Test cases

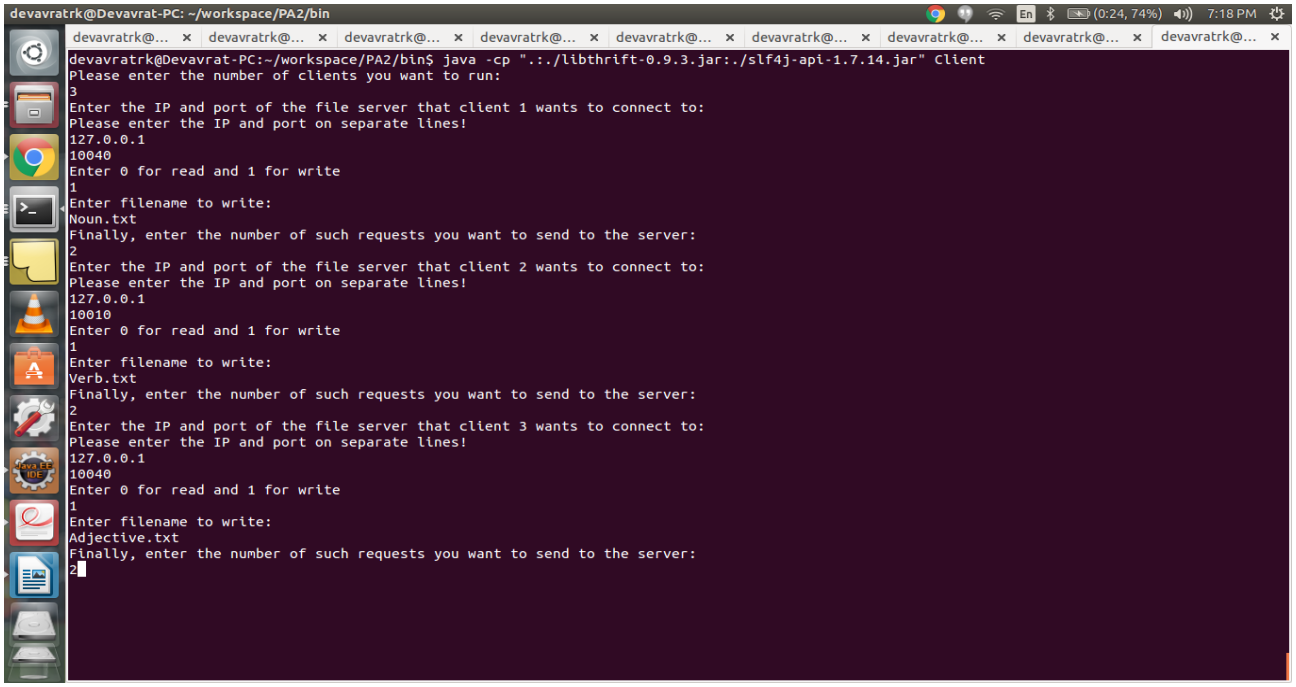
Please have a look at the user document which details how to start all components of the system and how to use the interface. Before running these test cases, PLEASE ENSURE THAT YOU HAVE PLACED THE CODE IN A FOLDER WHERE YOU HAVE WRITE ACCESS, since our file system is persistent.

Following are four test cases, which show the write, read, write-heavy and read-heavy cases respectively. Every testcase does not need three clients to run, but since the problem statement explicitly asks us to run a minimum of three clients, we have modified the testcases accordingly.

