

FILE and DIRECTORY MANAGEMENT

WEEK 4

FILE AND DIRECTORY MANAGEMENT

Objectives



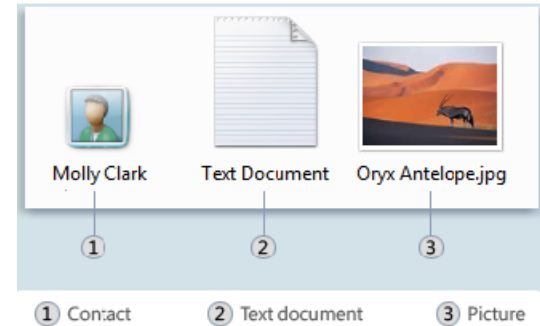
In this chapter you will learn the following topics:

- What are files, folders, path and directory?
- Basic file operations:
 - Open, Save, Create, Delete, View, Sort, Print, Search,
 - Transfer, Copy, Move
 - Download, upload files and arranging file permissions
 - File types and file compression
 - File hosting, user accounts, managing shortcuts

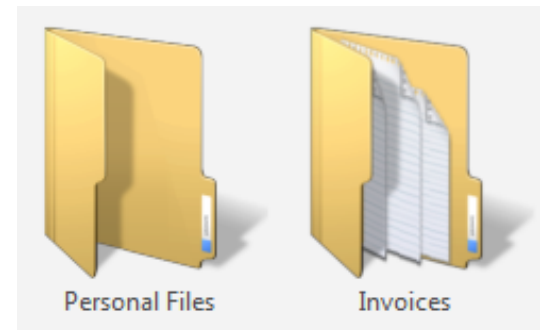
FILE AND DIRECTORY MANAGEMENT

Definitions

- A **file** is a collection of related data stored as a unit with a single name.
- A **folder** is little more than a container in which you can store files.



File Examples^[1]



Folder Examples^[1]



NOTE: You can create a new folder from **right click menu** by selecting **new folder** item.

FILE AND DIRECTORY MANAGEMENT

Definitions

- A file is made up of two parts: Name of the file and extension. The following naming conventions may be used for files:

Name of the file *Extension*

Tutorial . txt

Presentation . ppt

word . doc



NOTE: File extensions provide you a hint about the programs that you can use to open or edit the file.

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File Types

- Common files types are as follows:
 - Image files: jpeg, png, gif, heic, webp
 - Text Files: txt, rtf, htm, html
 - Video files: mp4, mkv, webm, avi, mpeg
 - Music files: wma, mp3, aac, flac, m4a
 - Documents: doc, docx, xls, xlsx, pdf
 - Executable files: exe, dmg (macOS), deb/rpm (Linux), appimage
 - On demand files: Cloud drives (i.e., OneDrive, Google Drive)



NOTE: PDF files can be opened with Acrobat Reader or modern browsers; text files with Notepad or Word; images with Photos/Paint; audio/video files with Media Player or VLC.

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Definitions

- **Directory:** A directory or folder is a location on a disk used for storing information about files.
- If you look at a complete file name you see, for example, **C:\Program Files\Programs\IS100.EXE**. The root directory is the "C:\" part. "Program Files" is the next level. "Programs" is a subdirectory under "Program Files", and "IS100.EXE" is the actual file name.



NOTE: In Windows, the system drive is most often C:\, but may differ due to enterprise policies or multiple disk configurations.

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File Types

- There are basically two types of files in windows: **System files** and **Personal files**.
 - **System Files:** *Essential files of the operating system software*, and you should not delete them.



NOTE: Deleting a Windows system file can cause data loss and may require you to reinstall the Windows.

- **Personal Files:** Files which you create and manage as you like.

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Organizing Files and Folders

- You can use libraries to organize and access your files.
- A **library** gathers files from different locations and displays their contents as a single collection.

- Windows offers some default libraries for:

- Most Used Programs
- Documents
- Pictures
- Music



Default Libraries in Windows

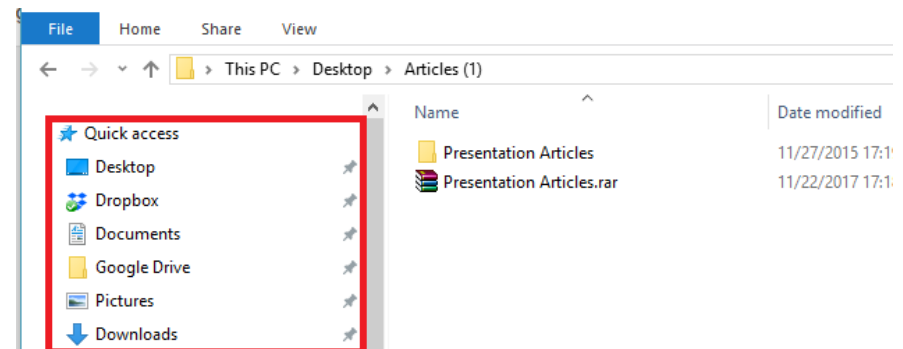
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Organizing Files and Folders

- In Windows, libraries are not included in the Start Menu by default.
- Instead, you can access them by opening a folder.

- Windows offers some default libraries for:

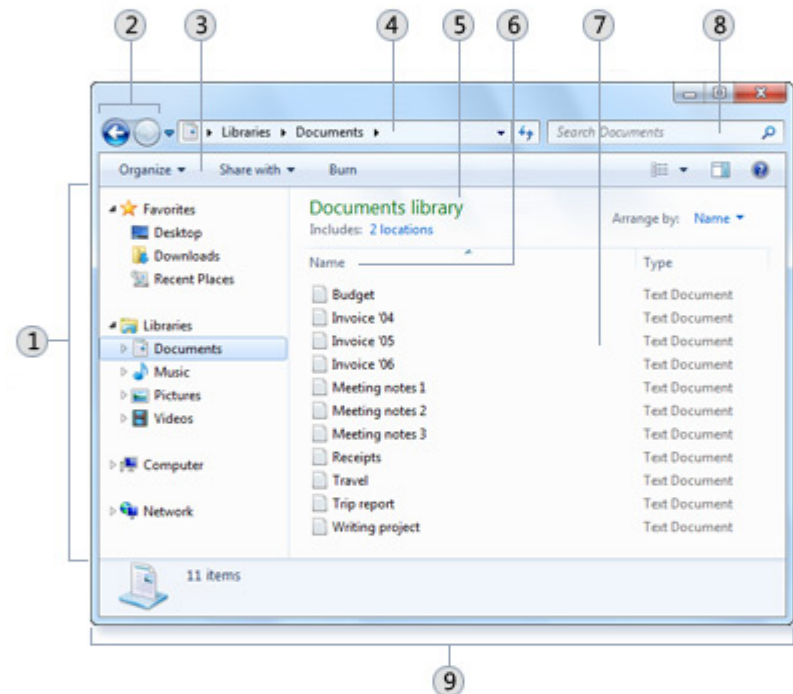
- Quick Access
- Desktop
- Pictures
- Downloads



FILE AND DIRECTORY MANAGEMENT

Parts of a Folder Window

- When you open a folder or library, you see it in a window.
- The various parts of this window help you work with files, folders, and libraries more easily.
 1. View and access to other folders and libraries.
 2. Navigate to other folders that you have already opened without closing the current window .
 3. Change the appearance of your files and folders, copying files to a CD, or starting a slide show of digital pictures.



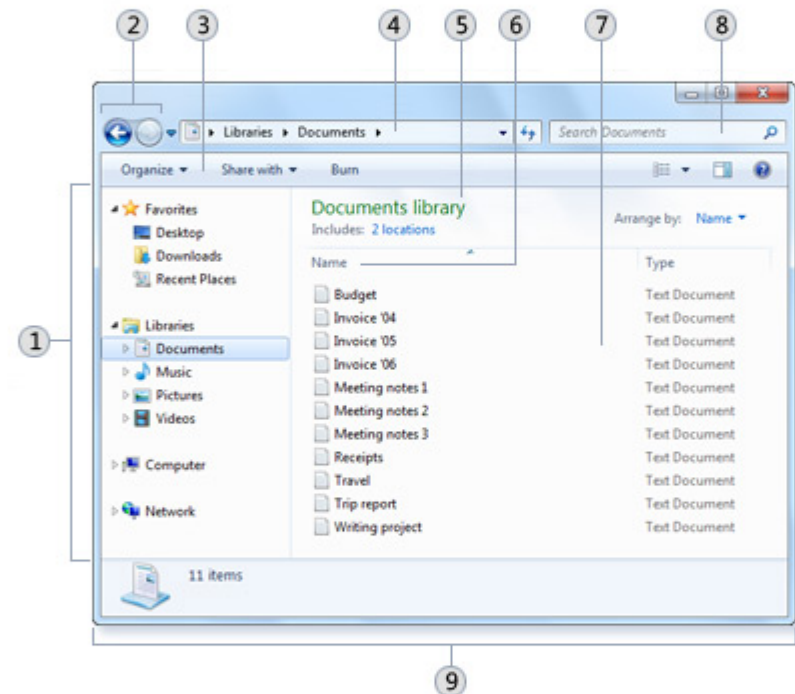
- 1 Navigation pane
- 2 Back and Forward buttons
- 3 Toolbar
- 4 Address bar
- 5 Library pane
- 6 Column headings
- 7 File list
- 8 The search box
- 9 Details pane

*Part of a Window!*¹¹

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Parts of a Folder Window

4. Navigate to a different folder or library without closing the current window.
5. Customize the current library.
6. Use the column headings to change how the files in the file list are organized.
7. List contents of the current folder.
8. Search for a file or subfolder stored in the current folder.
9. Display properties of the selected file.

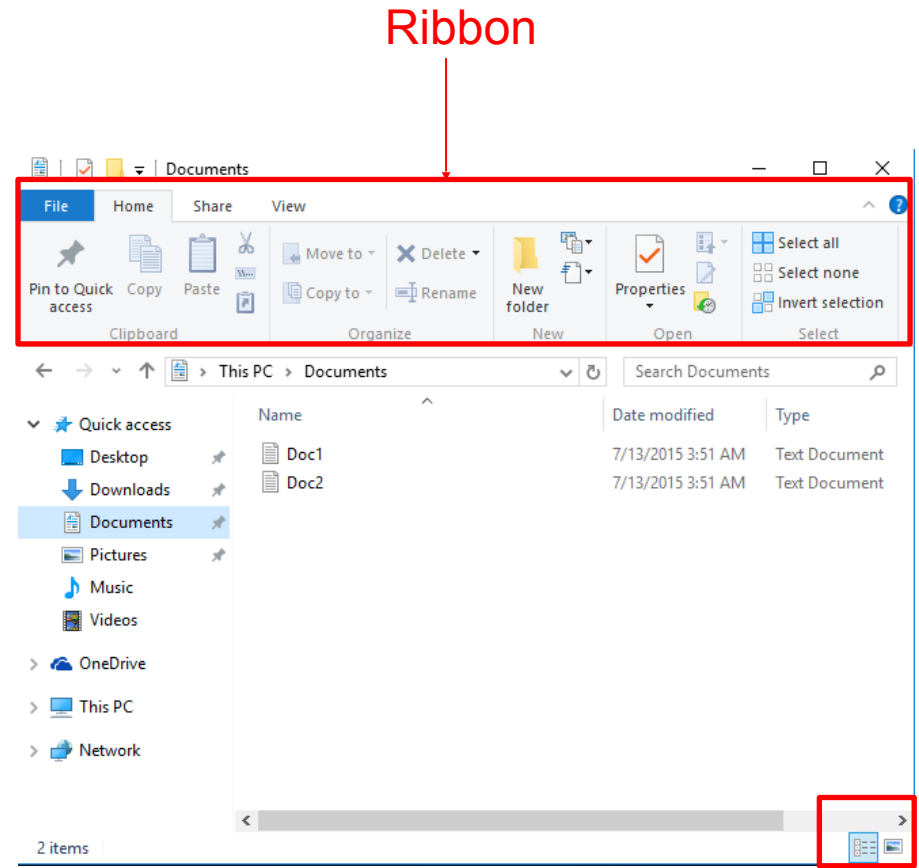


- | | |
|----------------------------|-------------------|
| 1 Navigation pane | 6 Column headings |
| 2 Back and Forward buttons | 7 File list |
| 3 Toolbar | 8 The search box |
| 4 Address bar | 9 Details pane |
| 5 Library pane | |

FILE AND DIRECTORY MANAGEMENT

Parts of a Folder Window (Windows 10/11)

- View options, sorting, searching, and features are accessed via the top toolbar/command bar.



