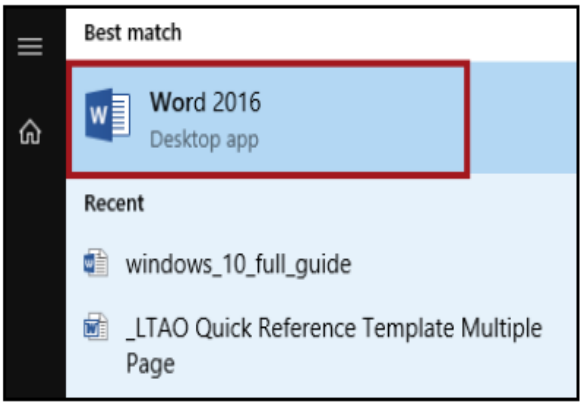


Figure 51 - Click the program, file or folder

Back to Agenda

Searching for files from Windows Explorer

You may also search for files and folders from Windows Explorer. The following explains how to do so:

1. Click the **Windows Explorer** icon, located on the *Windows Taskbar*.

Figure 52 - Windows Explorer

Back to Agenda

Start Menu

3. The File Explorer will appear. Click This PC to search for files located on your PC.

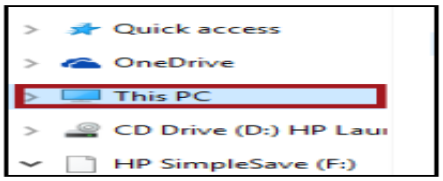


Figure 53 - This PC

4. In Search This PC, type the name of the file or folder that you wish to find.

Figure 54 - Search This PC

Back to Agenda

Start Menu

4. A list of files and folders matching your search terms will appear. Double-click the file or folder that you would like to open.

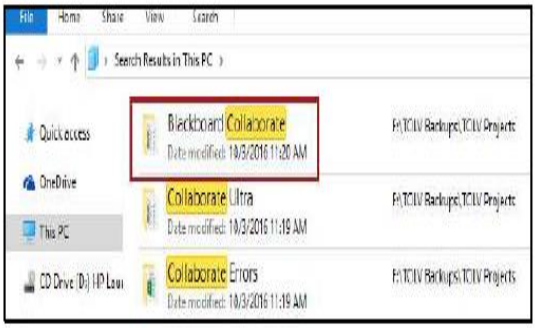


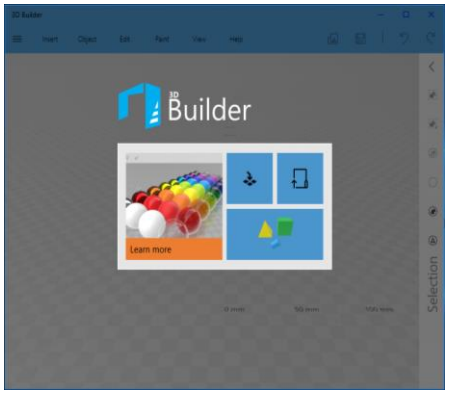
Figure 55 - Double-click the file or folder

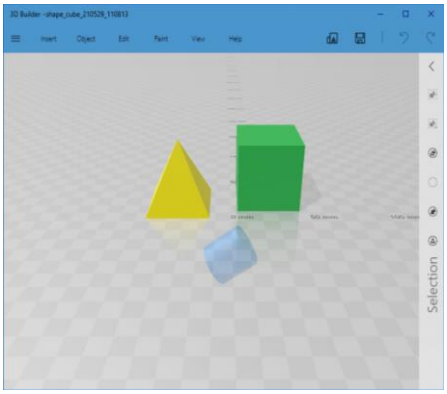
Back to Agenda

Applications of Windows 10 Accessories

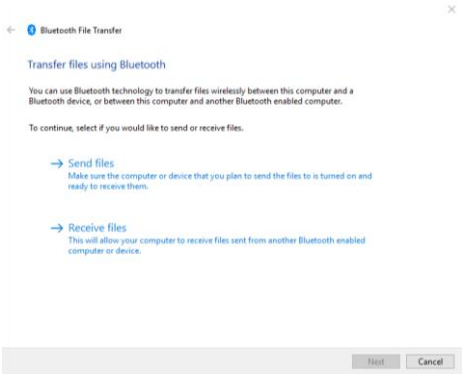
Back to Agenda

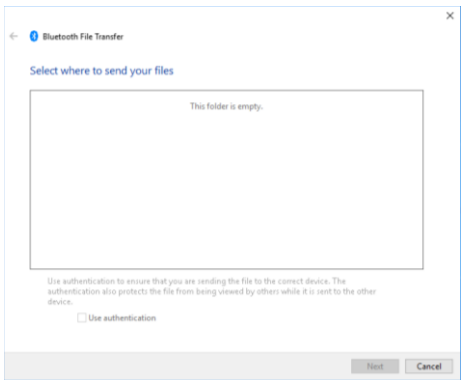
3D Builder:



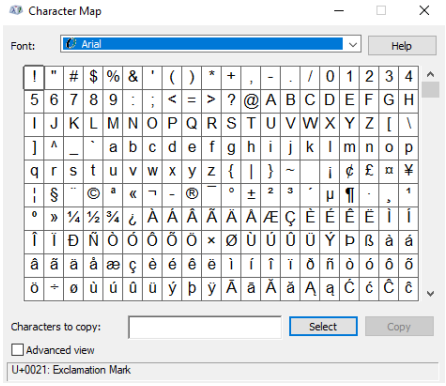


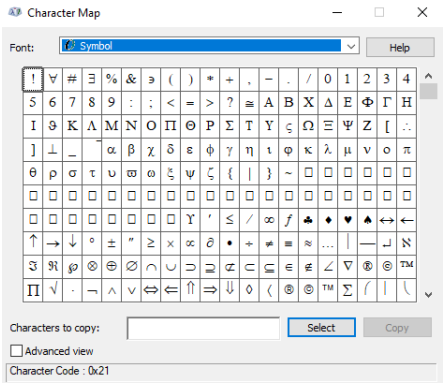
Bluetooth File Transfer Wizard



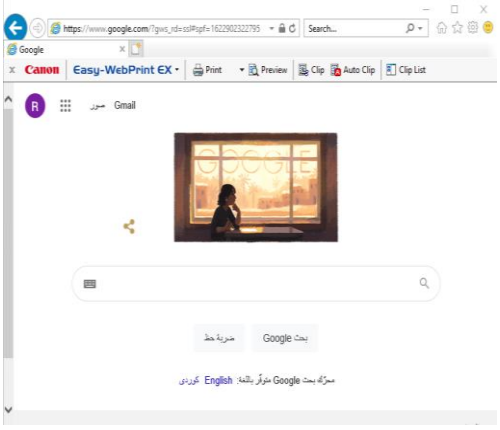


Character Map:

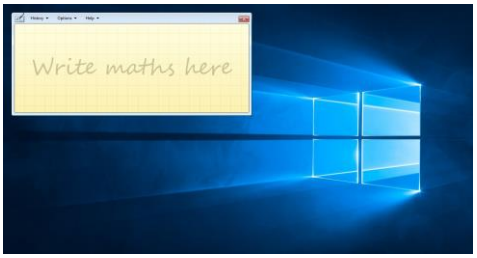


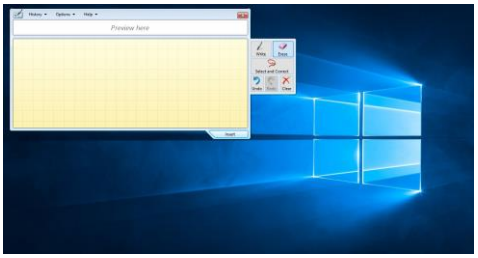


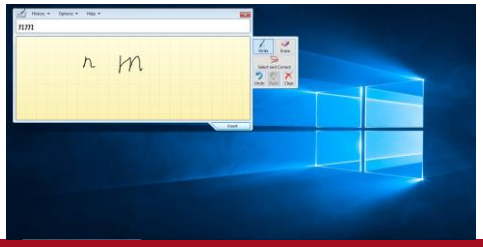
Internet Explorer

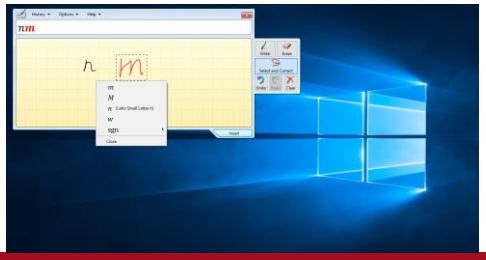


Maths Input Panel

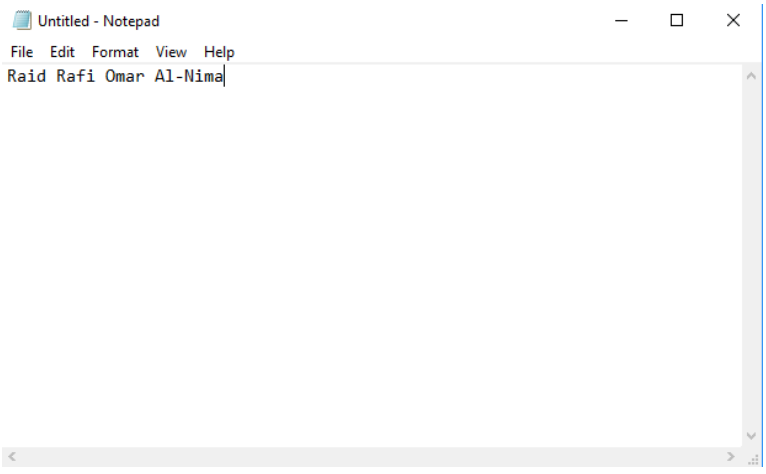




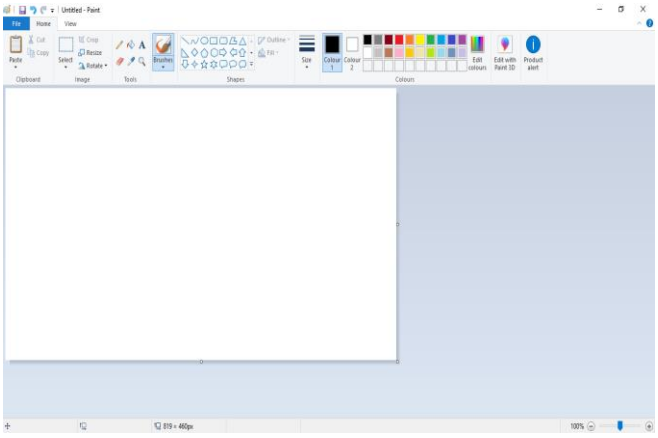




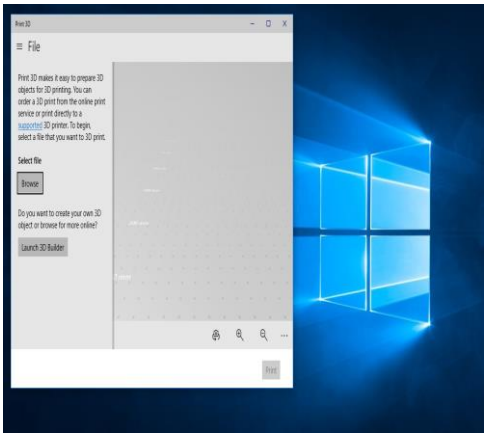
Notepad



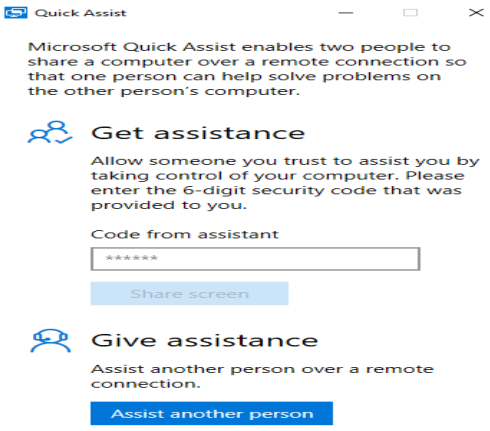
Paint



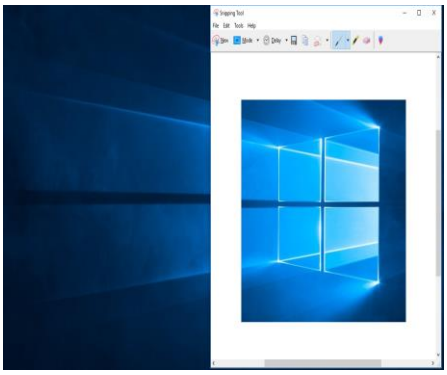
Print 3D



Quick Assist



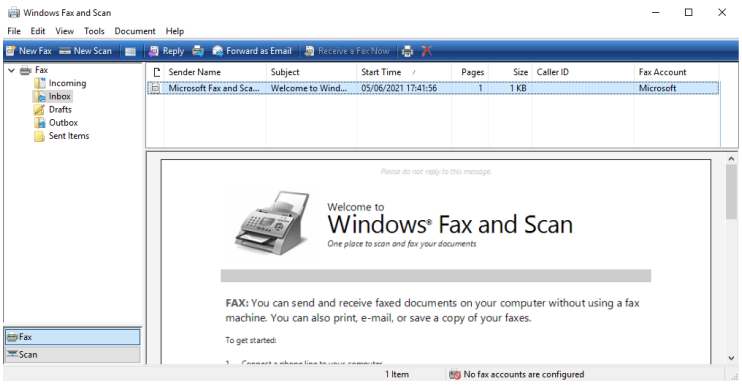
Snipping Tool



Tab Tip

(a) (b)

Windows Fax and Scan



References

[1] University Information Technology Services, "Microsoft Windows 10, Getting Started Guide", Kennesaw State University – UITS, 2016.

[2] Cre8te Opportunities, "Introduction To Computers (Windows 10)", Digital Skills Academy, 2016.

[3] University Information Technology Services, "Microsoft Windows 10, Getting Started Guide", Kennesaw State University – UITS, 2016.

Wish You All the Best

Back to Agenda