

**Lab Report
Of
Introduction to Information Technology
TITLE: OPERATING SYSTEM**



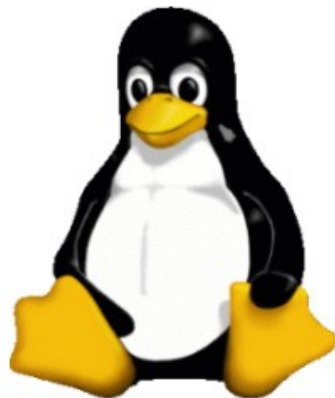
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Jawalakhel, Lalitpur
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OPERATING SYSTEMS

Operating systems that creates a standard interface for other software to control the underlying hardware. Think of how cars work. Every car has a steering wheel, gas and brake pedal and so on. But you can have a high performance engine underneath the hood. An operating system is like everything between the steering wheel and the actual engine that makes the car go. And cars are designed in a way that you don't need to relearn how to drive a car when you get a new one. It's still just a steering wheel and a gas pedal.

The operating system loads up while booting, and then interacts with the user (you). If you ask the operating system to do something (open a spreadsheet, for example) then the operating system's job is to go and open that spreadsheet; to ensure that that spreadsheet has what it needs to do its work (such as, for example, CPU time or the ability to talk over the network) - the spreadsheet gets nothing that the operating system doesn't let it have. If you're running multiple programs at once (say, a spreadsheet and a word processor) then the operating system is what juggles them, makes sure that they each get a fair distribution of CPU time, and basically does all the underlying management.



Above shown image shows various operating system software's that are widely used in today's world. These software's are either GUI or CUI. GUI stands for Graphical User interface and CUI stands for Command line Interface. Both of these types have their own advantages and disadvantages. Some operating systems are capable enough to provide features of both GUI and CUI.

Features	CUI	GUI
Full-Form	CUI stands for Character User Interface.	GUI stands for Graphical User Interface.
Interaction	The user interacts with the computer using commands like text.	The user interacts with the system using Graphics like icons, images.
Navigation	Navigation is not easy.	Navigation is easy to use.
Usage	Usage is easy to use.	Usage is difficult, requires expertise.
Speed	It has high speed.	It has a low speed.
Memory Requirement	It has a low memory requirement.	It has a high memory requirement.
Peripherals used	Users interact with the computer system by typing commands into the keyboard.	Users interact with the computer system using a graphical interface, which includes menus and mouse clicks.

Precision	It has high precision.	It has low precision.
Flexibility	It has a little flexible user interface.	It has a highly flexible user interface.
Customize	It is not easily changeable.	It has highly customizable.

We will talk about a few GUI based Operating systems now. GUI based operating systems are widely used in today's world and they are especially made for the common mass. It's user interface is easy to use and it has a lot of benefits. Some of the GUI based operating system are:

1. Windows
2. Linux
3. Apple iOS
4. Mac OS

We are going to talk about some of them here.

Windows



Windows is a graphical operating system developed by Microsoft. It allows users to view and store files, run the software, play games, watch videos, and provides a way to connect to the internet. It was released for both home computing and professional works.

Microsoft introduced the first version as 1.0

Editions of Windows

Microsoft has produced several editions of Windows, starting with Windows XP. These versions have the same core operating system, but some versions included advance features with an additional cost. There are two most common editions of Windows:

- Windows Home
- Windows Professional

Windows Home

Windows Home is basic edition of Windows. It offers all the fundamental functions of Windows, such as browsing the web, connecting to the Internet, playing video games, using office software, watching videos. Furthermore, it is less expensive and comes pre-installed with many new computers.

Windows Professional

Windows Professional is also known as Window Pro or win Pro. It is an enhanced edition of Windows, which is beneficial for power users and small to medium-size businesses. It contains all features of Windows Home as well as the following:

- **Remote Desktop:** Windows Professional editions allow users to create a remote desktop connection. It provides users the option to connect with another computer remotely, including share the control of its mouse, keyboard, and view display. It is mainly accessed with the help of port 3389. Additionally, we can also use the TeamViewer or VNC application to create a remote desktop connection.
- **Trusted Boot:** It provides security as encrypting to the boot loader and protects the computer from rootkits (Collection of software tools that allow users to enter another computer through an unauthorized way known as rootkits).
- **Bitlocker:** It allows users to encrypt a storage drive by using AES (Advanced Encryption Standard) algorithm. This feature is present in Windows 7, and Windows Vista (Only ultimate and Enterprise versions), including Windows Server 2008.