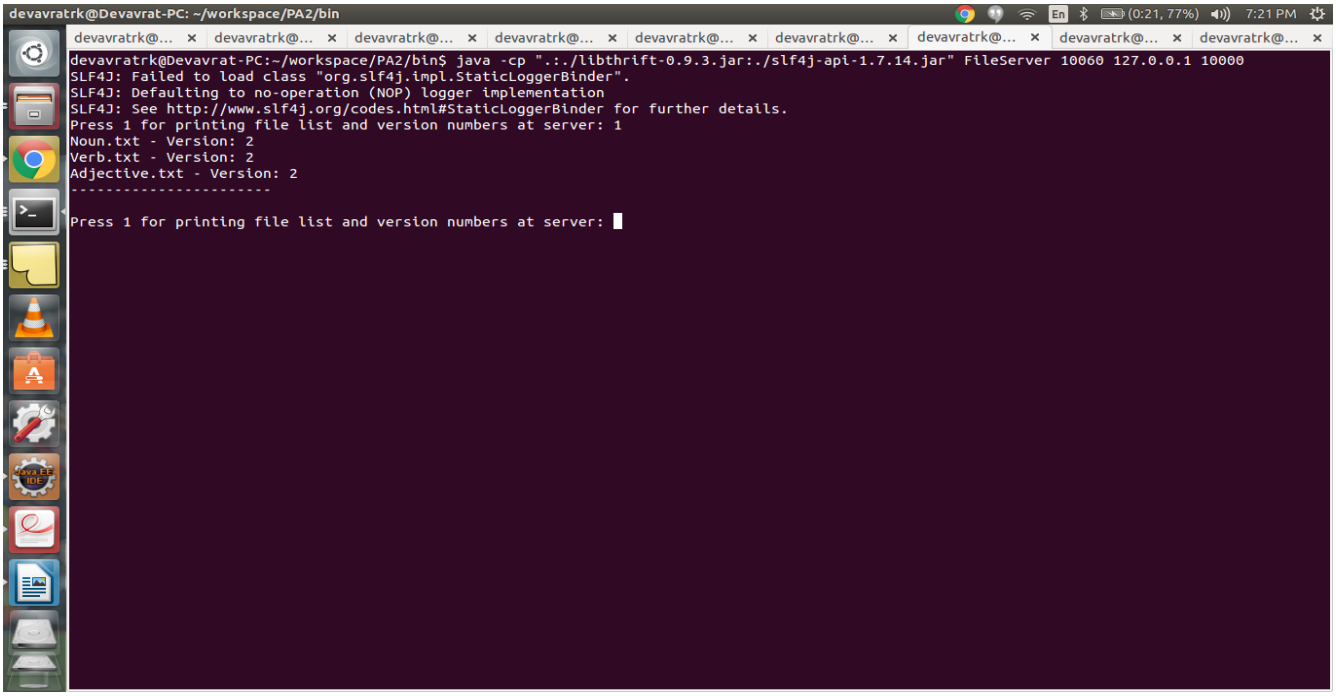
We start the coordinator on localhost port 10000 and the seven servers on localhost ports 10010, 10020, 10030, 10040, 10050, 10060 and 10070. The read quorum and write quorum values have been taken to be 4 and 4 in this case.

1) **Write:**

After starting the system as explained in the user document, we can now go to the client UI and issue 3 write requests for 3 different files as explained in the user document. Here is the input screenshot:

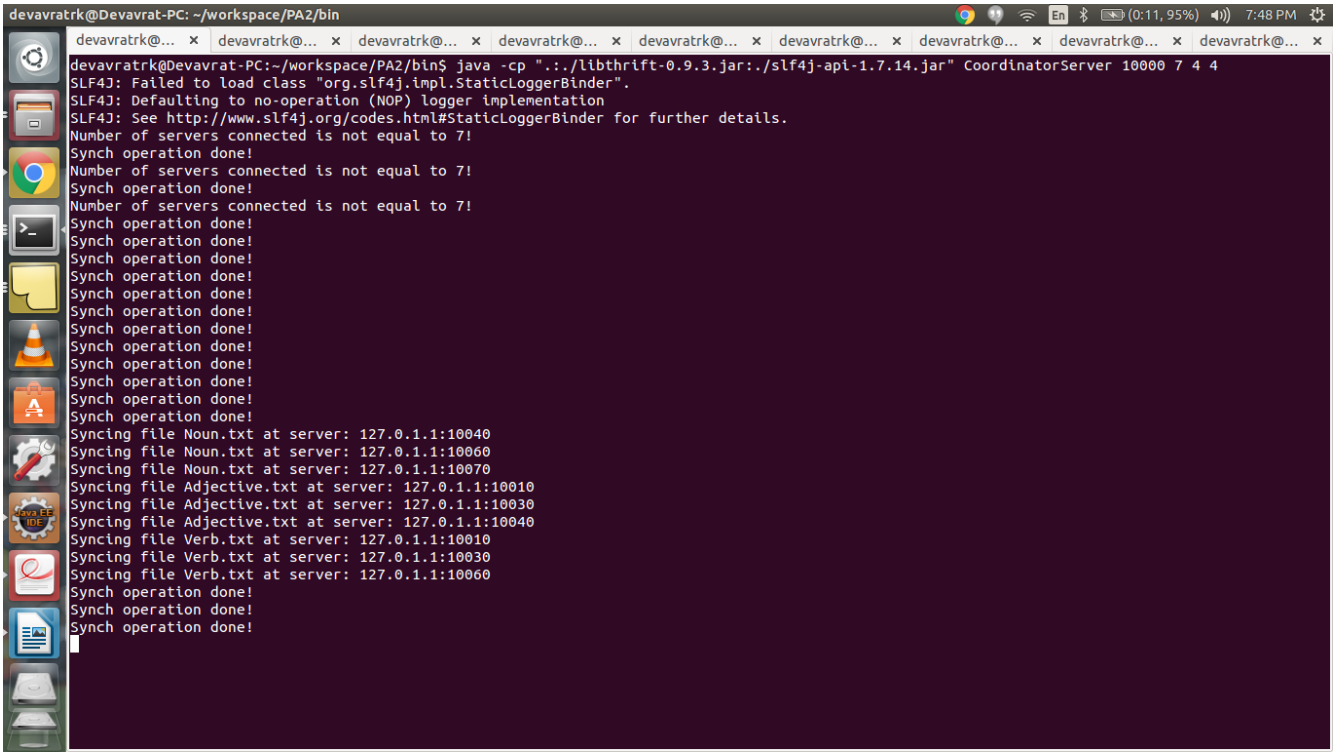


From this screenshot, we see that client 1 and client 3 want to connect to the same server (127.0.0.1:10040), which is supported in our system as required. All 3 clients are writing different files to the system and each client is sending 2 write requests for the same file to the system. After running these requests, we go to the server with address 127.0.0.1:10060, a server which was not contacted by any client, and check its filename and version map by using the print option. We see the following result:

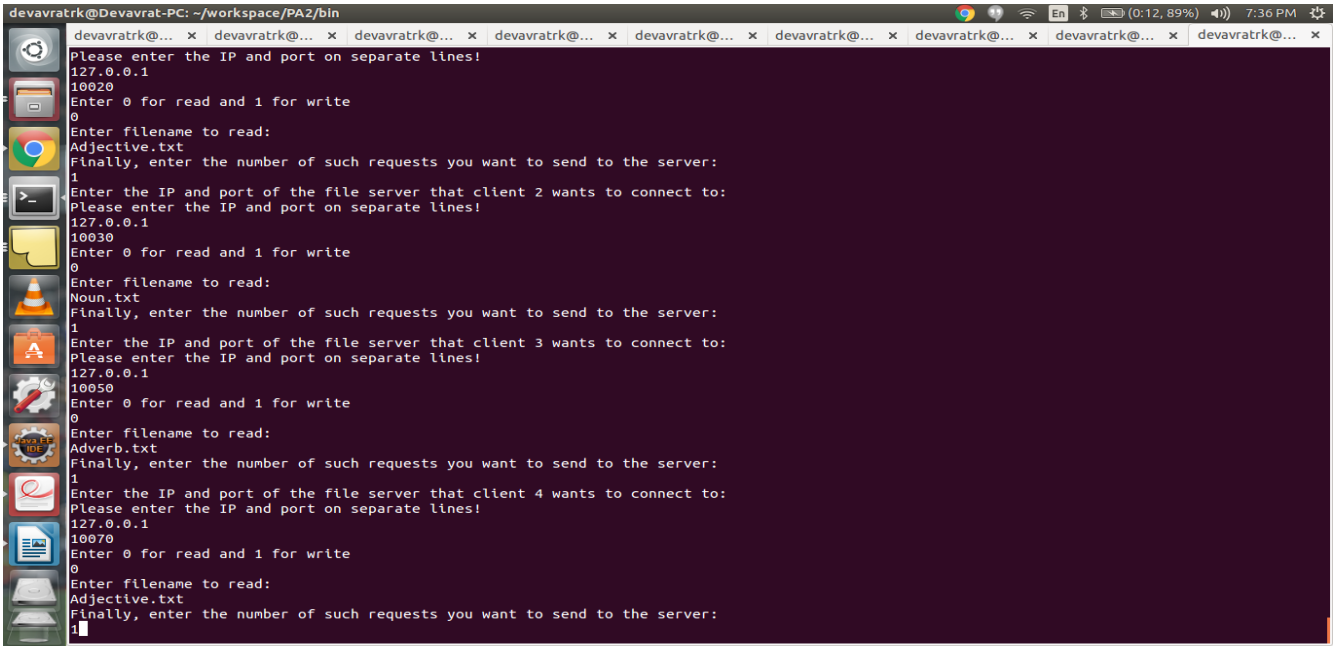


We see above that all the 3 files have been written to this server with a version number of 2 either because it was generated in all 6 quorums (rare case) or because the sync operation running in the background wrote the latest versions of the file to this server (more common case).

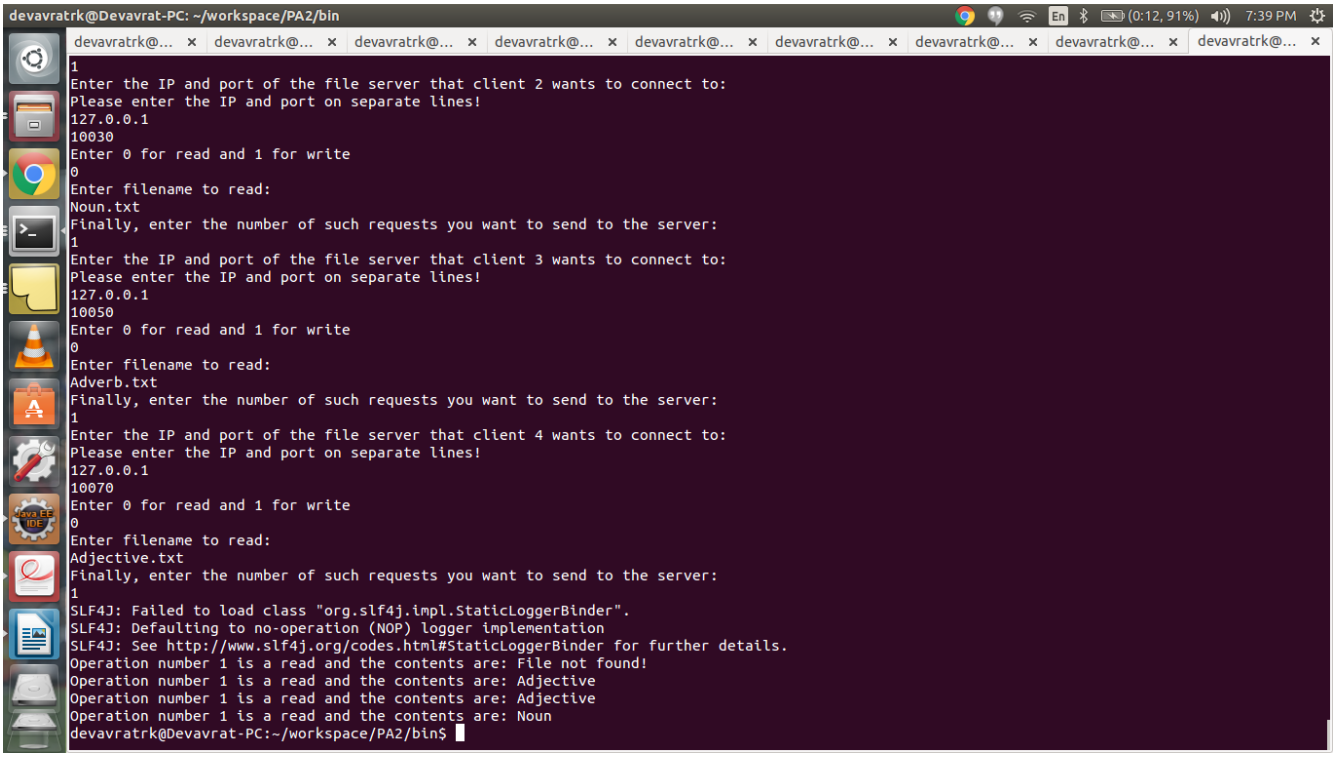
The sync operation runs every 10 seconds and we can see the logs of sync in this case, which tell us that the common case has indeed happened this time and the files Noun.txt and Verb.txt were synced to server 127.0.0.1:10060.



