**Level 1: Windows File Systems**

Refer to the following document when answering the questions for Level 1.

<https://fossbytes.com/fat32-vs-ntfs-vs-exfat-difference-three-file-systems/>

1. What is the definition of a file system?

**A file system is basically a set of rules used to decide how data is stored and fetched in a**[**storage device**](http://fossbytes.com/how-do-hard-drives-work-and-store-tons-of-data/)**, be it a hard drive, flash drive, or something else.**

1. What are the three file systems used on Windows computers?

**So, FAT32, NTFS, and exFAT are the three file systems we commonly used for Windows**

1. What are the properties of the FAT file system?
   1. The FAT file system was the original Windows 95 file system. When was it introduced?

**released in August 1995, with the launch of Windows 95 operating system.**

* 1. How is the FAT16 file system different from the FAT32 file system?

**FAT32 allows you to store files of size up to 4GB and the maximum disk size can go up to 16TB. The limited volume size offered by the FAT16 file system, the 32-bit File Allocation Table**

* 1. What is the file size limit of the FAT32 file system?

**Stores files of size up to 4GB**

* 1. What is the disk size limit of the FAT32 file system?

**Disk size can go up to 16TB**

* 1. What other devices currently use the FAT file system?

**computers, like gaming consoles, HDTVs, DVD & Blu-Ray players, and practically any device with a USB port.**

1. What are the properties of the NTFS file system?
   1. The NTFS file system is what is used on current Windows computers. When was it introduced?

**Was introduced in 1993.**

* 1. How is the NTFS file system different from the FAT file system?

**NTFS is in association between Microsoft and IBM to develop a new age operating system with better performance in terms of graphics. While FAT is only associated with window for it file system.**

* 1. What is the file size limit of the NTFS file system?

**File size of 16**[**EB**](https://en.wikipedia.org/wiki/Exabyte)**.**

* 1. What is the disk size limit of the NTFS file system?

**Disk size is 256 TB.**

* 1. What are some notable features of the NTFS file system?

**notable features include reparse points, sparse file support, disk usage quotas, distributed link tracking, and file-level encryption.**

* 1. What are some limitations regarding how other devices support the NTFS file system?

**NTFS file system offers file size limits.**

1. Provide a summary of the exFAT file system.

**Most modern cameras use exFAT, since it has updated the High capacity SDXC memory cards. It has is lighter in contrast to NTFS. File of sizes of more than 4GB. With an exFAT SD card, you will not face issues while copying full-length HD movies on it which is not like the FAT32.** **exFAT file system has the same 16 EB file size limit as NTFS. The exFAT is associated with Mac, Android, and Windows operating systems, to read and write.**

**Level 2: Windows NTFS Permissions**

Refer to the following document when answering the questions for Level 2.

<http://www.ntfs.com/ntfs-permissions.htm>

1. Read the information provided on the “Setting Permissions” page.
   1. Summarize how to view and set file and folder permissions.

**In Windows right-click a file or folder and click Properties at the bottom of the menu page. Then Click the Security tab.** **Under Group or user names, select or add a group or user. At the bottom, allow or deny one of the available permissions.**

1. Read the information provided on the “Advanced Permissions” page.
   1. List the advanced permissions that affect files.

* **Create Files/Write Data**
* **Read Attributes**
* **Write Attributes**
  1. List the advanced permissions that affect folders.
* **Traverse Folder/Execute File**
* **List Folder/Read Data**
* **Create Folders/Append Data**

1. Read the information provided on the “Basic Permissions” page.
   1. The basic permissions are listed at the top of the columns in the table. List the 6 basic permissions.

* **Basic Full Control**
* **Basic Modify**
* **Basic Read & Execute**
* **Basic List Folder Contents**
* **Basic Read**
* **Basic Write**
  1. What basic permissions allow a user to write data to a file?

**Create Files/Write Data**

* 1. What basic permissions allow a user to delete a folder?  
     **Delete**

1. Why do you think there are separate permissions for reading and writing a file? Provide an example where you might want somebody to read a file but not be able to change it.  
   **There are separate permissions for reading and writing a file because the owner of the file/folder doesn’t want to make any changes so you read it, and if they want changes they set to write. When a teacher post a Rubric on   
   Google Classroom. The teacher doesn’t want the rubric to change so they set it on the read function.**
2. Why do you think there are separate permissions for listing folders and reading files? Provide an example where you might want somebody to be able to list a folder but not be able to read a file in the folder.

**When someone wants to show the folders to someone, but a person can’t read what’s in the file**. **Like if the teacher want to show the class how to set up a folder, but the Students cannot look at what’s in the teachers folder.**

**Level 3: Windows Share Permissions**

Refer to the following document when answering the questions for Level 3.

<https://blog.netwrix.com/2018/05/03/differences-between-share-and-ntfs-permissions/>

1. What are share permissions?
   1. Who do share permissions affect?

* **Share permissions manage access to folders shared over a network**
* **Share permissions apply to all files and folders in the share**
  1. Who do share permissions not affect?
* **They don’t apply to users who log on locally.**
* **You cannot granularly control access to subfolders or objects on a share**
  1. Summarize the 3 types of share permissions.
* Read**— Users can view file and subfolder names, read data in files, and run programs.**
* Change**— Users can do everything allowed by the “Read” permission, as well as add files and subfolders, change data in files, and delete subfolders and files.**
* Full Control**— Users can do everything allowed by the “Read” and “Change” permissions, and they can also change permissions for NTFS files and folders only. The “Administrators” group is granted “Full Control” permissions.**

1. Summarize the main difference between NTFS and Share Permissions.

**Share permissions are easy to apply and manage, but NTFS permissions enable more control of a shared folder and its contents.**

1. Summarize how to view and change share permissions.

**To view and change share permissions:**

1. **Right-click the shared folder, then Click “Properties”.**
2. **Open the “Sharing” tab, Click “Advanced Sharing”.**
3. **Click “Permissions”.**
4. **Select a user or group from the list.**
5. **Select either “Allow” or “Deny” for each of the settings.**

**Level 4: Your Files and Folders**

1. Organized your files and folders on your network drive to match your GitHub repository.
   1. Create a folder on your student drive for Computer Science Work
   2. Create sub-folders (e.g. Topic A, etc.) to match the folders on your GitHub repository
   3. Move your answer files and other work you have done for this course into the proper sub-folders.
   4. Show your organized folders/files to Mr. Nestor