

Description:

Create a file manager application that allows users to perform various operations on files and directories, such as creating, deleting, copying, moving, searching, and editing files.

Features to Implement:

File Operations:

Create a new file.
Delete an existing file.
Copy a file from one location to another.
Rename the text file.
Move a file from one location to another.
Search for files by name or extension within a directory.
Edit the contents of a text file.

Directory Operations:

Create a new directory.
Delete an existing directory.
List the contents of a directory.
Rename the directory.

Exception Handling:

Handle exceptions gracefully, such as file not found, permission denied, etc.

Object Oriented Programming:

Define classes for files and directories to encapsulate their properties and behaviors. Implement inheritance and polymorphism where applicable.

Multithreading:

Implement multithreading to perform file operations concurrently, improving performance, especially for large file operations like copying or moving.

Iterator and Generator:

Use iterators or generators to iterate over the contents of directories, allowing for efficient processing of large directory structures.

Modules:

· os module:

The os module in Python provides a portable way of using operating system dependent functionality. It offers a wide range of functions for interacting with the operating system, such as managing files and directories, working with processes, and accessing environment variables.

Here are some common functions and attributes in the os module:

File and Directory Operations:

os.getcwd(): Get the current working directory.

os.chdir(path): Change the current working directory to the given path.

os.listdir(path='.'): List the contents of a directory.

os.mkdir(path): Create a directory.

os.makedirs(path): Recursively create directories.

os.remove(path): Remove a file.

os.rename(src, dst): Rename a file or directory.

os.path.exists(path): Check if a path exists.

os.path.isfile(path): Check if a path is a file.

os.path.isdir(path): Check if a path is a directory.

os.path.join(path1, path2, ...): Join one or more path components.

Shutil module:

The shutil module in Python provides a higher-level interface for file operations that are more abstracted and easier to use compared to the lower-level file operations provided by the os module. It offers functions for copying files and directories, removing directories, and archiving operations.

Here are some common functionalities provided by the shutil module:

shutil.copy(src, dst): Copies the file at the path src to the location dst. shutil.move(src, dst): Moves the file or directory from src to dst. shutil.rmtree(path): Deletes the directory tree rooted at path.

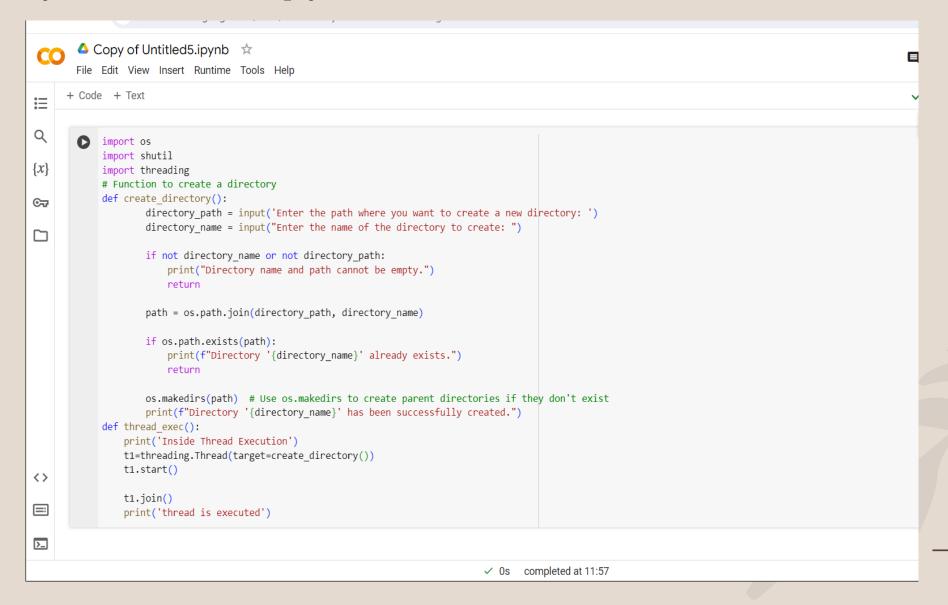
Threading module:

The threading module in python provides a way to run multiple threads simultaneously within a single application. Threads are lighter-weight than processes, making them suitable for tasks easily.