Set icon size

*Part of a Window!*¹⁾

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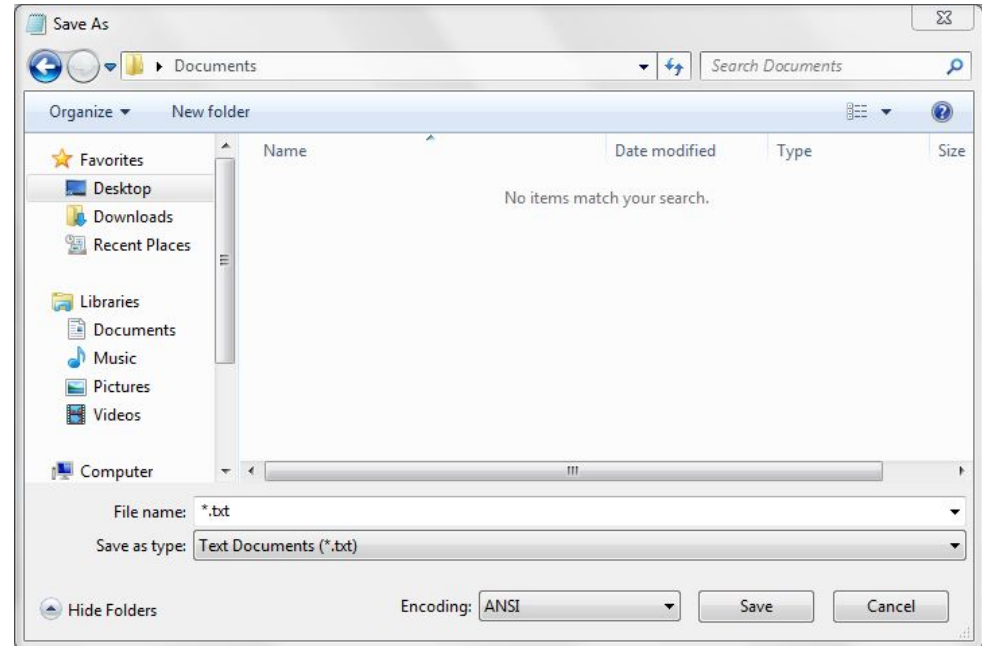
Basic File Operations

- **Open a File** 
 - **Double Click:** The file will be opened with the default program that you create or edit it.
 - **Open with:** You can select the program to edit the file.

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Basic File Operations

- **Save a File**
 - Choose the *drive*
 - *Choose the folder*
 - *Give a name to the file*
 - *Select the extension*



NOTE:

If you have created a MS Word document, be sure the extension is .doc(x). If it's a webpage, the extension should be .htm or .html (it can also be .asp, .php, etc.)

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Basic File Operations

- **Create a File**

- New files are commonly created by using a *program*. You can also create a file from the pop-up menu that appears when you right click to desktop.
- For example, you can create a *text document* in a *word processing program* or a *movie file* in a *video editing program*.



NOTE: When you are ready to save your work, click “**File**” in the menu bar and then click “**Save As**”. In the dialog box that appears, type a file name that will help you find the file again in the future, and then click “**Save**”.

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Basic File Operations

- **Delete a File**

- When you no longer need a file, you can remove it from your computer's hard disk to save space.



NOTE: When you delete a file, it's temporarily stored in the Recycle Bin. Think of the Recycle Bin as a safety folder that allows you to recover files or folders that you deleted accidentally.



NOTE: To delete a file select 'Delete' from the pop-up menu of item or press 'Del' button.

To permanently delete a file without sending to Recycle Bin, use combinations of keys 'Shift + Del'

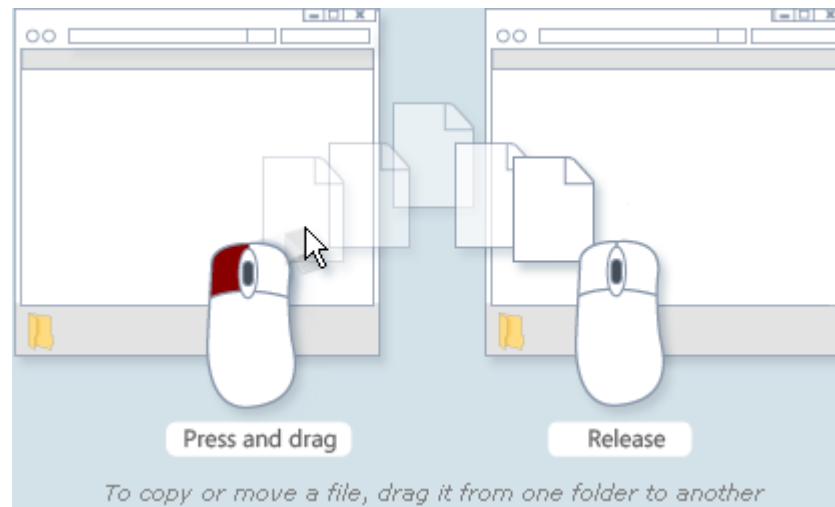
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Basic File Operations

- **Copy and Move a File**

To move a file

- Drag and drop
- Cut and paste



Dragging the File^[1]



