

The project have 7 file:

talk\_to\_ftp : from this class create an instance include a ftp connect and basic create, remove operation

directory\_manager : supervise the changes in directory and call functions in talk\_to\_ftp

file : gives info about path and modification time

directory : gives info about path and creation time

logger : logger with format

get\_parameters : get parameters from cmd

main : get parameters from get\_parameters, transfer them to directory\_manager, and start the programme.

We have chosen multiprocessing to do this project. Our idea is to make IO actions multiprocessing. To realize it, we range the methods as processes into the pool, and multiprocess them.

We have made a new class, TalkToFTPMulti, which inherits the class TalkToFTP.

In this class, we decorate the methods which concern IO, such as remove and transfer, to processes.

This class get an instance of multiprocessing.pool as parameter. Compare to the TalkToFTP class, it doesn't run the methods, but put processes into the pool.

In the for loop of directory manager, it traversed the directory and make a list of differences. Instead of “for each element in the list, do a modification”, we use “for each element in list, prepare a process in pool”. After the for loop, we will have all the “action to do” in pool and we can multiprocessing them.

Difficulties :

1. “Remote computer actively refuses” in running the programme.

Fail to connect to private ftp server.

Solution : Turn off all the firewall .

2. How to multi-run a method of one instance in the same time.

Solution : We can't solve about the parameter of the instance so we give up about this idea and use pool.

3. Do we need multi-connection to transfer and how to instantiate any number of connections.

Solution : No. We can start multi-transfer in a connection. Don't need to worry about it.

4. Logging doesn't run well with pool. When multiprocessing, only one log runs at a time.

Solution : We make log in the for-loop, so the logs will not writing in the same time. It makes log at the creation of the process. In consequence, it doesn't log the end time of process.

5. We have 2 optional parameters, one for the "excluded extensions" and the other for the max processes. It leads to a confusion that if we input one optional parameter, which args will take it.

Solution : The first parameter will test if the optional input is a number, if it is, take it as max\_poccesses, else, pass it to the list of next parameter.

```
G:\FilesMirror\bk>python main.py "192.168.43.122,steve,steve,test" "D:\aaa" 4 4
2019-03-12 02:04:52,932 - root - INFO - Valid parameters
2019-03-12 02:04:53,041 - root - INFO - File created / updated : srv test\ai.txt file ai.txt
2019-03-12 02:05:35,663 - root - INFO - File removed : %stest\ai.txt
2019-03-12 02:06:01,406 - root - INFO - File created / updated : srv test\ai.txt file ai.txt
2019-03-12 02:06:18,076 - root - INFO - Folder removed : test\help\index1\images
2019-03-12 02:06:18,092 - root - INFO - Folder removed : test\help\index1\js
2019-03-12 02:06:18,092 - root - INFO - Folder removed : test\help\index2\images
2019-03-12 02:06:18,107 - root - INFO - Folder removed : test\help\index2\js
2019-03-12 02:06:18,123 - root - INFO - Folder removed : test\help\index3\images
2019-03-12 02:06:18,139 - root - INFO - Folder removed : test\help\index3\js
2019-03-12 02:06:18,139 - root - INFO - Folder removed : test\help\index4\images
2019-03-12 02:06:18,154 - root - INFO - Folder removed : test\help\index4\js
2019-03-12 02:06:18,170 - root - INFO - Folder removed : test\help\index1
2019-03-12 02:06:18,170 - root - INFO - Folder removed : test\help\index2
2019-03-12 02:06:18,186 - root - INFO - Folder removed : test\help\index3
2019-03-12 02:06:18,201 - root - INFO - Folder removed : test\help\index4
2019-03-12 02:06:18,217 - root - INFO - Folder removed : test\help\js
2019-03-12 02:06:18,217 - root - INFO - Folder removed : test\help\txt
2019-03-12 02:06:18,232 - root - INFO - Folder removed : test\help
```

```
G:\FilesMirror\bk>python main.py "192.168.43.122,steve,steve,test" "D:\aaa" 4 4 ".txt"
2019-03-12 02:07:46,951 - root - INFO - Valid parameters
2019-03-12 02:07:47,029 - root - INFO - Folder created : test\help
2019-03-12 02:07:47,044 - root - INFO - Folder created : test\help\index1
2019-03-12 02:07:47,060 - root - INFO - Folder created : test\help\index2
2019-03-12 02:07:47,076 - root - INFO - Folder created : test\help\index3
2019-03-12 02:07:47,091 - root - INFO - Folder created : test\help\index4
2019-03-12 02:07:47,107 - root - INFO - Folder created : test\help\js
2019-03-12 02:07:47,122 - root - INFO - Folder created : test\help\txt
2019-03-12 02:07:47,122 - root - INFO - Folder created : test\help\index1\images
2019-03-12 02:07:47,138 - root - INFO - Folder created : test\help\index1\js
2019-03-12 02:07:47,154 - root - INFO - Folder created : test\help\index2\images
2019-03-12 02:07:47,169 - root - INFO - Folder created : test\help\index2\js
2019-03-12 02:07:47,185 - root - INFO - Folder created : test\help\index3\images
2019-03-12 02:07:47,201 - root - INFO - Folder created : test\help\index3\js
2019-03-12 02:07:47,216 - root - INFO - Folder created : test\help\index4\images
2019-03-12 02:07:47,232 - root - INFO - Folder created : test\help\index4\js
```

```
G:\FilesMirror\bk>python main.py "192.168.43.122,steve,steve,test" "D:\aaa" 4 4 5 ".txt"
2019-03-12 02:08:25,040 - root - INFO - Valid parameters
2019-03-12 02:08:25,384 - root - INFO - Folder created : test\help
2019-03-12 02:08:25,399 - root - INFO - Folder created : test\help\index1
2019-03-12 02:08:25,430 - root - INFO - Folder created : test\help\index2
2019-03-12 02:08:25,477 - root - INFO - Folder created : test\help\index3
2019-03-12 02:08:25,493 - root - INFO - Folder created : test\help\index4
2019-03-12 02:08:25,509 - root - INFO - Folder created : test\help\js
2019-03-12 02:08:25,618 - root - INFO - Folder created : test\help\txt
2019-03-12 02:08:25,649 - root - INFO - Folder created : test\help\index1\images
2019-03-12 02:08:25,649 - root - INFO - Folder created : test\help\index1\js
2019-03-12 02:08:25,665 - root - INFO - Folder created : test\help\index2\images
2019-03-12 02:08:25,680 - root - INFO - Folder created : test\help\index2\js
2019-03-12 02:08:25,696 - root - INFO - Folder created : test\help\index3\images
2019-03-12 02:08:25,712 - root - INFO - Folder created : test\help\index3\js
2019-03-12 02:08:25,727 - root - INFO - Folder created : test\help\index4\images
2019-03-12 02:08:25,727 - root - INFO - Folder created : test\help\index4\js
```