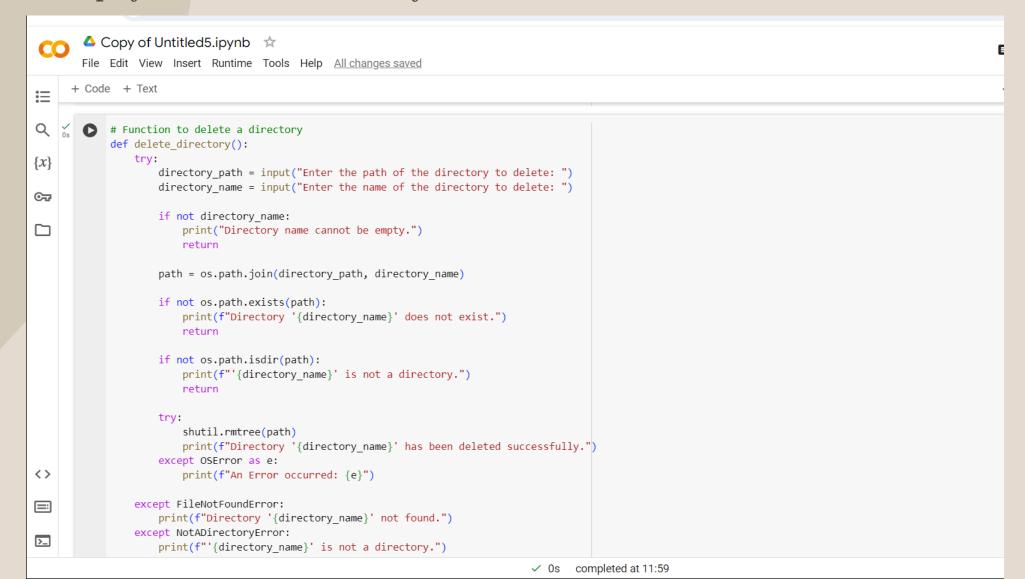
Functions:

- Create a Directory: Create a new directory at the specified path.
- Delete a Directory: Delete an existing directory and its contents.
- List Files in a Directory: List files within a specified directory and their types.
- Rename a Directory: Rename an existing directory.
- Move Files from One Directory to Another: Move all files from one directory to another.
- Create a File: Create a new text file at the specified path.
- Delete a File: Delete an existing text file.
- Edit a Text File: Edit the content of an existing text file.
- Copy Content from One Text File to Another: Copy the content of one text file to another.
- List Directories: List directories in a specified path.

1.create_directory() function: It creates the directory in the specified path. If the directory exists it displays the message the directory already exists. The directory name and path you entered is not empty.



2.delete_directory() function: This function deletes the directory that you entered .Directory name cannot be empty .It checks whether the directory exists or not .If the directory not found it displays that the directory not found. If you entered file instead of directory then it displays that it is not a directory.