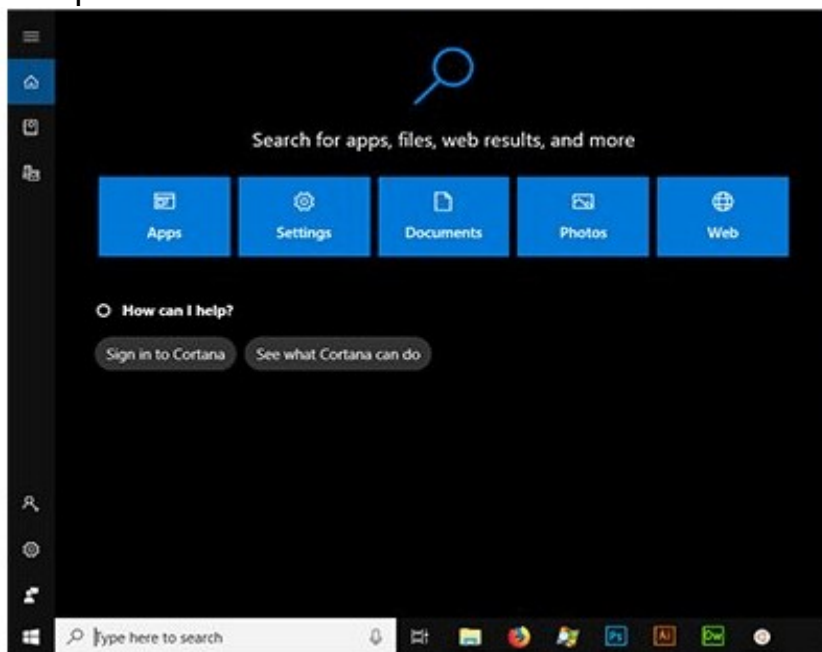
Features of Windows

Microsoft Windows includes a lot of features to help users. Some of its excellent features are as follows:

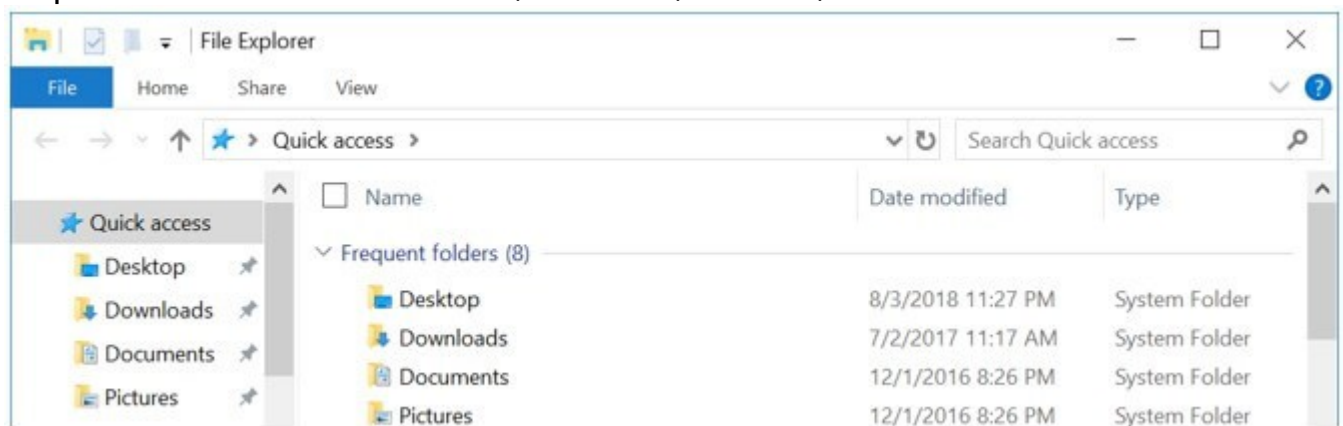
1. **Control Panel:** Windows provides a Control Panel feature that includes many tools to configure and manage the resources on their computer. For example, users can change settings for audio, video, printers, mouse, keyboard, network connections, date and time, power.

Cortana: Windows 10 introduced a feature named Cortana, which is able to accept voice commands. It can perform various tasks such as it can answers your questions, search data on your computer, online purchases, set reminders, and appointments, etc. Furthermore, it acts like other voice-activated services such as Google Assistant, Alexa, or

Siri, including one more benefit of searching the information on your computer.



2.File Explorer:It is also known as Windows Explorer, which displays your files and folders on the computer. It allows users to browse the data on the hard drive, SSD and other inserted removable disks like pen drives and CDs, and you can manage the content according to the requirements such as delete, rename, search, and transfer the data.



3.Internet browser: As the internet browser is very important to search for anything, view pages, online shopping, play games, watch videos, etc. Windows come with a pre-installed internet browser. in Windows 10, the Edge internet browser is the default browser. Furthermore, Internet Explorer was the default browser in Microsoft Windows from the Windows edition 95 to 8.1 version.

LINUX



Linux is an open-source Unix-like operating system-based family on the Linux kernel, and the OS kernel was first published on 17 September 1991 by **Linus Torvalds**. Typically, Linux is packaged as the Linux distribution, which contains the supporting libraries and system software and kernel, several of which are offered by the GNU Project. Several Linux distributions use the term "**Linux**" in the title, but the Free Software Foundation uses the "**GNU/Linux**" title to focus on the necessity of GNU software, causing a few controversies.

- **Multiuser capability:** Multiple users can access the same system resources like memory, hard disk, etc. But they have to use different terminals to operate.
- **Multitasking:** More than one function can be performed simultaneously by dividing the CPU time intelligently.
- **Portability:** Portability doesn't mean it is smaller in file size or can be carried in pen drives or memory cards. It means that it supports different types of hardware.

○**Security:**It provides security in three ways namely authenticating (by assigning password and login ID), authorization (by assigning permission to read, write and execute) and encryption (converts file into an unreadable format).

