

FILE HANDLING VIVA QUESTIONS

1. What is the difference between files and variables of other data types (like list, dictionary etc.) in terms of data storage ?

Variables store data in RAM which remains in memory as long as the program is running and gets erased the moment our program gets over. This happens because RAM is volatile in nature.

Files store the data on secondary storage devices like hard disk. The data stored on secondary storage devices is permanent in nature and does not get erased when the program gets over. When input/output operations are performed on files data gets transferred from secondary storage to RAM and vice versa.

2. Compare Text, Binary and CSV files.

Text files	Binary files	CSV files
<p>Text files are sequence of lines, where each line includes a sequence of characters. All lines are terminated by a special character, called the EOL or End of Line character. Text files are stored in human readable form and they can also be created using any text editor.</p>	<p>Binary files deal with non-text files such as images or exe and store data in binary format i.e. in the form of 0's and 1's which is understandable by the machine. So when we open the binary file in our machine, it decodes the data and displays in a human-readable format.</p>	<p>CSV (Comma Separated Values) is a simple file format used to store tabular data. They are a convenient way to export data from spreadsheets and databases as well as import or use it in other programs. These files are saved with the .csv file extension. In general, the separator character is called a delimiter, and other popular delimiters include the tab (\t), colon (:), and semi-colon (;) characters.</p>
<p>Examples of text files are: Web standards: html, XML, CSS, JSON etc. Source code: c, app, js, py, java etc. Documents: txt, tex, RTF etc.</p>	<p>Binary files can range from image files like JPEGs or GIFs, audio files like MP3s or binary document formats like Word or PDF.</p>	

3. What is the difference between a and w modes?

'w'	Open a file for writing. Creates a new file if it does not exist or truncates the file if it exists.
'a'	Open for appending at the end of the file without truncating it. Creates a new file if it does not exist.

4. What is the difference in opening a file using open() function or using with statement?

Using **with** ensures that all the resources allocated to file objects gets deallocated automatically once we stop using the file.

5. What is the need of closing files?

Closing a file frees up the resources that were tied with the file. Before closing a file, any material which is not written in file, is flushed off i.e., written to file. So, it is a good practice to close the file once we have finished using it.

6. What is the difference between the write() and writelines() methods used to write data in a file?

The write() function write a single string at a time and writelines() methods can be used to write a sequence of strings.

7. What is the difference between the read() and readlines() methods used to read data from a file?

The readline() method reads one line(i.e. till newline) at a time from a file and returns that line. It reads the file till newline including the newline character. The file is read sequentially from top i.e. first call to readline() method returns first line, second call returns second line till end of file. The readline() method returns an empty string when the end of file is reached.

The **readlines()method** reads the entire content of the file in one go and returns a **list of lines** of the entire file. This method returns an empty value when an end of file (EOF) is reached.

8. What is the purpose of read(n) method?

This method reads a string of size (here n) from the specified file and returns it. If size parameter is not given or a negative value is specified as size, it reads and returns up to the end of the file. At the end of the file, it returns an empty string.

9. What do you understand by the terms pickling and unpickling?

To store data in binary files, Pickle module is used. Pickle module is used to store any kind of object in file as it allows us to store python objects with their structure. Pickle module supports two major operations: **Pickling** and **Unpickling**.

- Pickling is the process whereby a Python object is converted into a byte stream.

- Unpickling is the process by which a byte stream is converted back into the desired object.

The process of pickling and unpickling a Python data object is known as **object serialization**.

10. Name the methods which are used to write and read into/form a binary file.

The dump method of pickle module is used to write objects to binary file. The load method of pickle module is used to read the object from the binary file.

11. Name two important functions of CSV module which are used for reading and writing.

The two important functions of CSV module are:

csv.reader()	returns a reader object which iterates over lines of a CSV file
csv.writer()	returns a writer object that converts the user's data into a delimited string. This string can later be used to write into CSV files using the writerow() or the writerows() function.