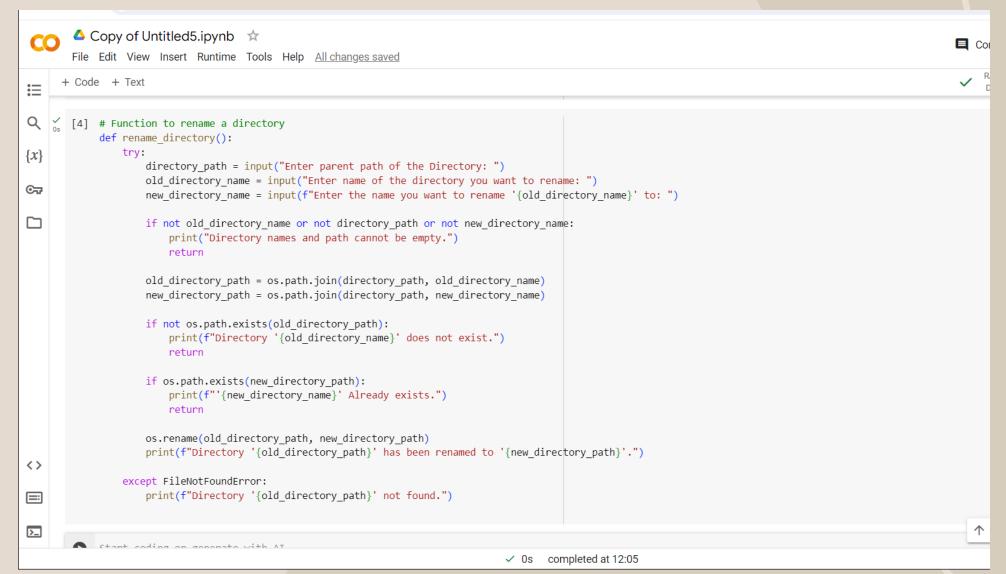


3.List_files_in_directory() function::It displays the list of files in given directory.