○**Open Source:**Linux code is freely available to all and is a community based development project.

MS DOS OPERATING SYSTEM



A disk operating system (DOS) is an operating system for x86 based personal computers mostly developed by Microsoft. MS-DOS, its re branding as IBM PC DOS, and some operating systems attempting to be compatible with MS-DOS. Sometimes it is referred to as "DOS", which is also the generic acronym for disk operating system.

MS-DOS was the main operating system for IBM PC compatible personal computers during the 1980s. It was gradually superseded by operating systems offering a graphical user interface (GUI) in various graphical Microsoft Windows operating system generations.

DOS is also used to describe several similar command-line disk operating systems. Early computers, such as the Commodore 64, Atari 800, and Apple II, all featured a disk operating system, including Commodore Business Machines DOS, Atari DOS, and Apple DOS, respectively.

Features of DOS

Here are some of the distinguishing features of a disk operating system, such as:

○MS-DOS does not offer GUI (Graphical User Interface) and doesn't accept mouse inputs. It is a character-based interface system where all commands are entered in the text at the command-line prompt.

○A disk operating system manages files, folders and allows program loading and execution. It can control hardware devices such as disk, memory and allocate resources.

○MS-DOS offers a file system to organize, read and write files to the disk storage.

Limitations of MS-DOS

Here are the following limitations of the disk operating system, such as:

○**Built-in security:** DOS does not have built-in security, such as file ownership and permissions.

○**No multiuser or multitasking:** It also does not support multiuser or multitasking. It can only run one program at a time, but it provides direct access to the basic I/O system and underlying hardware.

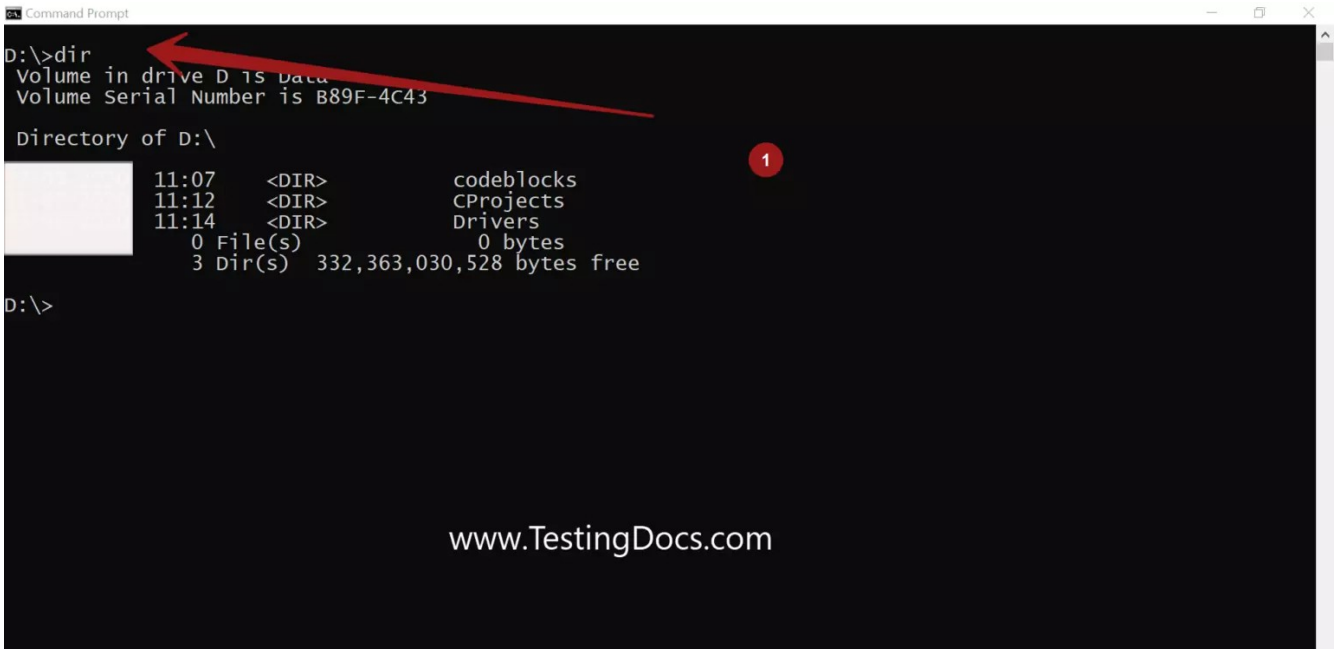
○**Challenging interface:** A user must type in commands and remember commands to run programs and other OS tasks. For example, typing the command **cd \directory_name** changes the current working directory to the named directory, and typing the command **dir** lists the files in the current directory. This approach makes it difficult for beginners to use.

Some of the commands in DOS are:

1	Cls	Clear Screen
2	Date	Change Date
3	Copy con	Create file.
4	Time	Change Time.
5	Type	check the content of any file.
6	Rename	Rename any file or directory.
7	copy	Copy files from one location to another.
8	Delete	Delete file from disk.

