Understanding Microsoft Windows files and folders.

Part 1 : A Story about Windows Harry Baya October 2, 2022

I am sure that some readers will find this story far more annoying than hopeful. If you find you are one of those, stop. I hope this will be helpful to some who are absolute beginners working with Microsoft Windows.

I am going to ask you to imagine some things. I think that the scene you will imagine will help you understand the most important aspects of windows.

Floats and boxes -
Imagine a good size swimming pool. You are the owner of that pool.

Floating in that pools are two kinds of things, boxes and floats.

Any box can contain other boxes – we call this being “nested”

Any box can contain floats

A box may be empty. A box may contain one or more boxes and or one or more floats.

A box is just what you think it is. You can imagine it made of wood. A float is just a name for a thing that would float in the water like a toy duck. Floats are small enough to be put inside any box.

Every box and every float has a unique name. Some boxes are bigger than others and one of the bigger ones is labeled “Documents”. Each box is filled with water and can have floats and boxes floating in it. The boxes floating in a box are also filled with water and they too can have floats and boxes floating in them.

When a box is floating inside another box we say that it is “nested” in the box. There can be boxes inside boxes for many levels. We describe this by saying that items can be nested many levels down

So boxes can contain boxes and floats. Floats cannot contain boxes or other floats.

You are the owner of the pool. Both you and the programs you use will be creating new boxes and floats. Each new float will be in a box.

As a user of the pool you will need to find particular floats. You can ask the computer system to search for a particular name and it will tell you where it is. Or, you can look at the list of things in a particular box to see if the item you want is there. Moving between boxes is called **"Navigating".** Using the Windows system often requires navigating through various boxes.

Sometimes you are starting in one box and then going down a "nested" sequence looking at boxes within boxes. This is called "drilling down".

Parents and Children:

When a box is inside another box some people like to refer to the bigger one as the "parent" box and the box inside that box as the "child" box. If you think of nesting in this way you can see that boxes can be nested for many generations.

End of "Part 1 : A Story about Windows"

Microsoft Windows terms for boxes and floats. (Folders and files)

Ok, that's the imagination story. I will now describe the same thing using the terms used in the windows computer system.

In the Windows system the "boxes" are referred to by two names, **"folders**" and "directories". They are the same things. I prefer the name "folder" so I will use that name in this document. It's good to be aware that some things you will read will use the term "directory" to refer to what I am calling a folder.

Conceptually a folder is kind of like a file folder, the kind that would be in a drawer full of file folders.

In the Windows systems the "floats" are called **files**.

So folders can contain other folders and/or files. Since folders can contain folders, nested to any number of levels, a file could be deep in a nest of folders.

It's important to remember that all the folders at one level of nesting in a box must have unique names. I might have two friends called Jim. However, I could not have two folders call "Jim" in the same folder. The computer will not let me do that. I would have to give the folders two different names, like "Jim_white"

The same thing holds for file names. The system will not permit you to have two files with the same name in the same folder.

Also, when we have folders inside another folder, nested to any level, we can refer to all the folders inside a folder as its "sub-folders". Sub-folders are the children, grandchildren etc. of a parent folder.

Names & Locations of Files and Folders:

Every file has a name and every folder has a name

Most, but not all, of the characters on the keyboard can be used in a name for files and folders.. For example, I could have a file called harry.txt and a separate file named harry_2.Txt

Every Folder is inside a folder. Well not quite. The very top folder does not have a parent. All other folders are inside a folder.

Every file is inside a folder.

A file could be in a folder nested several levels down. To identify a particular file we need to tell its name and the sequence of nested folders it is in. This is called a "file path". Here is the file path of this file while I am typing it.

C:\Users\WSX2\Documents\windows_class\ A Story about Windows

That path tells me that my file name is "A Story about Windows" and that it is nested in folders as shown in the hierarchy below

Top Folder-> C:
Users
WSX2
Documents
windows_class
"A Story about Windows" **<- my file**

Most users work with files and folders in the "Documents" folder. That's kind of your swimming pool for all the boxes you use. Than means you can pretty much ignore the earlier folders (i.e. you can ignore the "C:\Users\WSX2\" part of the file path and just deal with the folders and sub-folders in the "Documents" folder.

Files

I hope you now have some idea what folders are. Understanding what files are is a little more challenging. Let's start by saying that though folders can contain other folders and files (boxes and floats), files cannot contain folders or other files. A file is a file – not a container for folders or other files.

What are Files?

Files are containers that contain data. Data is information, things like numbers, text, pictures and sounds. When you delete a file you also delete everything it contains.

There are two main kinds of files:

1. computer programs and
2. data files.

I believe it will be very useful for you to wrap your mind around this distinction, to understand it as well as you can. I also think this may be somewhat challenging.

Computer Programs:

Computer programs are created by programmers. Users, like you, use the programs they create.

You will use computer programs to do things on your computer. Programs contain instructions that tell the computer what to do. You decide what program you want to use and you tell the computer to use that program.