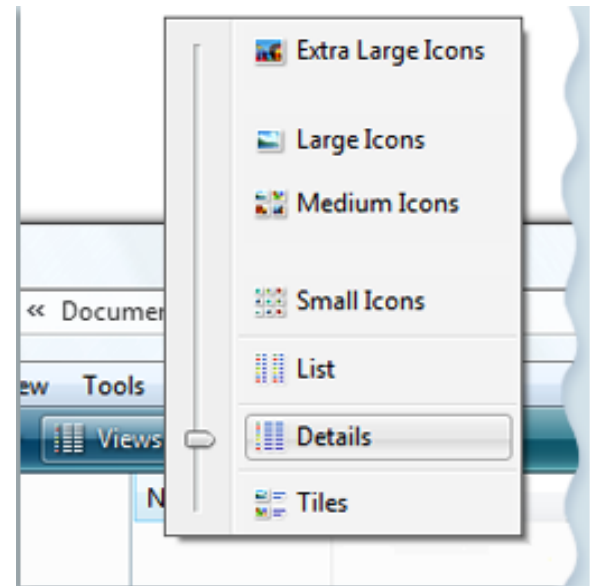
NOTE: Moving a file means that you have one copy of a file that you remove from one location to another.
Copying a file means that you make a second copy

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Basic File Operations

- **View Files**

- When you open a folder to view your files, you might prefer *larger (or smaller) icons*, or make an arrangement that lets you see different kinds of information about each file.
- To make these kinds of changes, use the Views button in the toolbar.



View Options

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Basic File Operations

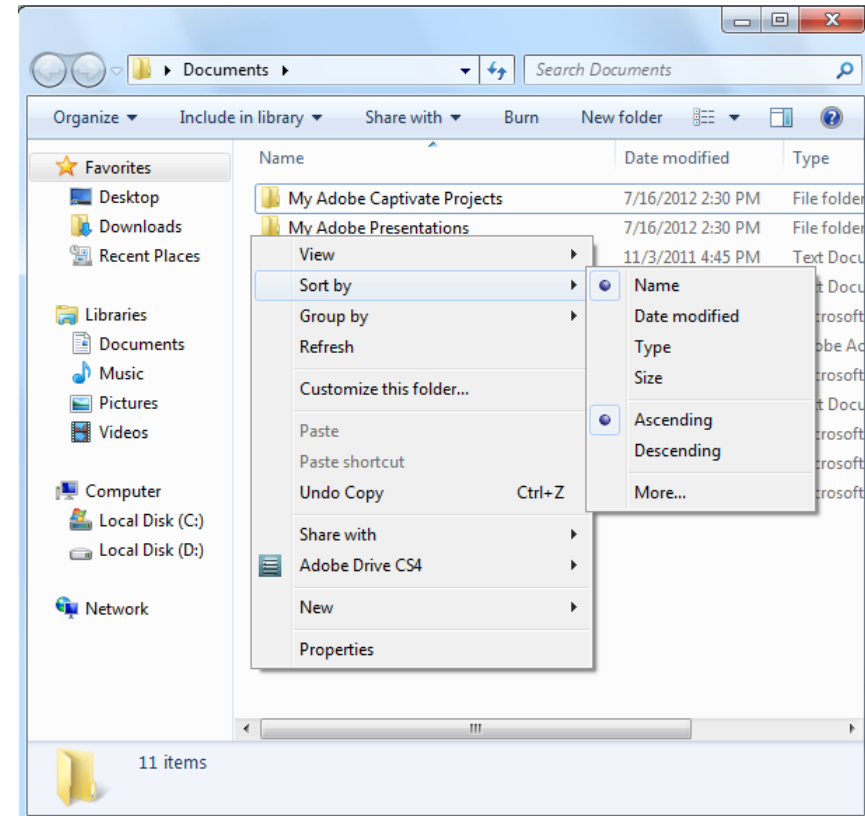
- **Sort Files**

- **Sorting** is another option to view files in an organized way.

- You can sort your files by:

- **Name**
- **Type**
- **Size**
- **Modification date.**

(in ascending or descending order)



Sort Options

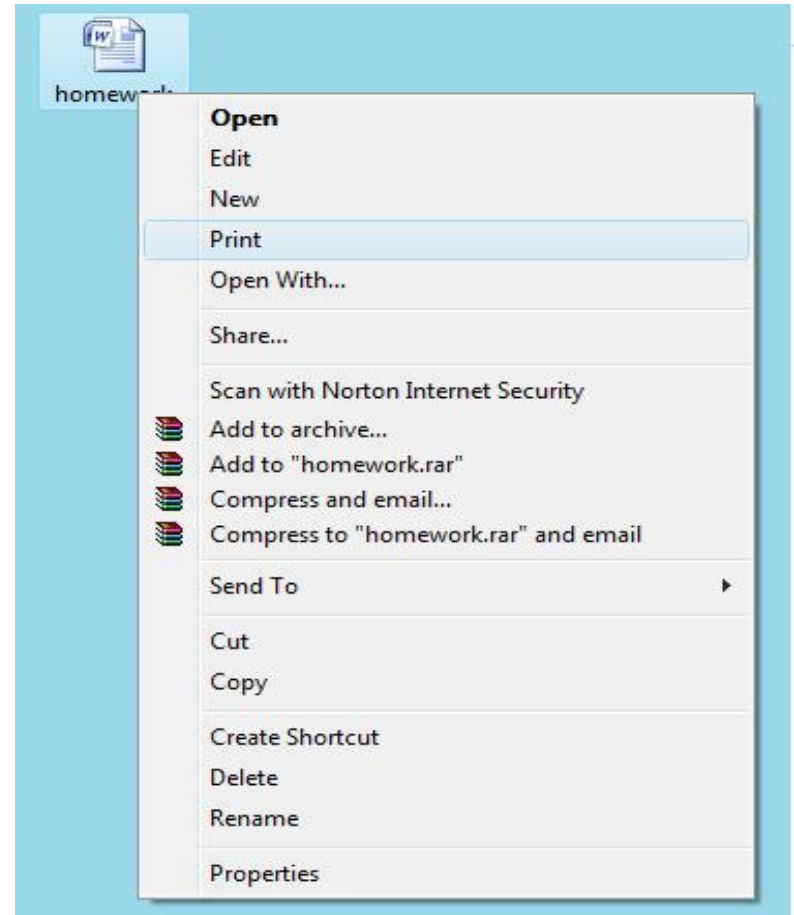
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Basic File Operations

- **Printing File**
 1. Right click the file
 2. Click print



NOTE: You need to open a file to choose print options, or change printer settings. Otherwise, Windows will print the document by using your default printer.