9	Dir	check directories and files present on the disk
10	MD	Create Directory.
11	CD	Change Directory.
12	RD	Remove Directory.
13	Volume	Check the Volume of the Disk.
14	Ver	Check the Version of the DOS

The *dir* command is used to display the list of files and subdirectories in a directory. Directories are folders that contain files. Unlike files, directories do not have any extensions. DOS commands are not case-sensitive.



```
Command Prompt
D:\>dir
Volume in drive D is Data
Volume Serial Number is B89F-4C43

Directory of D:\

11:07    <DIR>          codeblocks
11:12    <DIR>          CProjects
11:14    <DIR>          Drivers
0 File(s)              0 bytes
3 Dir(s)  332,363,030,528 bytes free

D:\>
```

www.TestingDocs.com

CLS

The *cls* command clears the current display screen and takes back the control to the prompt. This command is generally used to wipe out the output of the previous command(s) on the screen. We can start fresh with a blank command window.

Command prompt after the cls command is executed.

CHANGE DIRECTORY

The cd command stands for Change Directory. This command is used to change the directory. We can specify the directory in the command.

Change drive

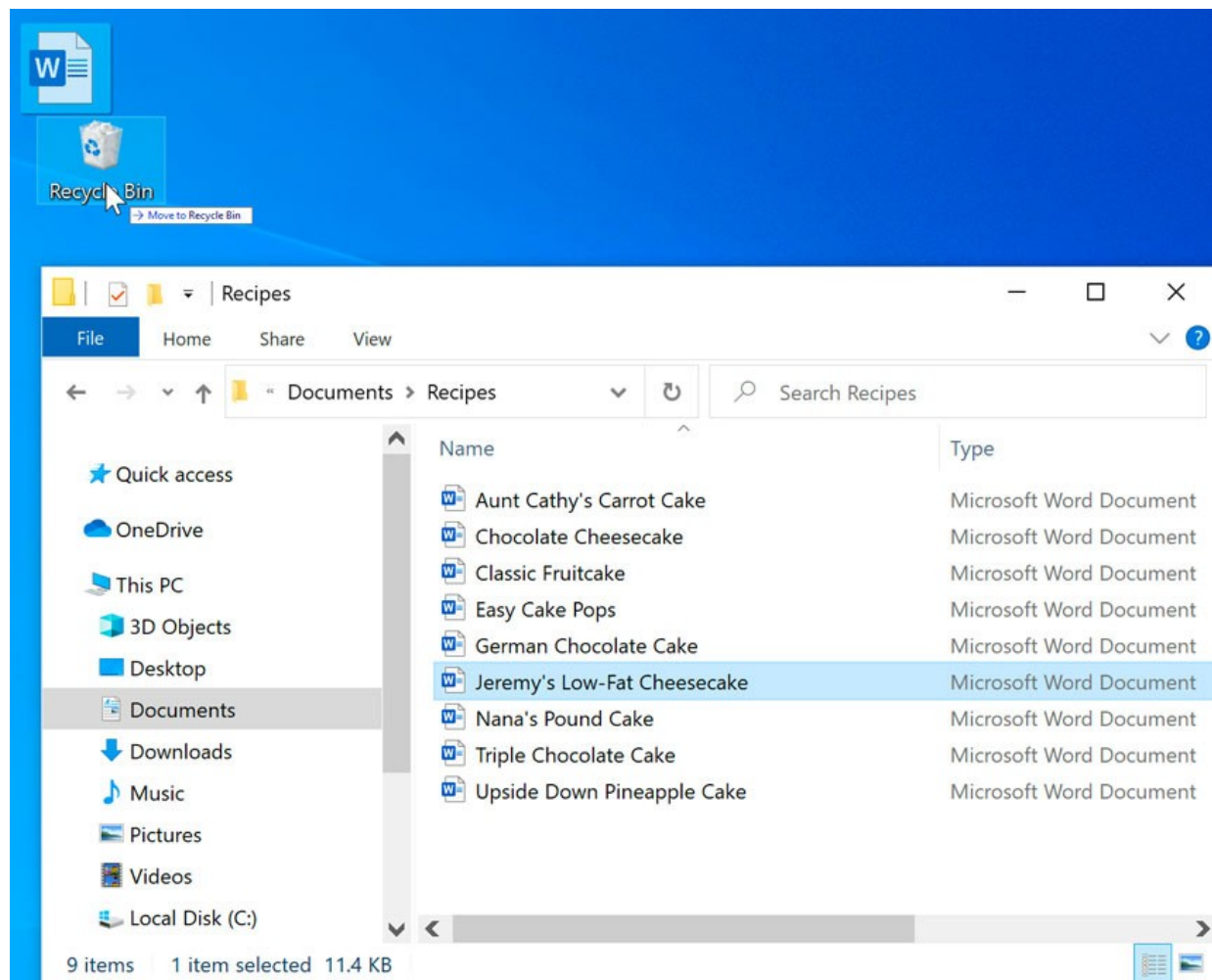
To change to a directory on a different drive, we must type the name of the drive. For example, to change to the D drive, you must enter D: or d:

 Command Prompt

```
C:\TestingDocs>D:
```

```
D:\>c:
```

```
C:\TestingDocs>
```



