Python Assignment - 10

**1. How do you distinguish between shutil.copy() and shutil.copytree()?**

=> In Python's shutil module, shutil.copy() and shutil.copytree() are used for different purposes when it comes to copying files and directories.

1. shutil.copy():

* The shutil.copy() function is used to copy a single file from the source (src) to the destination (dst).
* It takes two arguments: the path to the source file and the path to the destination file or directory where the source file will be copied.
* If dst is a file path, the source file will be copied and renamed to the destination file name.
* If dst is a directory path, the source file will be copied to that directory with the same name.

2. shutil.copytree():

* The shutil.copytree() function is used to recursively copy an entire directory tree from the source (src) to the destination (dst).
* It takes two arguments: the path to the source directory and the path to the destination directory where the entire directory tree will be copied.
* The function creates a new directory at the destination path and copies all the files and subdirectories from the source directory to the destination directory.
* If the destination directory already exists, a FileExistsError will be raised.
* By default, shutil.copytree() also copies the metadata (permissions, timestamps, etc.) of the files and directories.

**2. What function is used to rename files?**

=> In Python, you can use the ‘os.rename()’ function to rename files.

**3. What is the difference between the delete functions in the send2trash and shutil modules?**

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1. send2trash module:

* The send2trash module provides a safe way to send files and directories to the operating system's trash or recycle bin, instead of permanently deleting them.
* It offers the send2trash() function, which moves the specified file or directory to the trash or recycle bin, depending on the operating system.
* The send2trash() function takes a path as an argument and sends that file or directory to the trash.
* This module is useful when you want to provide a "soft delete" option to users, where they can recover the deleted files from the trash if needed.

2. shutil module:

* The shutil module provides functions for various file and directory operations, including deleting files and directories.
* It offers the shutil.rmtree() function, which is used to recursively delete a directory and its contents.
* The shutil.rmtree() function takes a directory path as an argument and permanently deletes the directory and all its contents, including subdirectories and files.
* This module is useful when you want to completely remove a directory and all its contents without the option for recovery.

**4.ZipFile objects have a close() method just like File objects’ close() method. What ZipFile method is equivalent to File objects’ open() method?**

=> The ZipFile module in Python provides a method equivalent to the open() method of File objects. To open a ZIP file using ZipFile, you can use the ZipFile() constructor method.

**5. Create a programme that searches a folder tree for files with a certain file extension (such as .pdf or .jpg). Copy these files from whatever location they are in to a new folder.**

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import os

import shutil

def search\_and\_copy\_files(source\_folder, target\_folder, file\_extension):

if not os.path.exists(target\_folder):

os.makedirs(target\_folder)

for root, dirs, files in os.walk(source\_folder):

for file in files:

if file.endswith(file\_extension):

source\_path = os.path.join(root, file) # Path of the source file

target\_path = os.path.join(target\_folder, file) # Path of the target file

shutil.copy2(source\_path, target\_path) # Copy the file to the target folder