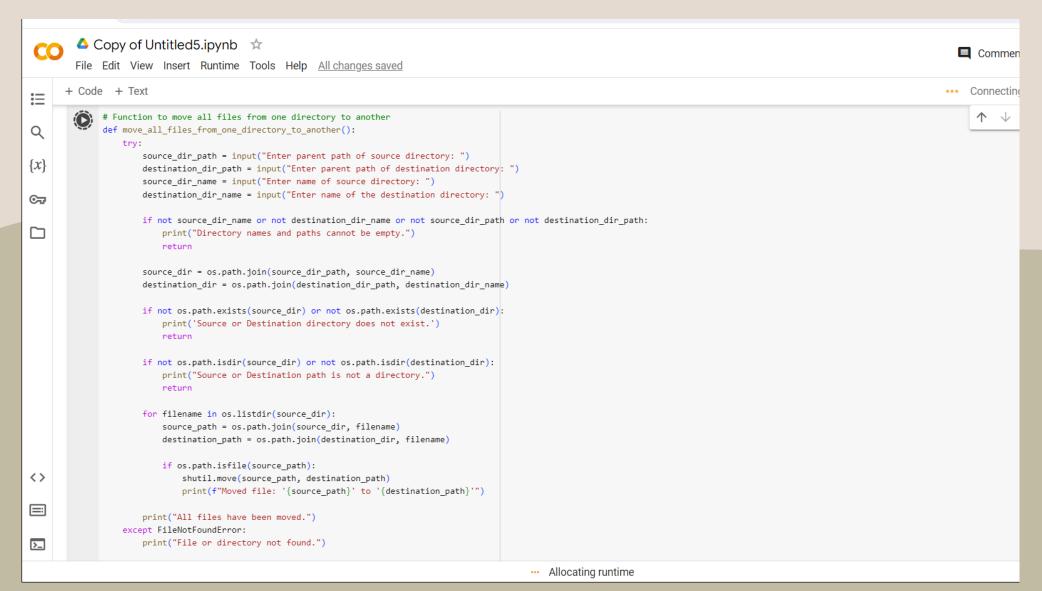
```
Copy of Untitled5.ipynb 
       File Edit View Insert Runtime Tools Help
      + Code + Text
       [3] # Function to list files in a directory
            def list files in directory():
{x}
                    directory path = input("Enter the path of the directory to list files from: ")
                    directory name = input("Enter the name of the directory: ")
©<del>,</del>
                    path = os.path.join(directory path, directory name)
                    if not os.path.exists(path):
                        print(f"Directory '{directory name}' does not exist.")
                        return