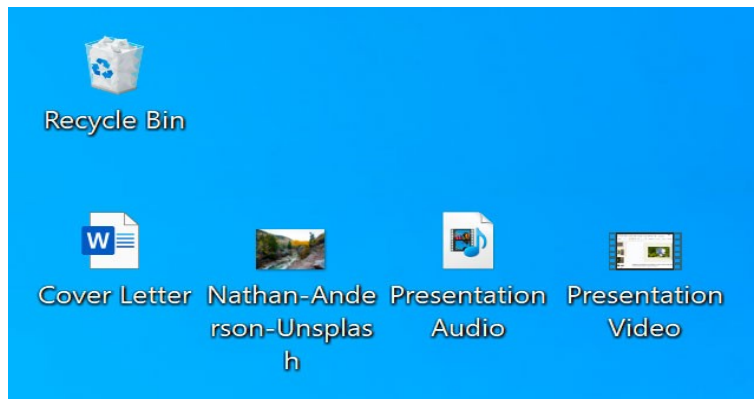
Working with files

Understanding how to work with files and folders is an important part of using your computer. Once you understand how files and folder work, you'll use them all the time. In this lesson, we'll show you the absolute basics of working with files, including how to open files, move your files into folders, and delete files.

File

There are many different types of files you can use. For example, Microsoft Word documents, digital photos, digital music, and digital videos are all types of files.

Files are usually represented by icon. In the image below, you can see a few different types of files below the Recycle Bin on the desktop.



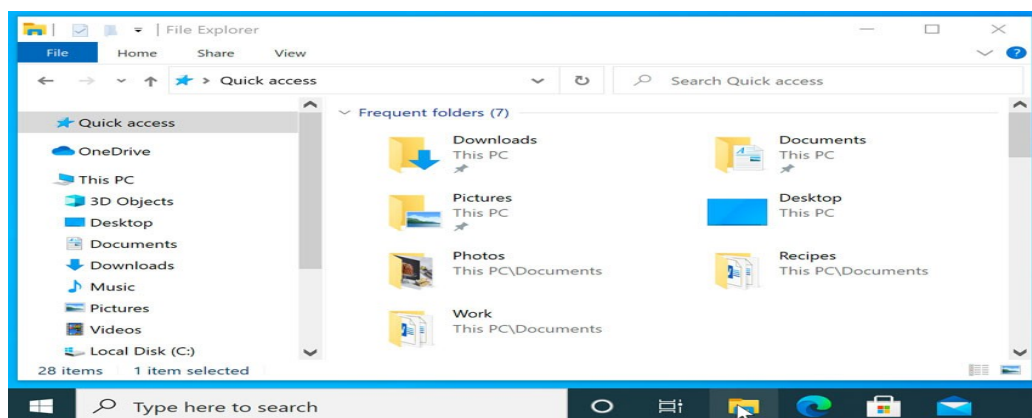
Folder

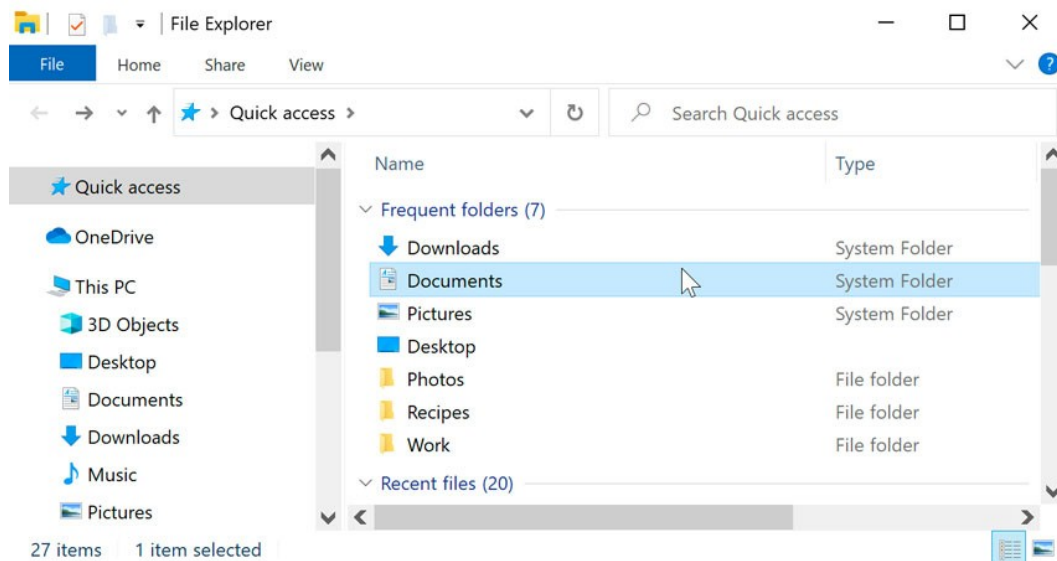
Windows uses folders to help you organize files. You can put files inside a folder, just like you would put documents inside a real folder. In the image below, you can see some folders on the desktop.



File Explorer

To open File Explorer, click the File Explorer icon on the taskbar, or double-click any folder on your desktop. A new File Explorer window will appear. Now you're ready to start working with your files and folders.