A program can create files and folders. A program has the ability to do certain things and it can interact with you to allow you to tell it what to do.

Program files are different from data files in that they contain instructions that a computer can understand. Programs are written in languages, like Java, that a computer can understand.

We say that users "run" programs. We can also say that users "launch" a program or cause the computer to "execute" a program. This means that a user cause a program to start running. Once a program has been started it will "run" (like an engine) until something tells it to stop. When a program is running it can tell the computer to do things.

Data Files:

Computer programs can create data files. They can also read data from a data file or write data into a data file. Programs can modify the contents of data files. Users and programs can delete data files. The term "data" refers to information of use to a computer program, or to a user. **Computer program files contain "code". Data files contain data/information.**

Here are some common types of data files and examples of their file name:

- Editable text documents: myEssay.docx, listOfNames.txt
- audio files God_bless_america.mp3, row_row_row.wav
- graphic or photo files : myCat.jpg, peanuts_cartoon.gif
- Video files: gone_with_the_wind.mov, my_wedding.mp4

Users can use programs to do things with data files. For example a student could use a word processing program like Microsoft Word to write an essay and send it to a printer to be printed. The student could save that essay in a data file. The student could open that saved data file and change it. The student could attach that file to an email and send it to his teacher.

Data files can be copied, saved, deleted, renamed, modified and moved. For example a student might save a copy of his essay file in two different folders so that he has a backup copy of his original file. That way he could change one copy and know he could always go back to the original file if he needed to.

Programs that create data files will organize the contents in a particular way that suits their purposes. This organization of the file is called its **format**. Some programs use unique formats for their files, that means they user formats that no other program uses. Some programs create files using a format that other programs can also work with.

There are tens of thousands of different computer programs in the world (actually many millions) and this means that there are many different file formats in use. Most home users find that they done need to know more than a handful of formats. They need to be able to identify files in those different formats because those are the files the programs they use need to find. As you will learn below, it's easy to see what format a particular file has.

I don't think it's worthwhile to spend much time discussing formats. The main thing you need to know is that in the Windows system every file name has two parts and one of the parts tells you the format of that file.

Here is a file name, myEssay.docx. The letters to the left of the period are the name of the file and the letters to the write of the period identify the format of the file. These parts of the file name are called the "prefix" and the "suffix".

If you use a program that creates a file of importance to you then you will need to learn the file name "suffix" associated with the format of that file.

When you start using a program, like Microsoft Word or Macintosh Pages you will quickly become familiar with the suffixes of the files those programs use.

Review:

There are two main kinds of files, computer program files and data files.

Computer program files are created by computer programmers and are used to tell the computer what to do.

Data files are created by programs, or by users using computer programs. Data files are containers for the information that programs need to read and save. Data files use many different formats (ways of organizing their contents). Different programs use different formats for the files they work with.

Every file name has a prefix (the front part of the file name) and a suffix (the part of the file name after the last period in the name). The suffix identifies the format of the file. E.g. If the file name is "myEssay.docx" then "docx" identifies the format of that file.

Review thoughts:

Overview: Your computer system can have any number of folders and files. Every file is in a folder. Going from one folder to another is called "navigating".

Computer users often navigate between folders to find a file, or to find a particular folder to put a file in.

Folders :

Nested folders – When a folder is in a folder we say it is “nested”. Folders can be nested many layers down. Here are some concepts and descriptions related to folders:

Drilling down folders to find a file

Parent folder-> child folder-> next generation-> …

Any folder could be a parent folder with one or more child folders.

Folders and subfolders: The term “sub-folders of a particular folder” is used to refer to all the children, grandchildren, and descendants of that particular folder. When you refer to the “sub-folders” of a particular folder you are referring to all the folders nested inside that particular folder.

Each folder can be empty, or contain one or more files or folders

Files cannot contain folders

Every folder is in a folder, except the top folder in the hierarchy.

Files

Every file is in a folder

Every file has a name

File names have two parts, (e.g. “myFile.docx”), prefix and suffix

First part is the prefix “myFile” is prefix of “myFile.docx”

Second part is the part after last period and is called the suffix

Suffix identifies file format

File format:

Files can contain many different things. Most files you will work with contain things like photos, text, videos(movies), audio and the like. Files that contain different kinds of things have different “formats”.

Every file has a format. The file format indicates how the data in the file is organized. Different programs may use different formats. Some formats can be accessed by more than one program.

Names

Every folder and every file has a name

System restrictions:

The Windows system will not a particular folder to contain two with the same name. Stated another way, a parent folder may not have two child folders with the same name. The system will also not permit creation of a file with same name as another file in the same folder:

A folder cannot contain two folders or two files with the same name. However a particular folders may contain folders and files with same names as folders or files in other folders.

Stated another way, a parent folder may not have two children with the same name. Child folders that are children of the same parent cannot have the same name. Two files in a particular folder may not have the same name.

If you try to copy a file into a folder (the target folder) with the same name as a file already in that target folder, the system will offer to replace the existing file with the one being copied in. The same is true of folders.