

Part 3

You now have to create your own user space file system. It works a little bit like a combination of `passthrough.py` and `memory.py`. Call your program `a2fuse2.py`. You can subclass `Passthrough` or `Memory` if you want. You will probably have to implement at least the same methods you described in Question 3 to enable the following command.

Run your program with `python a2fuse2.py source1 source2 mount`

Settings: Create two source directories, `source1` and `source2`. Put file `one` in `source1`, and put file `two` in `source2` respectively. Make sure that `mount` is initially empty. The file system works very much like `memory.py` but it starts with some real files from the `source1` and `source2` directories. So, the file system has two classes of files which are in the `mount` directory. One consists of real files from the `source1` and `source2` directories and the other of files which only exist in memory. Specifically, create your FUSE to meet the following two requirements.

Requirement 1: Enable your FUSE to mount two source directories into a mount point.

Requirement 2: Any changes which happen to files in the `mount` directory which have been created only in memory (including creating or deleting files or writing to files) only happen in the `mount` directory. However, if the file was initially in the `source1` and `source2` directories then changes get passed back to that directory just as with `passthrough.py`.

Example:

Start your FUSE in terminal one: `python a2fuse2.py source1 source2 mount`

Start in the same directory in terminal two.

```
-----
(base) ubuntu@q2b:~/part3$ ls -l source1
total 4
-rw-r--r-- 1 ubuntu ubuntu 5 Sep  2 05:12 one
(base) ubuntu@q2b:~/part3$ ls -l source2
total 4
-rw-r--r-- 1 ubuntu ubuntu 10 Sep  2 05:12 two
(base) ubuntu@q2b:~/part3$ cd mount/
(base) ubuntu@q2b:~/part3/mount$ ls -l
total 0
-rw-r--r-- 1 ubuntu ubuntu  5 Sep  2 05:12 one
-rw-r--r-- 1 ubuntu ubuntu 10 Sep  2 05:12 two
-----
(base) ubuntu@q2b:~/part3/mount$ cat one two > three
(base) ubuntu@q2b:~/part3/mount$ ls -l
total 0
-rw-rw-r-- 1 ubuntu ubuntu 15 Sep  2 05:16 three
-rw-r--r-- 1 ubuntu ubuntu  5 Sep  2 05:12 one
-rw-r--r-- 1 ubuntu ubuntu 10 Sep  2 05:12 two
(base) ubuntu@q2b:~/part3/mount$ ls -l ../source1
total 4
-rw-r--r-- 1 ubuntu ubuntu 5 Sep  2 05:12 one
(base) ubuntu@q2b:~/part3/mount$ ls -l ../source2
total 4
-rw-r--r-- 1 ubuntu ubuntu 10 Sep  2 05:12 two
-----
(base) ubuntu@q2b:~/part3/mount$ rm three
(base) ubuntu@q2b:~/part3/mount$ ls -l
total 0
-rw-r--r-- 1 ubuntu ubuntu  5 Sep  2 05:12 one
-rw-r--r-- 1 ubuntu ubuntu 10 Sep  2 05:12 two
```