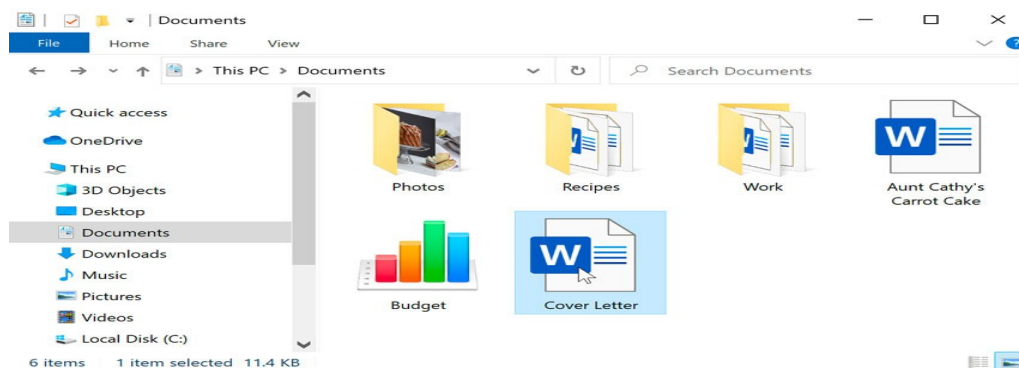




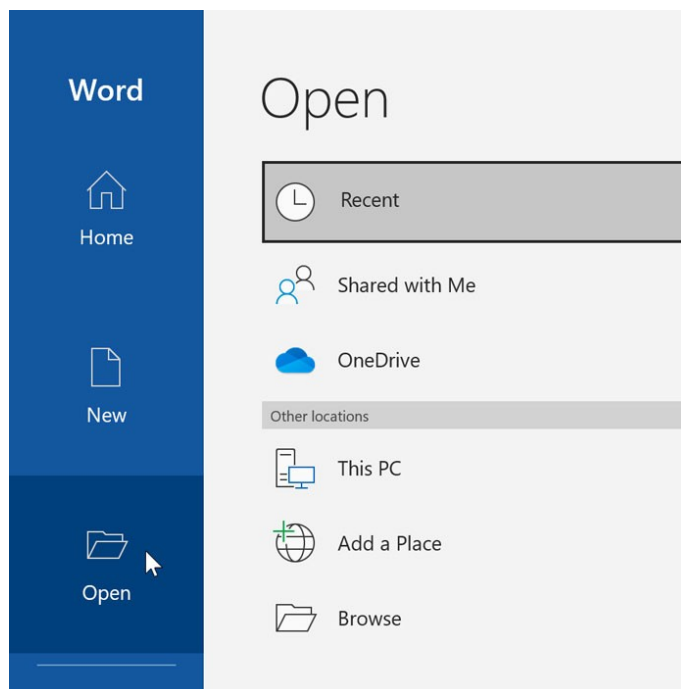
To open a file:

There are two main ways to open a file:

- **Find the file on your computer and double-click it.** This will open the file in its default application. In our example, we'll open a Microsoft Word document (Cover Letter.docx), which will open in Microsoft Word.



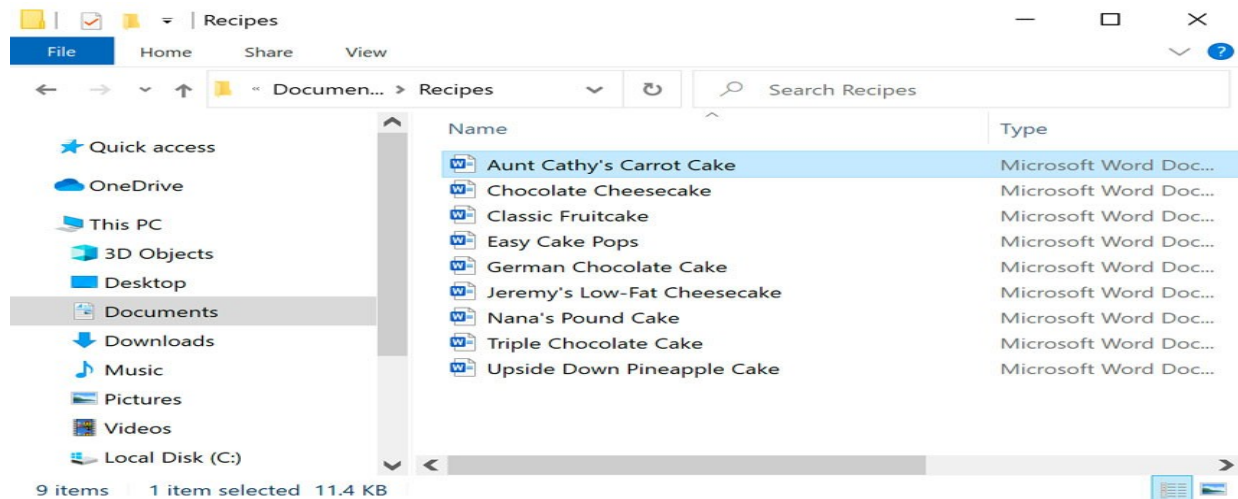
Moving and deleting files



To move a file:

It's easy to move a file from one location to another. For example, you might have a file on the desktop that you want to move to your Documents folder.