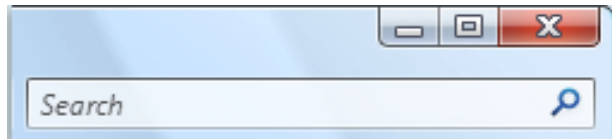
Printing with Right Click Menu

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Basic File Operations

- **Searching a File**

- To find a file, open the folder that contains the file
- Click the Search box and start typing.



Search Box

- Files are displayed as search results if your search term matches with the file's name, tags, or other file properties.



NOTE The Search box is located at the top of every folder.

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Basic File Operations

- You can restrict search results by typing operators as:
 - *.* → searches all files
 - *.doc → searches all word documents
 - "is100" → searches exact terms (is100 in this example)
 - is* → retrieve all document whose name starts with 'is' (e.g. is100.doc , is100_activity.doc)
 - is??? → retrieve all document whose name starts with 'is' where ??? refer to any characters (e.g. is100.doc file can be retrieved from search)

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Basic File Operations

- **Transferring File**

- **Download:** Download means to transfer (data or programs) from a server or host computer to one's own computer or device.
- For example while you are downloading a movie or a music, the data is transferred from a server to your own computer.
- **Upload:** Upload means to transfer data or programs from your computer to a central computer. It is exactly the opposite of a download process.
- **FTP** is the most popular way to download/upload files.

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Basic File Operations

- **Transferring File**

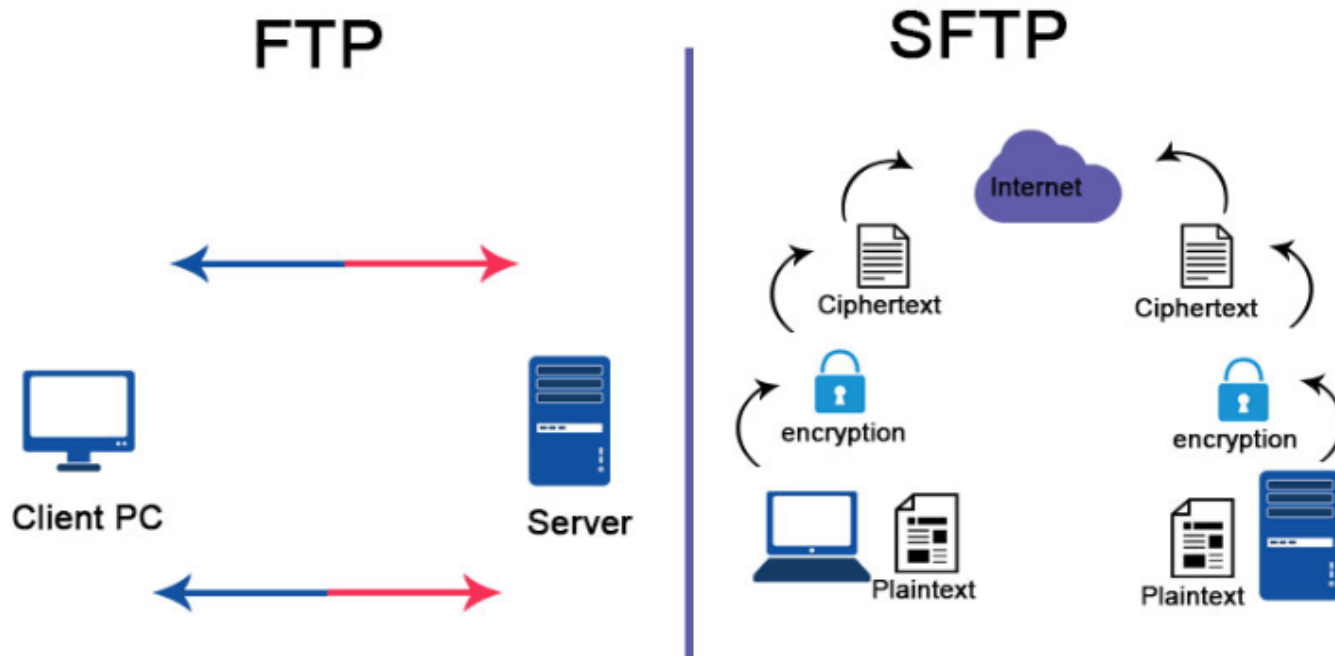
- For large files, Google Drive/OneDrive/Dropbox connections
 - Link sharing provides version history and access permissions.
 - Permissions in File Sharing: e.g., "Anyone with the link," "Password protected links," or "Expiring links"
- SFTP (Secure File Transfer Protocol): A network protocol for securely accessing, transferring and managing large files and sensitive data.

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Basic File Operations

- **SFTP vs. FTP**

SFTP uses a secure channel to transfer files while FTP (File Transfer Protocol) doesn't. With SFTP, your connection is always secured and the data that moves between your FTP client and your web server is encrypted.



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File Hosting

- A file hosting service is an **Internet hosting service** specifically designed to host static content, typically *large files* that can not be stored in web pages.
- They can be optimized for serving single or many user's storage need.



NOTE: There are limits in terms of both the file size and the duration for the file that is kept in the hosting service. Your files will be deleted by the service if it is not downloaded for a certain time.