2) Read (contains negative testcase): We now continue from the previous testcase and run 4 clients, two of them reading the file Adjective.txt, one of them reading the file Noun.txt and one of them reading the file Adverb.txt, which is not present in the system. Here is the input screenshot:

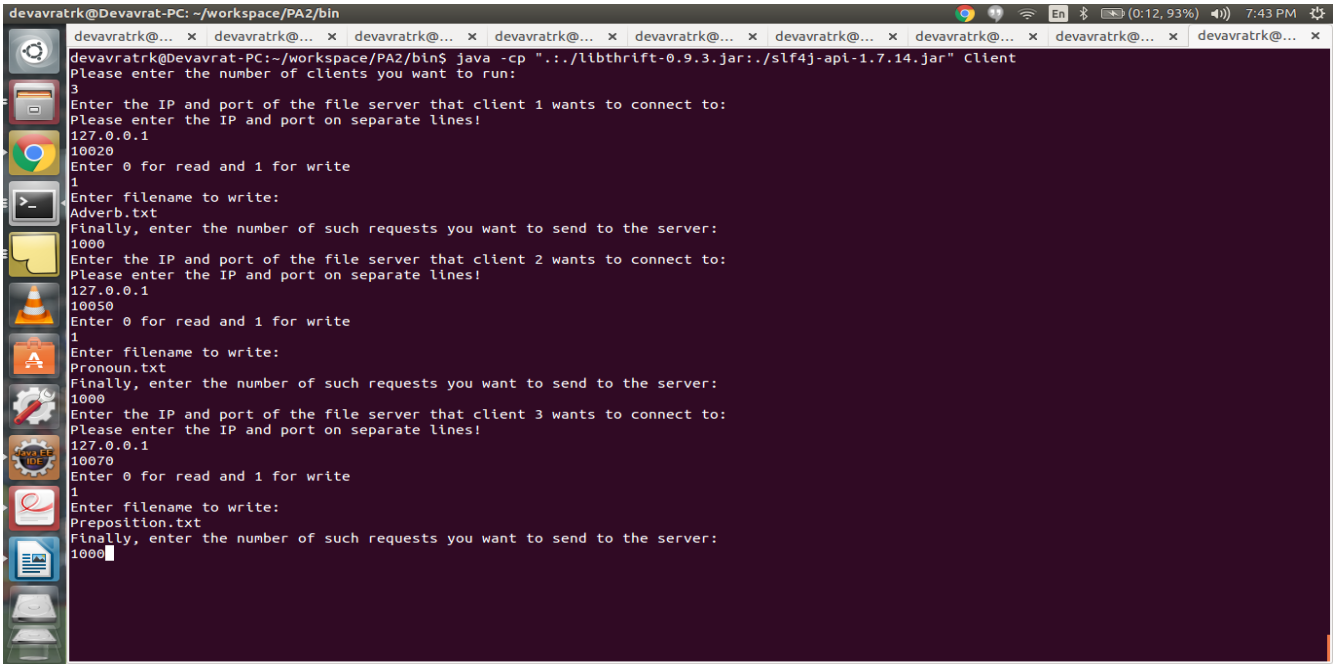


From this screenshot, we see that all clients are now connecting to servers other than the ones connected in the write testcase. All 4 clients are reading files from the system and each client is sending 1 such read request to the system. After running these requests, we see the output at the client. Here is the screenshot (the output can be seen at the bottom of the screen):