                    if not os.path.isdir(path):
                        print(f"'{directory_name}' is not a directory.")
                        return
                    files = [f for f in os.listdir(path) if os.path.isfile(os.path.join(path, f))]
                    if not files:
                        print(f"No files found in '{directory name}'.")
                        return
                    print(f"Files in '{directory name}':")
                    for file in files:
                        print(file) # Removed splitting into name and type for simplicity
<>
Start coding or generate with AI.
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```

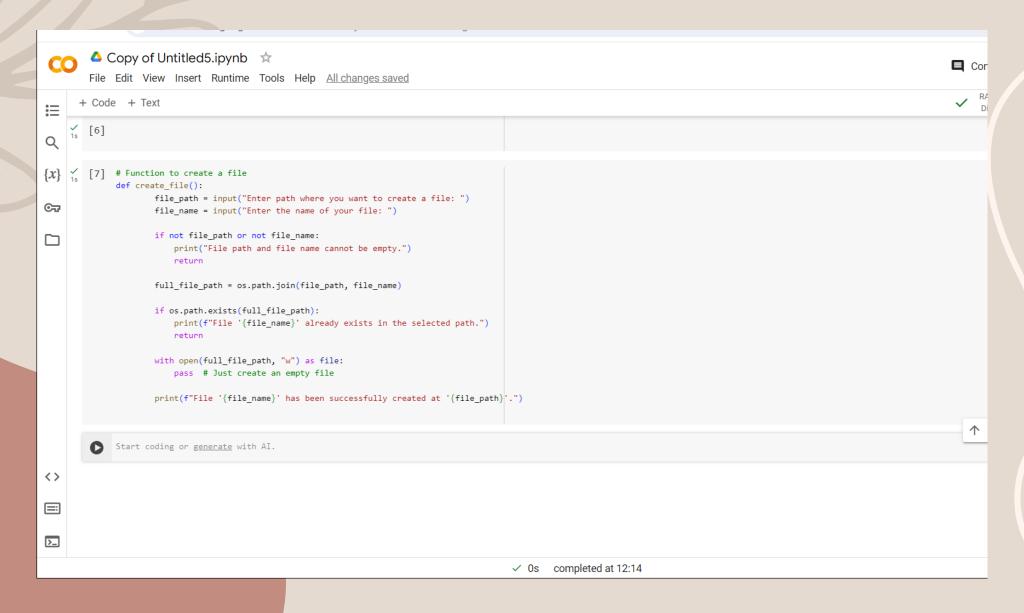
4.rename_directory() function: It renames the existing directory into the new name.



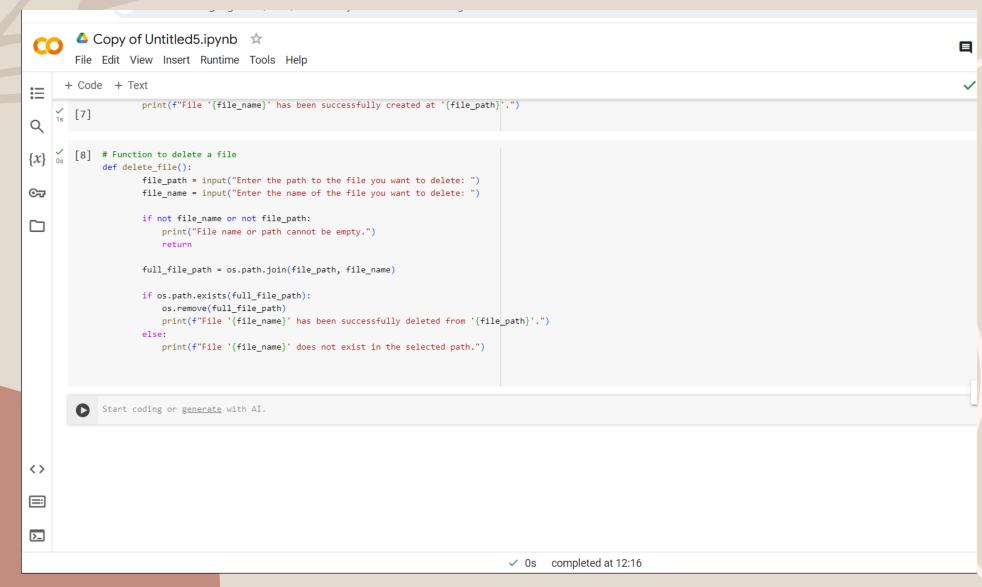
5.move_all_files_from_one_directory_to_another() function: it moves all files from the source directory to the destination directory.



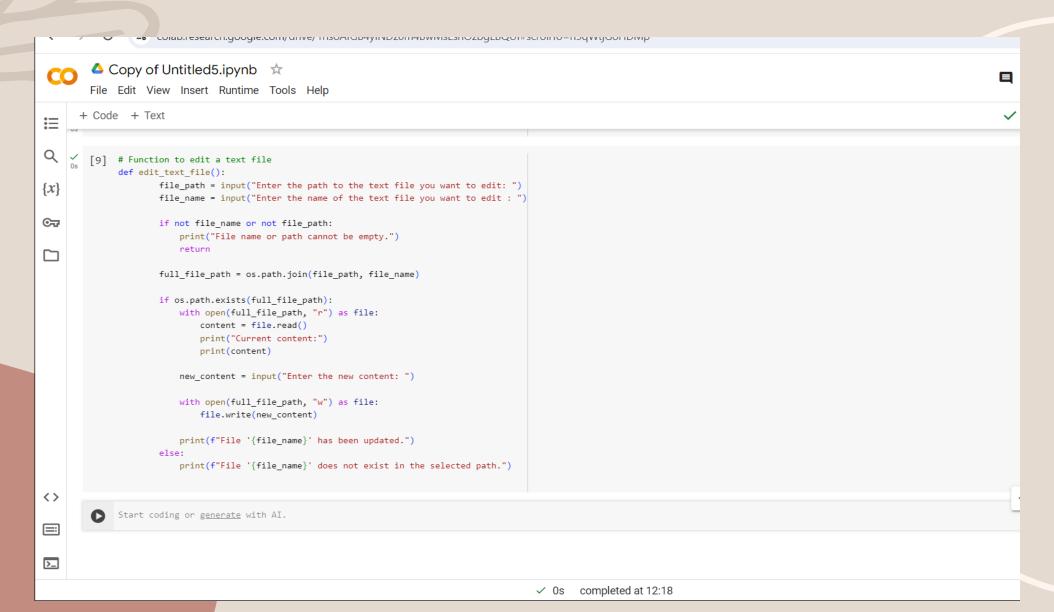
6.create_file() function: this function creates file in the specified directory.



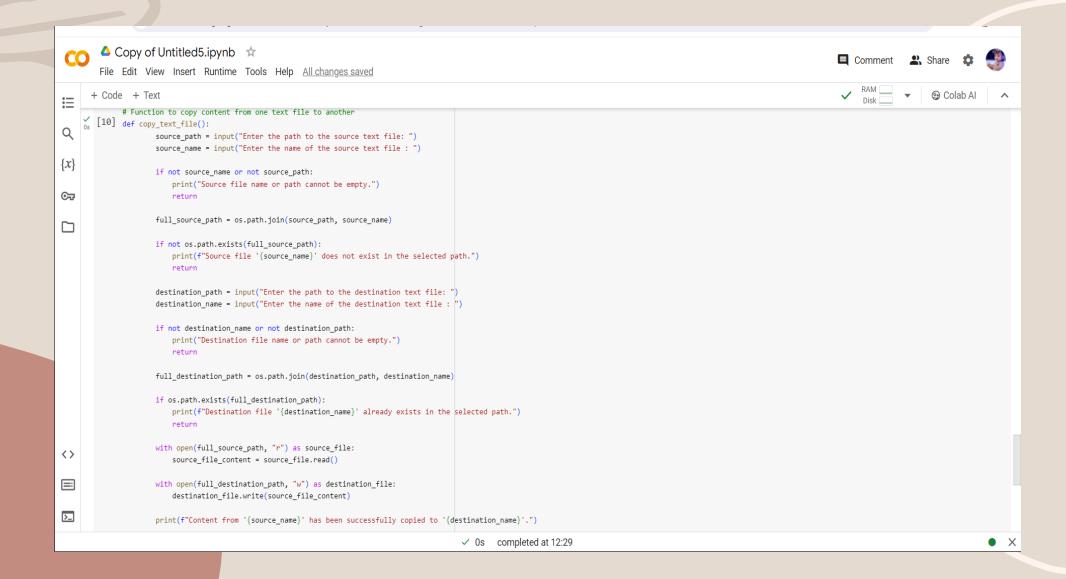
7.delete_file() function: this function helps to delete the file from the specified directory



8.edit_text_file() function: we can add text to the created file or else we can edit the text already containing in the file.



