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Topic: File Handling Theory Questions

1. **What is file handling?**
   - File handling in Python is simplified with built-in methods, which include creating, opening, and closing files.
   - We need file handling, to store data permanently in file, so that we **can retrieve** data whenever required.
   - In file Handling, Data is stored in **non-volatile memory**.
   - File handling can be used to store small data.

2. **Can you explain the difference modes of opening a file?**

   There are many modes for opening a file:

   - **r** - open a file in read mode.
   - **w** - opens or create a text file in write mode.
   - **a** - opens a file in append mode.
   - **r+** - opens a file in both read and write mode.
   - **a+** - opens a file in both read and write mode.
   - **w+** - opens a file in both read and write mode.

3. **How do you create a text file?**
   - The text file can be create in python with the use of built in function “Opne()” with the write mode.”w”.
   - Syntax: - f = open(‘file_name’,’w’)

4. **How to read and write to an existing file?**
   - To read and write to an existing file, a built in function can be used. Open a file with r+ mode.
   - **r+** - opens a file in both read and write mode.
   - Syntax: - Syntax:- f = open(‘file_name’,’r+’)

5. What are some important methods used for reading from a file?

There are three types of methods in reading.

Read() function	Readline() Function	Readlines() Function
• This method is used to read data/content from a file and retunes ir as a string in text mode. It retunes bytes in binary mode. • Syntax: file_handler.read(size) • Size: - it represents the number of characters to be read in text mode. When using binary mode, no need to give size.	• This method is used to read single line from a file. • Syntax: file_handler.readline(Size)	• This method is used to read all the lines from a file and returns a list of lines. • Syntax:- file_handler.readlines()

6. What are some common errors that can occur while working with files?

some common errors that can occur while working with files are listed down below:-

- FileNotFoundError: This error occurs when you try to open a file that doesn't exist.
- PermissionError: This error occurs when you try to access a file that you don't have permission to access.
- IOError: This error occurs when there is an issue with reading or writing to a file, such as if the file is opened in the wrong mode.
- ValueError: This error occurs when the data being written to a file is not in the expected format, such as trying to write a string to a file that only accepts integers.
- UnicodeDecodeError: This error occurs when there is an issue with decoding the contents of a file that contains non-ASCII characters.
- EOFError: This error occurs when you try to read beyond the end of a file.

7. What is difference between text and binary files?

The difference between text file and binary files are list down in the below table:-

Parameters	Text Files	Binary Files
Definition	A text file consists of **human readable characters**, which can be opened by any text editor.	Binary files are made up of **non-human readable characters and symbols**, which require specific programs to access its contents.
Form	Stores data in form of **characters**. It is used to store **data and string**.	Stores data in the form of **bytes** (group of 8 bits)
Example	Txt., JSON (JavaScript Object Notation)	Audio, Text, Image, PDF.

8. Which function allow us to check if we have reached the end of a file?

- **EOF stands for End of File** allow us to check if we have reached the end of a file.

9. List down the steps involved in a processing a large file?

There are 4 steps involved in a processing a large file.

1. **Open a file**
2. **Read or Write (perform operations)**
3. **Append**
4. **Close the file**

10. What is the difference between write and append mode?

The difference between write and append mode are list down in the below table:-

Parameters	Write Mode	Append Mode
Existing File	When a file is opened in write mode ('w'), any existing contents of the file are overwritten with new data.	when a file is opened in append mode ('a'), new data is added to the end of the file without overwriting any existing data.
New File	If the file doesn't exist, a new file is created. This means that if you open a file in write mode and write to it multiple times, only the last write operation will be reflected in the file.	If the file doesn't exist, a new file is created. This means that if you open a file in append mode and write to it multiple times, each write operation will be appended to the end of the file.

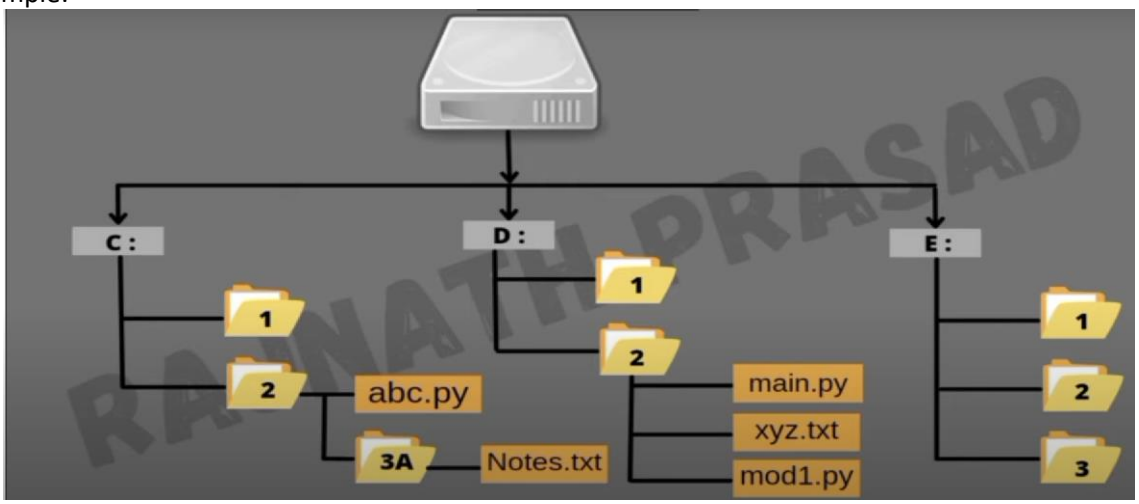
11. What is the difference between read() ad read(n) functions?

The difference between read() ad read(n) functions are list down in the below table:-

Read()	**Read(n)**
The read() method reads the entire file contents as a single string.	The read(n) method reads the next n characters (or bytes) of the file and returns them as a string.

12. Differentiate between absolute pathnames and relative pathnames?

The difference between absolute pathnames and relative pathnames are list down in the below table:-

Absolute Pathnames	**Relative Pathnames**
It points to a specific location in the file system, irrespective of the current working directory. It is also called as full path or file path.	It points to the location of a directory using current directory as a reference. It is called as non-absolute path.
It refers to the location of a file or directory (filesystem) relative to the root directory in Linux.	It refers to the location of a file or directory (filesystem) relative to the current directory.
Example:  	
To access Notes, the absolute path will be "C:\2\3A\notes.txt"	To access Notes, the relative path will be "3A\notes.txt"

13. Differentiate between file modes r+ and w+ with respect to python?

The difference between file modes r+ and w+ are list down in the below table:-

Parameters	r+ Mode	w+ Mode
Existing File	When you open a file in r+ mode, the file pointer is placed at the beginning of the file. This means that if you start writing to the file, it will overwrite the existing data from the beginning of the file. You can use the seek() method to move the file pointer to a specific location in the file before writing.	When you open a file in w+ mode, the file pointer is placed at the beginning of the file, just like in r+ mode. This means that if you start writing to the file, it will overwrite the existing data from the beginning of the file. However, since the file was truncated to zero length when it was opened, there is no existing data to overwrite. You can use the seek() method to move the file pointer to a specific location in the file before writing.
New File	The r+ mode opens a file for reading and writing. If the file does not exist, it will raise an error.	the w+ mode opens a file for reading and writing as well, but it also truncates the file to zero length. If the file does not exist, it creates a new file.

14. What is file mode? Name the default file mode.

- The mode determines where the file is positioned when opened, and what functions are allowed. After you close a file, you can reopen the file in a different mode, depending on what you are doing.
- The default file mode is read() Mode.