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File Hosting

- **Common file hosting services are;**

Service Name	File Size Limit	File Life	URL
Dropbox	2 GB	Unlimited	https://www.dropbox.com
Google Drive	15 GB	Unlimited	https://www.google.com/drive/
One Drive	5 GB	Unlimited	https://onedrive.live.com/



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Cloud Storage & Collaboration

- **Cloud storage** is a model of computer data storage in which files are stored on remote servers accessed via the internet. Instead of keeping files only on a personal computer, users can save, retrieve, and share files from anywhere, on any device.
- **Common Services**
 - **Google Drive** (integrated with Gmail, Google Docs, Sheets, and Slides)
 - **Microsoft OneDrive** (integrated with Office 365 and Windows)
 - **Dropbox** (popular for simple file sharing and syncing)
 - **Apple iCloud Drive** (integrated with iOS and macOS devices)

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Cloud Storage & Collaboration

Features:

- **Real-Time Collaboration:** Multiple users can edit the same file simultaneously, with changes instantly visible.
- **Version History:** Most services keep a history of edits, allowing you to restore older versions of a file.
- **Access Control:** Users can grant different permissions (view, comment, or edit).
- **Storage Plans:** Services offer free storage with options to upgrade to larger paid plans.



Note: Cloud storage reduces dependency on external devices like USBs and external hard drives, but requires an internet connection for full functionality.

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Cross-Device & Mobile Access

- **Cross-device access** refers to the ability to access and synchronize files across multiple platforms, such as desktop computers, laptops, tablets, and smartphones.

How It Works:

- Files stored in the cloud automatically **sync** across all devices linked to the same account.
- Dedicated **mobile apps** (Google Drive, OneDrive, Dropbox, iCloud) allow editing and sharing on the go.
- **Offline Mode:** Users can mark files for offline access, enabling them to work without internet; changes will sync once online again.

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Cross-Device & Mobile Access

Examples:

- Creating a Word document on a desktop → reviewing it later on a smartphone during commute.
- Taking a picture on a phone → automatically saved to iCloud/Google Photos → instantly accessible on a laptop.

Benefits:

- Convenience: Seamless transition between devices.
- Productivity: Access to the latest file version anywhere.
- Flexibility: Work does not stop when switching devices.

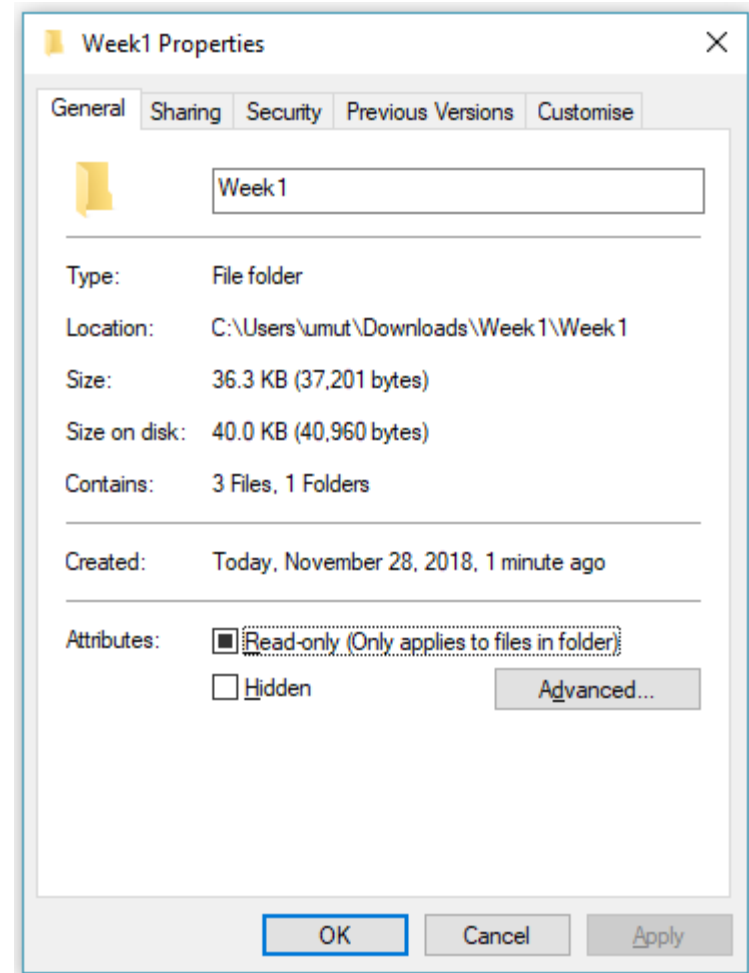


Note: Always secure mobile devices with passwords or biometrics, since synced files may contain sensitive information.

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Hidden File

- You can choose whether a file is *hidden* or *visible* by changing its properties.
- To set it as hidden simply right click on the file, choose properties and then choose hidden for the attributes.



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Hidden File

- Follow these steps to display hidden files and folders:
 1. Windows 11: File Explorer → View → Show → Hidden items
 2. Click the View tab.
 3. Under Advanced settings, click Show hidden files and folders, and then click OK.

FILE AND DIRECTORY MANAGEMENT

Hidden File

Follow these steps to display hidden files and folders in macOS:

—— macOS (Finder): Toggle hidden files with ⌘ +
⇧ + . (period)

Linux (most file managers): Ctrl + H (show/
hide hidden “.files”)

FILE AND DIRECTORY MANAGEMENT

Shortcuts

- Shortcuts are links to programs, documents, files, or Web sites that you can add to your desktop or Start menu.
- If you create the shortcut for the file or the site, you would just need to click on the shortcut, instead of searching through folders or the Internet.



NOTE: When you click the Start menu, every icon you see is a shortcut. The icons on your desktop are also shortcuts.

Shortcuts

How to add a shortcut to your desktop

- If you use your desktop frequently, you should consider adding shortcuts of your favorite files to your desktop. In order to do this:
 - Right-click the file you want to link to from your desktop
 - Click Send To, and then click Desktop.