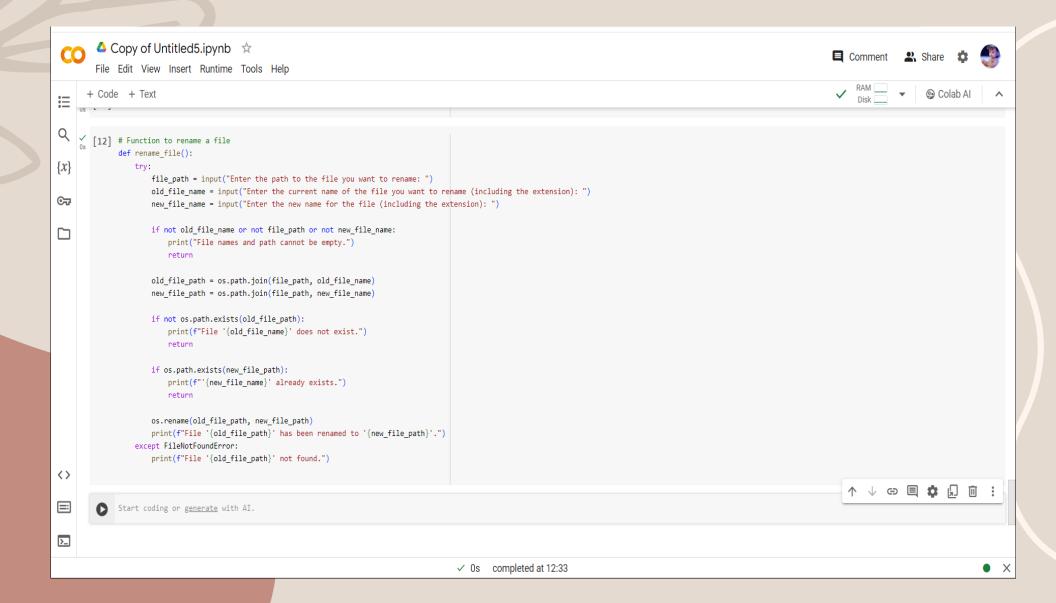
9.copy_text_file() function: it copies the text files from source file to destination file..



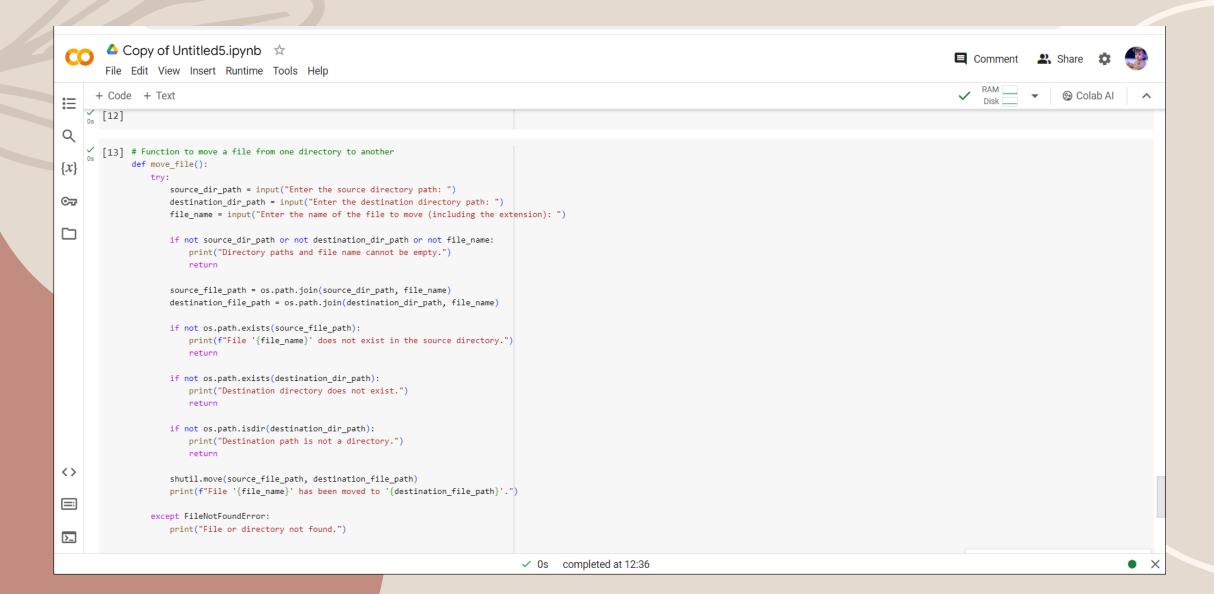
10. List_directories(): it displays the list of directories in the given directory.



11. rename_file() function: it changes the name of the file from old name to new name.



12. move_file() function: this function moves all the files from source to destination.



Main() class: Here all the functions are set as menu. When we enter the desired choice from the menu then the corresponding function called and executes the statements..

