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Class: CST226

1.Using a computing device, identify four files – each stored in a different directory. For each file, list both the relative filename and its complete filename, showing all paths to that file from the root directory. Identify the device and the software or tool you used to discover the complete filename.

**C:\Users\ download\a.txt**

**C:\Destop\b.txt**

**D:\game\pes.exe**

**E:\movies\tom.mp4**

**Root directory : :\ , \**

**. Common tools are File Explorer, Tree, List, et**

2.Using your own computer, give the name of the operating system that runs it and give examples of five legal file names. Then create examples of five illegal file names, attempt to use them on your system to save a file, and describe what error message you received. Finally, explain how you could fix the file-name to work on your system.

**Microsoft Windows,mac Os : Letter.txt , abc.docs, a.exe, b.jgn, c.py (Legal)**

**Illegal: a.b.exe, b.abc , b/b/a.text, a..txt**

**Error message: Make sure the filename do not contain > < [] {} :**

**Fix: take out these symbol above**

3.As described in this chapter, files can be formatted with fixed-length fields or variable-length fields. In your opinion, would it be feasible to combine both formats for storage on a single magnetic disk? Explain the reasons for your answer.

**Yes, it is possible to combine both fixed length and variable length on a single disk.**

**Fixed length field:**

**A field that always has the same number of characters is known as fixed length field.**

**Variable length field:**

**A field that is not of consistent length and doesnot leave blank storage space and do not trim any character is known as variable length field.**

4.In your opinion, is file deallocation important? Explain your answer and describe how long you believe your own system would perform adequately if this service were no longer available. Discuss the consequences and any alter-natives that users might have.

**I think the filedeallocation is important because the file manager uses this feature to returnmemory spaces allocated to a particular process during its runtime. When aprocess is completed, the file manager deallocates the file that the processused so other process on the waitlist can also use the same file.**

**I dont think it would perform adequately because the file manager would leave file allocations when a processis completed and other process that need the same file would not continue. Thiswould cause the system to perform inadequately.**

5.Some operating systems support both menus and command-line interfaces. Do you think file retrieval is different on a menu-driven system than on a command-driven system? Explain your answer and describe any differences between the two. Give an example of when you think one would be preferred over the other.

**File retrieval is different on a menu-driven system and a command-driven system because File retrieval is  the act or process of retrieving file while menu-driven system is an interactive computer system in which the operator requests the processing to be performed by making selections from a series of menus and command-driven system is a  program that accepts commands as typed-in phrases. It is usually harder to learn, but may offer more flexibility than a menu-driven program. Once learned, command-driven programs may be faster to use, because the user can state a request succinctly.**

6.Imagine one real-life example of each: a multi-file volume and a multi-volume file. Include a description of the media used for storage and a general descrip-tion of the data in the file.

**One real-life example of Multi-file volume is texting when you are going to send your message to more than two recepients because it contains many files in a single file which is compressed to a smaller size. One example of multi-volume file is a more than one CD for a product. The first example splits a large product distribution of a theoretical 2.1GB into 1 root installer and 3 more installers of 700 MB each (to fit on 700 MB compact disks. The second example is one installer which copies files from multiple disks onto the users' hard drive.**

7.Using your own words, describe the relationship between a hashing algorithm and a key field. In your opinion, what are the potential consequences of modi-fying the data in a key field?

**Hashing involves applying a hashing algorithm to a data item, known as the hashing key, to create a hash value. Hashing algorithms take a large range of values (such as all possible strings or all possible files) and map them onto a smaller set of values (such as a 128 bit number).**

**A field in a record that holds unique data which identifies that record from all the other records in the file or database. Account number, product code and customer name are typical key fields. As an identifier, each key value must be unique in each record**

8.Is device independence important to the File Manager? Why or why not? Describe the consequences if this were not the case.

**Device independence is important to the file manager because device independence is the process of making a software application be able to function on a wide variety of devices regardless of the local hardware on which the software is used.**

9.Explain why it’s difficult to support direct access to files with variable-length records. Suggest a method for handling this type of file if direct access is required.

**It is difficult because to support direct access because it depends on what data is stored in the field. Tape storage is useful to introduce basic structures. Tape is simple in structure, easy to understand, and a good starting point for the study of fixed-length records with fixed-length fields. This combination is by far the most frequently used file structure, both in file systems and in database management systems.**

10.In your own words, describe the purpose of the working directory, and how it can speed up or slow down file access. In your opinion, should there be more than one working directory? Explain.

**In**[**computing**](https://en.wikipedia.org/wiki/Computing)**, the working directory of a**[**process**](https://en.wikipedia.org/wiki/Process_(computing))**is a**[**directory**](https://en.wikipedia.org/wiki/Directory_(file_systems))**of a hierarchical**[**file system**](https://en.wikipedia.org/wiki/File_system)**.**

**To speed up the process, some optimization features may be built into the system. One is to select a key field from the record and then sort the records by that field before storing them.**

**My opinion, there shouldn’t be more than one working directory because there may have conflict.**

Text

Description automatically generated

11 **a. Read Access,Access Not Allowed, Execute Access, Delete Access**

**b, Read Access, Write Access, Execute Access, not allowed**

**c. Read, write, not , delete**

**d, not, not, execute, not**

12 **a read, not , execute, not**

**B, read, not, execute, delete**

**C, read, write, execute, not**

**d. Read, not, not, not**

**World is who denie to access**

Table

Description automatically generated

13. User 10 , Unlimited to access file 13,14

User 17 is unlimited to access file 12

14

|  |  |
| --- | --- |
| McConnell, Kattleen | McConnell, Kattleen |
| McDavid, Patricia | 2David, Patricia |
| McDavid, Peter | 9Peter |
| McDonald, Marie | 3onald, Marie |
| McDonald, Maryanne | 13yanne |
| McDonnell, Melvin | 5nell, Melvin |

15.Devise a way to compress and store the following list of city/town names from a global travel database:Rio Branco, Raleigh, Rochester, Ravenna, Rome, Rio de JaneiroIt might help to begin by putting the names in alphabetical order. Describe your method and show the compressed list. Explain if your compression method represents a lossless or lossy compression, and why you have identified it that way.

Lossless way we combine the term before for the second term by the number plus the second term

Lossy compression allows a loss of data from the original image file to allow significant compression