FILE AND DIRECTORY MANAGEMENT

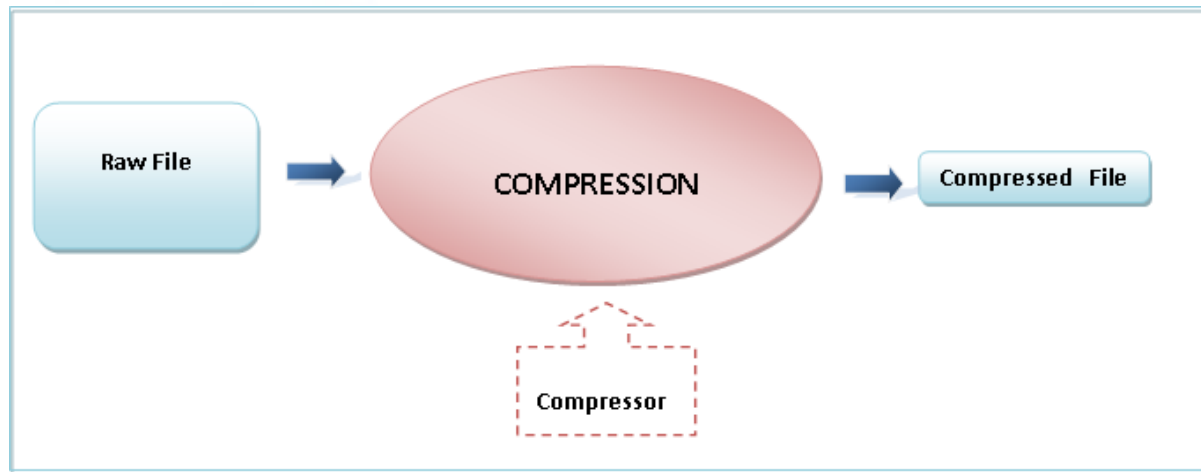
Try It Yourself

1. Open “**Documents**” folder and Create a excel file and named it as “**Me-Shortcut.xlsx**”
2. Create a Shortcut of “**Me-Shortcut.xlsx**” file to the **DESKTOP**
3. Click to the shortcut of “**Me-Shortcut.xlsx**” file on the desktop
4. What happened when you clicked on the shortcut?
5. CLOSE all files and folders by using task bar!!!
6. Open “**Documents**” folder again and DELETE the “**Me-Shortcut.xlsx**” file.
7. Go to DESKTOP and click to the shortcut of “**Me-Shortcut.xlsx**”
8. What happened?

FILE AND DIRECTORY MANAGEMENT

File Compression

- Basically, file compression is a technique that *reduces the size of a file.*



File Compression

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File Compression

- **File Compression** File compression is the process that provides to reduce the sizes of selected files and folders by compressing them.
- **File Compressor** : A compressor is the program that does this compression. Gzip, WinRar, and WinZip are some of the examples for file compressors.
- **Archive** : An archive is a single file that contains many separate files. These individual files can be extracted from the main archive by using a file archival program.

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File Compression

- **File Archival Program** : An archival program takes many separate files and archives them into one file. So that you can send it via email with a single attachment that includes all of the those files.
- **Compressed File** : A file that has been compressed into a smaller size than it originally has.



NOTE: To view compressed files, you need a compatible decompression program that can read these codes and convert the data back to its original form. If everything works correctly, the expanded file is identical to the original file before it was compressed.

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File Compression

- Why do we need to compress files?
 - For saving storage space (Compression ratio varies depending on file type.)
 - For increasing transmission speeds
 - For sending more than 1 file via e-mail
 - For backing up data

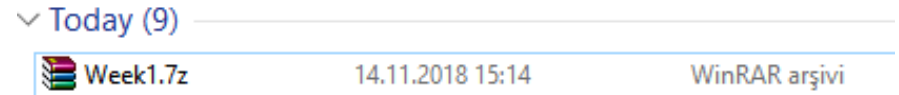


NOTE: WinZip, WinRar, Gzip and TAR are common archives and file compressors.

FILE AND DIRECTORY MANAGEMENT

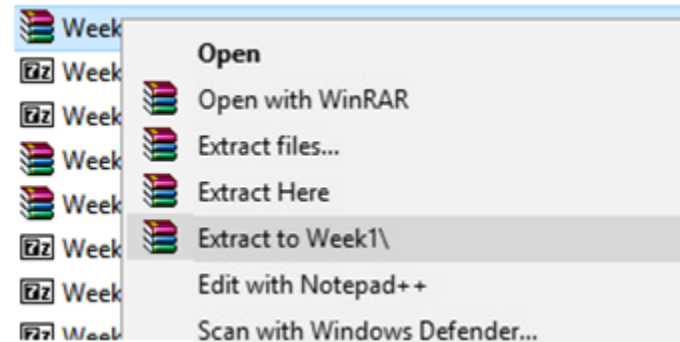
How to Unzip a File?

- Download the file
 - Compressed file
 - Name “week1.7z”
- Right click
 - Extract Here
 - Extract week 1
- Unzipped version
 - No extension
 - Name “Week1”