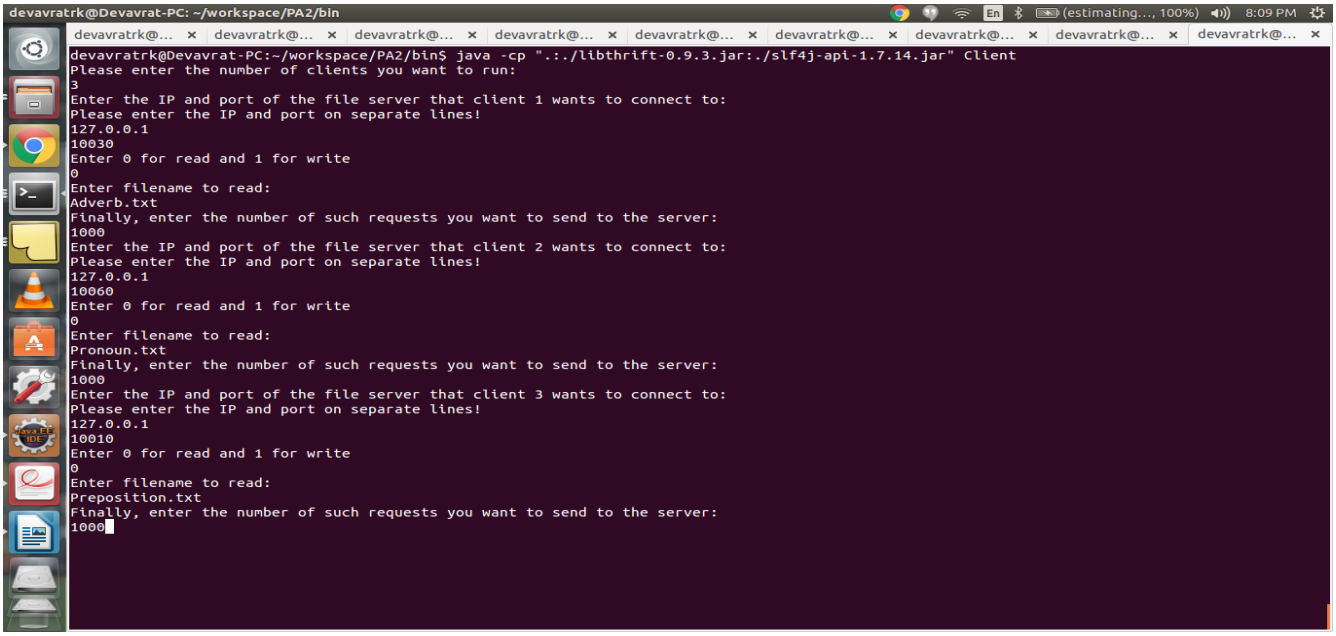
For the file Adverb.txt, we see that the system outputs File not found as expected.

3) Write heavy: We now run 3 clients again, each of which write 3 files to the system (Adverb.txt, Pronoun.txt and Preposition.txt). Each client writes its file 1000 times for a total of 3000 requests sent to the servers. Here is the input screenshot:

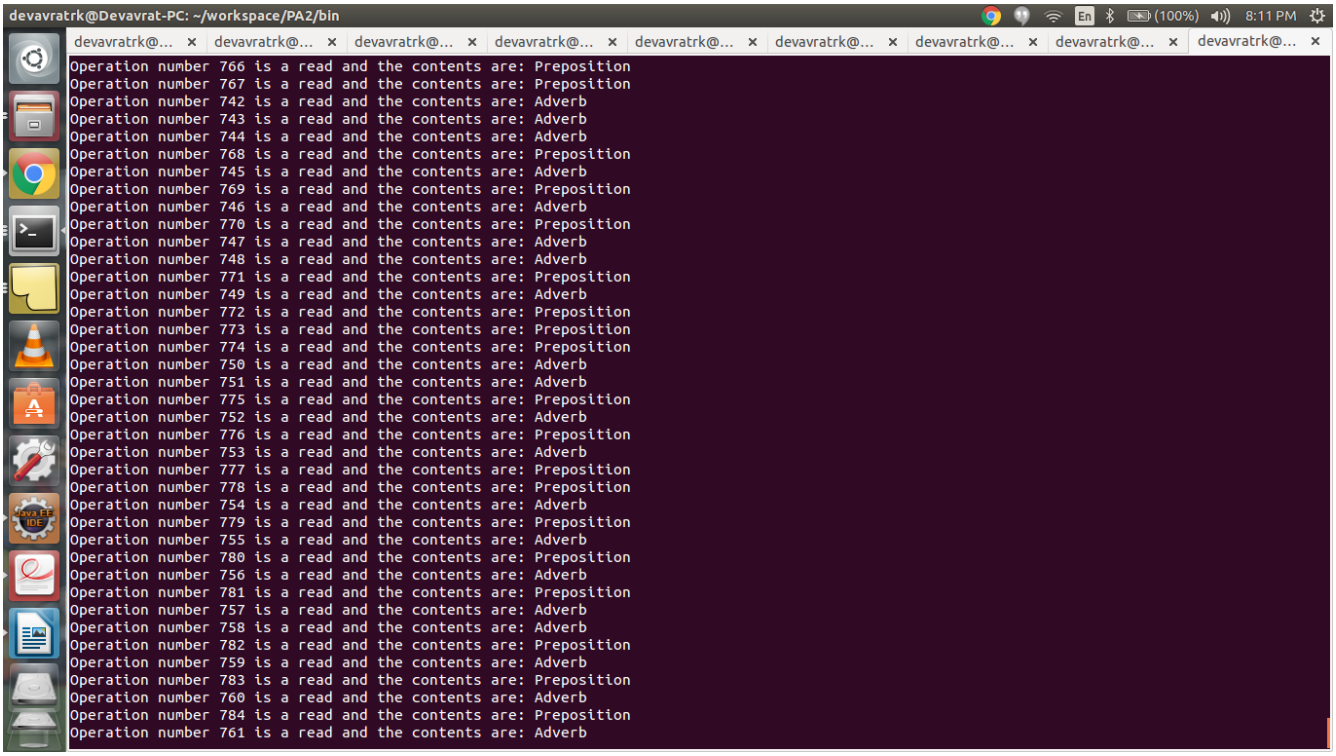


Here, every client contacts a different server and the files are written.

4) Read-heavy: We continue from the results of the previous test case. We again run 3 clients, all of which now read the files which were written in the previous testcase. Here is the input screenshot:



After running this testcase, we see the output as follows (this is a part of the output):



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Operation number 766 is a read and the contents are: Preposition
Operation number 767 is a read and the contents are: Preposition
Operation number 742 is a read and the contents are: Adverb
Operation number 743 is a read and the contents are: Adverb
Operation number 744 is a read and the contents are: Adverb
Operation number 768 is a read and the contents are: Preposition
Operation number 745 is a read and the contents are: Adverb
Operation number 769 is a read and the contents are: Preposition
Operation number 746 is a read and the contents are: Adverb
Operation number 770 is a read and the contents are: Preposition
Operation number 747 is a read and the contents are: Adverb
Operation number 748 is a read and the contents are: Adverb
Operation number 771 is a read and the contents are: Preposition
Operation number 749 is a read and the contents are: Adverb
Operation number 772 is a read and the contents are: Preposition
Operation number 773 is a read and the contents are: Preposition
Operation number 774 is a read and the contents are: Preposition
Operation number 750 is a read and the contents are: Adverb
Operation number 751 is a read and the contents are: Adverb
Operation number 775 is a read and the contents are: Preposition
Operation number 752 is a read and the contents are: Adverb
Operation number 776 is a read and the contents are: Preposition
Operation number 753 is a read and the contents are: Adverb
Operation number 777 is a read and the contents are: Preposition
Operation number 778 is a read and the contents are: Preposition
Operation number 754 is a read and the contents are: Adverb
Operation number 779 is a read and the contents are: Preposition
Operation number 755 is a read and the contents are: Adverb
Operation number 780 is a read and the contents are: Preposition
Operation number 756 is a read and the contents are: Adverb
Operation number 781 is a read and the contents are: Preposition
Operation number 757 is a read and the contents are: Adverb
Operation number 758 is a read and the contents are: Adverb
Operation number 782 is a read and the contents are: Preposition
Operation number 759 is a read and the contents are: Adverb
Operation number 783 is a read and the contents are: Preposition
Operation number 760 is a read and the contents are: Adverb
Operation number 784 is a read and the contents are: Preposition
Operation number 761 is a read and the contents are: Adverb
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The output shows that the system is able to read the files successfully.