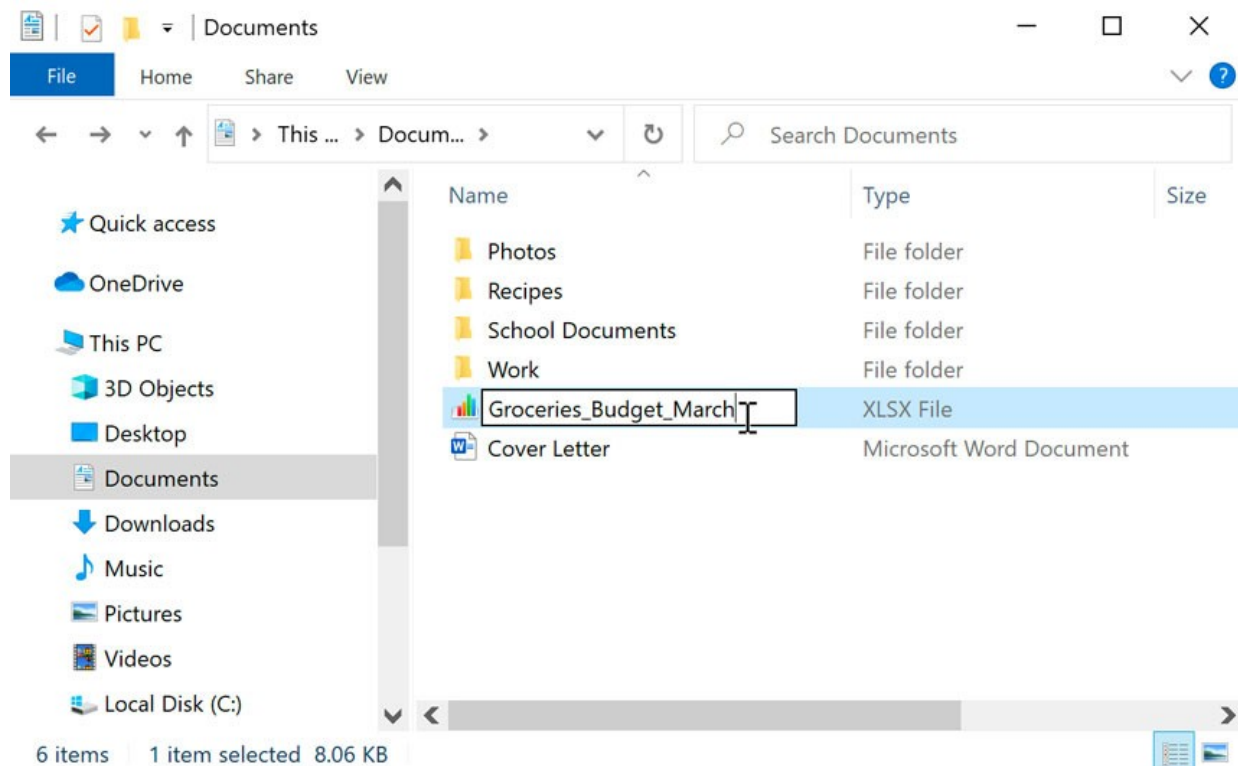
1. Click and drag the file to the desired location

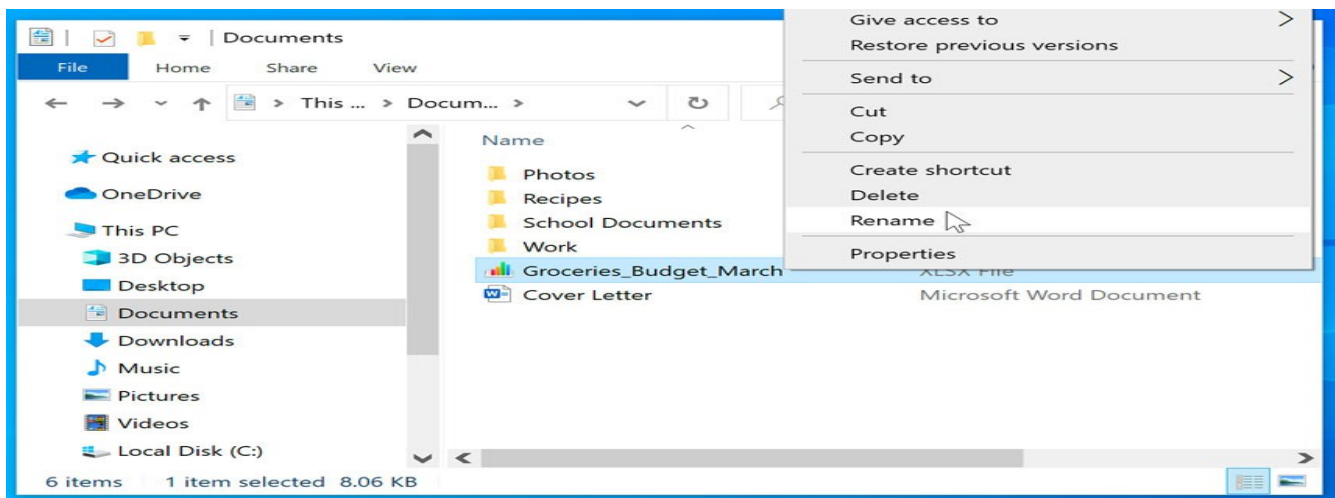


To rename a file or folder:

You can change the name of any file or folder. A unique name will make it easier to remember what type of information is saved in the file or folder.