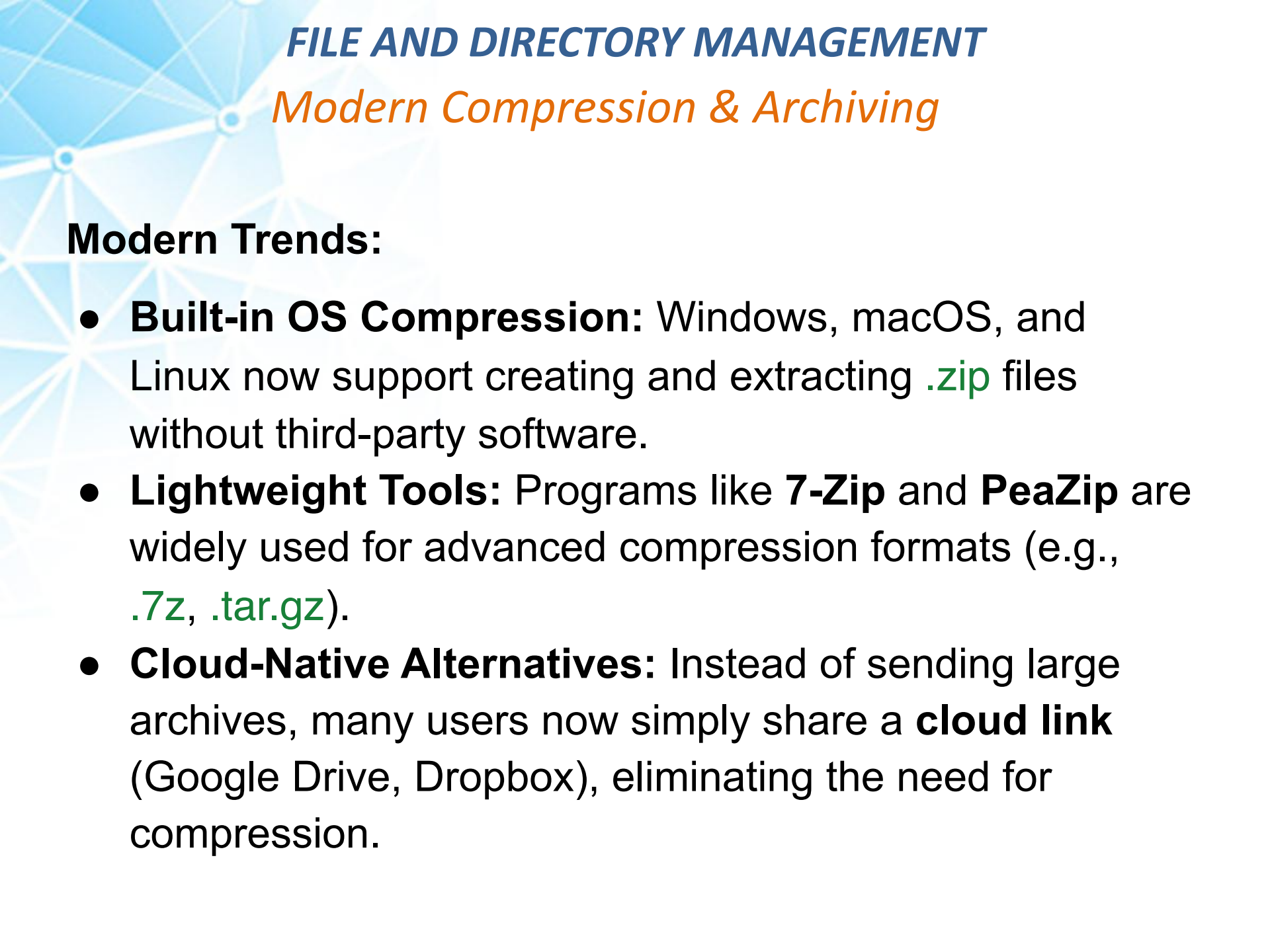
Today (9)

 Week1.7z	14.11.2018 15:14	WinRAR arşivi
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Today (10)

 Week1	14.11.2018 15:26	File folder
 Week1.7z	14.11.2018 15:14	WinRAR arşivi



FILE AND DIRECTORY MANAGEMENT

Modern Compression & Archiving

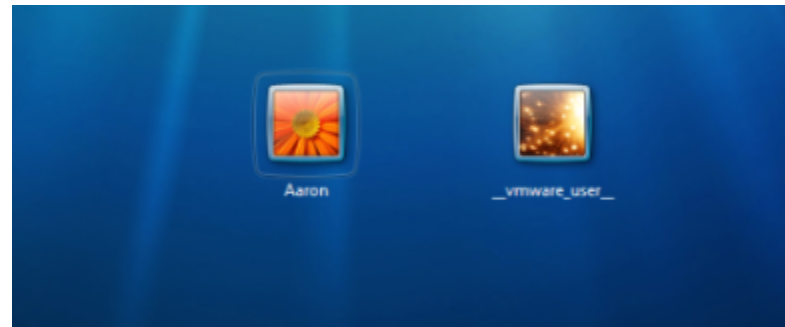
Modern Trends:

- **Built-in OS Compression:** Windows, macOS, and Linux now support creating and extracting **.zip** files without third-party software.
- **Lightweight Tools:** Programs like **7-Zip** and **PeaZip** are widely used for advanced compression formats (e.g., **.7z**, **.tar.gz**).
- **Cloud-Native Alternatives:** Instead of sending large archives, many users now simply share a **cloud link** (Google Drive, Dropbox), eliminating the need for compression.

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User Accounts

- ***User accounts*** enable you to share a computer with several people, but still have your ***own files and settings***. Each person accesses his/her user account with a ***user name*** and ***password***.
 - There are three types of accounts:
 1. Standard
 2. Administrator
 3. Guest



FILE AND DIRECTORY MANAGEMENT

User Accounts

- *Each account type gives the user a different level of control over the computer.*
 - The **standard** account is the account for everyday usage.
 - The **administrator** account provides complete control over the computer, and should only be used when necessary.
 - The **guest** account is generally for people who need temporary access to the computer.
- Most modern file systems have methods of *administering permissions* or *access rights* to specific users or groups of users.
- These systems control the ability of the users to *view* or *make changes* in the contents of the file system

FILE AND DIRECTORY MANAGEMENT

Standard File and Folder Permissions

Permission level	Description
Full control	Users can see the contents of a file or folder, change existing files and folders, create new files and folders, and run programs in a folder.
Modify	Users can change existing files and folders but cannot create new ones.
Read & execute	Users can see the contents of existing files and folders and can run programs in a folder.
Read	Users can see the contents of a folder and open files and folders.
Write	Users can create new files and folders and make changes to existing files and folders.

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Questions

- Is **Desktop** a **directory** or NOT? Discuss with your friends.
- What is **PATH**? Make a small argument with your friends.
- What types of **compression software programs** are popular?
- Why do we use **compression software**? Argue with your friends and your assistant.
- Could a folder be added into a zipped file?



**METU
ODTÜ**



TEST YOURSELF

FILE AND DIRECTORY MANAGEMENT

References

1. Microsoft Office Support, <http://windows.microsoft.com/en-us/windows/working-with-files-folders#1TC=windows-7> Last visit: January, 2019
2. Dropbox, <https://www.dropbox.com> Last visit: January, 2019
3. Google Drive, <https://www.google.com/drive/> Last visit: January, 2019
4. One Drive, <https://onedrive.live.com/> Last visit: January, 2019