```
# Main menu function
 class main():
     while True:
        print("\nMenu:")
        print("1. Create a Directory")
        print("2. Delete a Directory")
        print("3. List Files in a Directory")
        print("4. Rename a Directory")
        print("5. Move Files from One Directory to Another")
        print("6. Create a File")
        print("7. Delete a File")
        print("8. Edit a Text File")
        print("9. Copy Content from One Text File to Another")
        print("10. List Directories")
        print("11. Rename a File")
        print("12. Move a File")
        print("13. Quit")
        choice = input("Enter Your Choice: ")
        if choice == '1':
            thread exec()
        elif choice == '2':
            delete_directory()
        elif choice == '3':
            list_files_in_directory()
        elif choice == '4':
            rename directory()
        elif choice == '5':
            move_all_files_from_one_directory_to_another()
        elif choice == '6':
            create_file()
        elif choice == '7':
            delete file()
        elif choice == '8':
            edit_text_file()
        elif choice == '9':
            copy_text_file()
        elif choice == '10':
            list_directories()
        elif choice == '11':
            rename_file()
        elif choice == '12':
              move_file()
         elif choice == '13':
              break
         else:
              print("Invalid choice. Please select a valid option.")
if __name__ == "__main__":
    M = main()
```

This is menu when the main class executed. It asks for the choice from the menu. If you enter your choice it will executes the corresponding function.

••• Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice:

When we enter 1 as choice from menu then thread executes the create directory function and it creates the directory in the path where you specified.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 1

Inside Thread Execution

Enter the path where you want to create a new directory: /content/

Enter the name of the directory to create: Demo

Directory 'Demo' has been successfully created.

thread is executed

When you enter 2 as choice from menu then it calls the delete directory function and deletes the directory from the specified path.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 2

Enter the path of the directory to delete: /content/ Enter the name of the directory to delete: Demo Directory 'Demo' has been deleted successfully. When you enter 3 as choice from menu then it calls the list files in a directory function and it displays all files from specified directory.

1. Create a Directory 2. Delete a Directory 3. List Files in a Directory 4. Rename a Directory 5. Move Files from One Directory to Another 6. Create a File 7. Delete a File 8. Edit a Text File 9. Copy Content from One Text File to Another 10. List Directories 11. Rename a File 12. Move a File 13. Quit Enter Your Choice: 3 Enter the path of the directory to list files from: /content/ Enter the name of the directory: sample data Files in 'sample data': anscombe.json README.md File1 california_housing_train.csv mnist train small.csv mnist test.csv

california housing test.csv

When you enter 4 as choice from menu then it calls rename directory function and it changes the name from old to new name of the directory.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 4

Enter parent path of the Directory: /content/

Enter name of the directory you want to rename: Demo

Enter the name you want to rename 'Demo' to: Demo1

Directory '/content/Demo' has been renamed to '/content/Demo1'.

When you enter 5 as choice from menu it calls move files from one directory to another function and moves all files from one source directory to destination directory.









- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Ouit

Enter Your Choice: 5

Enter parent path of source directory: /content/

Enter parent path of destination directory: /content/

Enter name of source directory: sample data Enter name of the destination directory: Demo1

Moved file: '/content/sample_data/anscombe.json' to '/content/Demo1/anscombe.json'

Moved file: '/content/sample data/README.md' to '/content/Demo1/README.md'

Moved file: '/content/sample data/File1' to '/content/Demo1/File1'

Moved file: '/content/sample data/california housing train.csv' to '/content/Demo1/california housing train.csv'

Moved file: '/content/sample data/mnist train small.csv' to '/content/Demo1/mnist train small.csv'

Moved file: '/content/sample data/mnist test.csv' to '/content/Demo1/mnist test.csv'

Moved file: '/content/sample data/california housing test.csv' to '/content/Demo1/california housing test.csv'

All files have been moved.







When you enter 6 as choice from menu then it calls the create file function and creates a file in the specified path.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 6

Enter path where you want to create a file: /content/Demo1

Enter the name of your file: File2

File 'File2' has been successfully created at '/content/Demo1'.

When you enter 7 as choice from menu then it will call delete file function and then it deletes the file from the specified directory.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 7

Enter the path to the file you want to delete: /content/Demo1

Enter the name of the file you want to delete: File1

File 'File1' has been successfully deleted from '/content/Demo1'.

Manue

When you enter 8 as choice from menu then it calls edit text file function and it updates the file with the updated text.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 8

Enter the path to the text file you want to edit: /content/Demo1

Enter the name of the text file you want to edit : File2

Current content:

Enter the new content: This is python project

File 'File2' has been updated.

When you enter 9 as choice from menu then it calls copy content from one file to another function and it copies the files from source directory to destination directory.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 9

Enter the path to the source text file: /content/sample_data Enter the name of the source text file: california housing test.csv

Enter the path to the destination text file: /content/sample_data

Enter the name of the destination text file : File1

 ${\tt Content\ from\ 'california_housing_test.csv'\ has\ been\ successfully\ copied\ to\ 'File1'.}$

When you enter 10 as choice from menu then it calls list directories function and it displays all the directories from the given directory..

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 10

Enter the path to list directories from: /bin/

Directories in '/bin/':

X11

When you enter 11 as choice from menu then it calls the rename file function and it changes the name of the file from old name to new name.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 11

Enter the path to the file you want to rename: /content/sample data

Enter the current name of the file you want to rename (including the extension): README.md

Enter the new name for the file (including the extension): readme

File '/content/sample data/README.md' has been renamed to '/content/sample data/readme'.

When you enter 12 as choice from menu then it calls move a file function and it moves files from source to destination directory.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 12

Enter the source directory path: /content/Demo1

Enter the destination directory path: /content/sample_data

Enter the name of the file to move (including the extension): File2

File 'File2' has been moved to '/content/sample_data/File2'.

When you enter 13 as choice from menu then quits from the execution.

Menu:

- 1. Create a Directory
- 2. Delete a Directory
- 3. List Files in a Directory
- 4. Rename a Directory
- 5. Move Files from One Directory to Another
- 6. Create a File
- 7. Delete a File
- 8. Edit a Text File
- 9. Copy Content from One Text File to Another
- 10. List Directories
- 11. Rename a File
- 12. Move a File
- 13. Quit

Enter Your Choice: 13

thank you