1. Click the file or folder, wait about one second, and click again. An editable text field will appear.
2. Type the desired name on your keyboard and press Enter. The name will be changed.

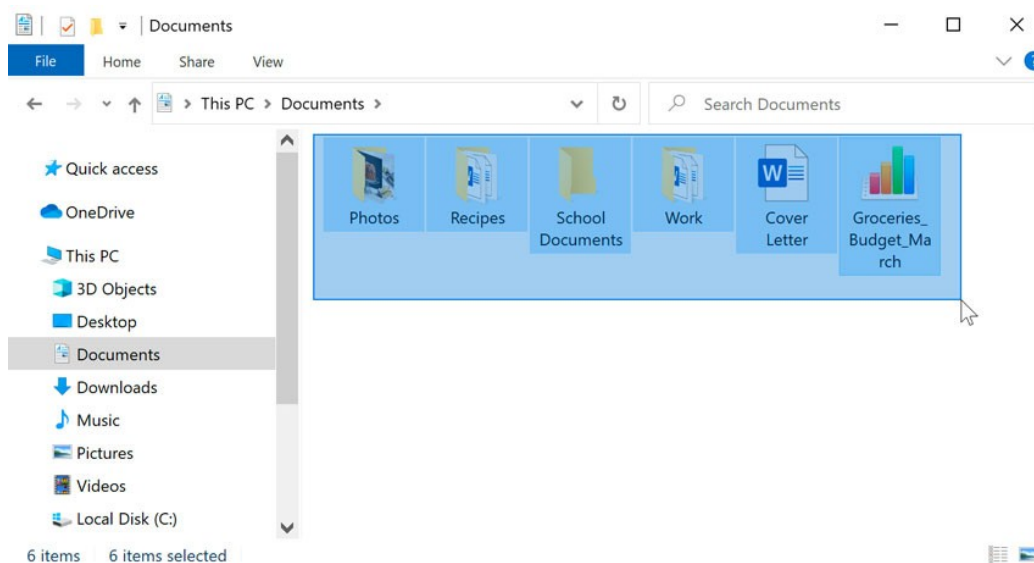




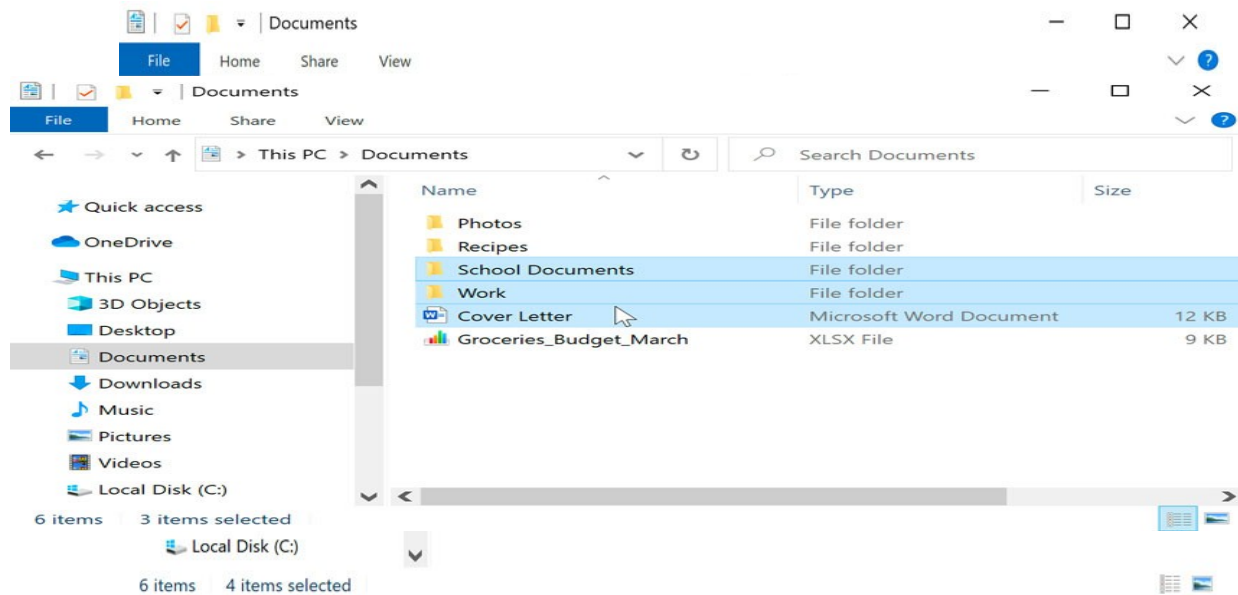
To delete a file or folder:

1. Click and drag the file to the Recycle Bin icon on the desktop. You can also click the file to select it and press the Delete key on your keyboard.

2. To permanently delete the file, right-click the Recycle Bin icon and select Empty Recycle Bin. All files in the Recycle Bin will be permanently deleted. Selecting more than one file



• To select specific files from a folder, press and hold the Control key on your keyboard, then click the files you want to select.



Selecting all files

If you want to select all files in a folder at the same time, open the folder in File Explorer and press Ctrl+A (press and hold the Control key on your keyboard, then press A). All of the files in the folder will be selected.

