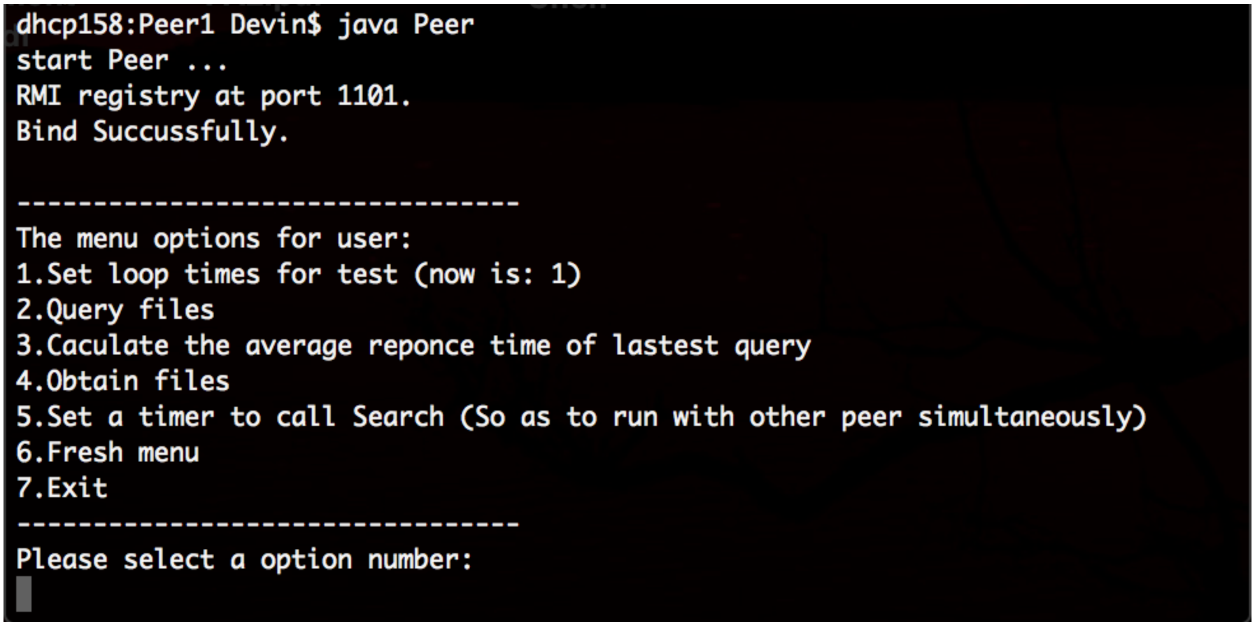
Verification

1) Run Peer

Command: java Peer

Peer Output:



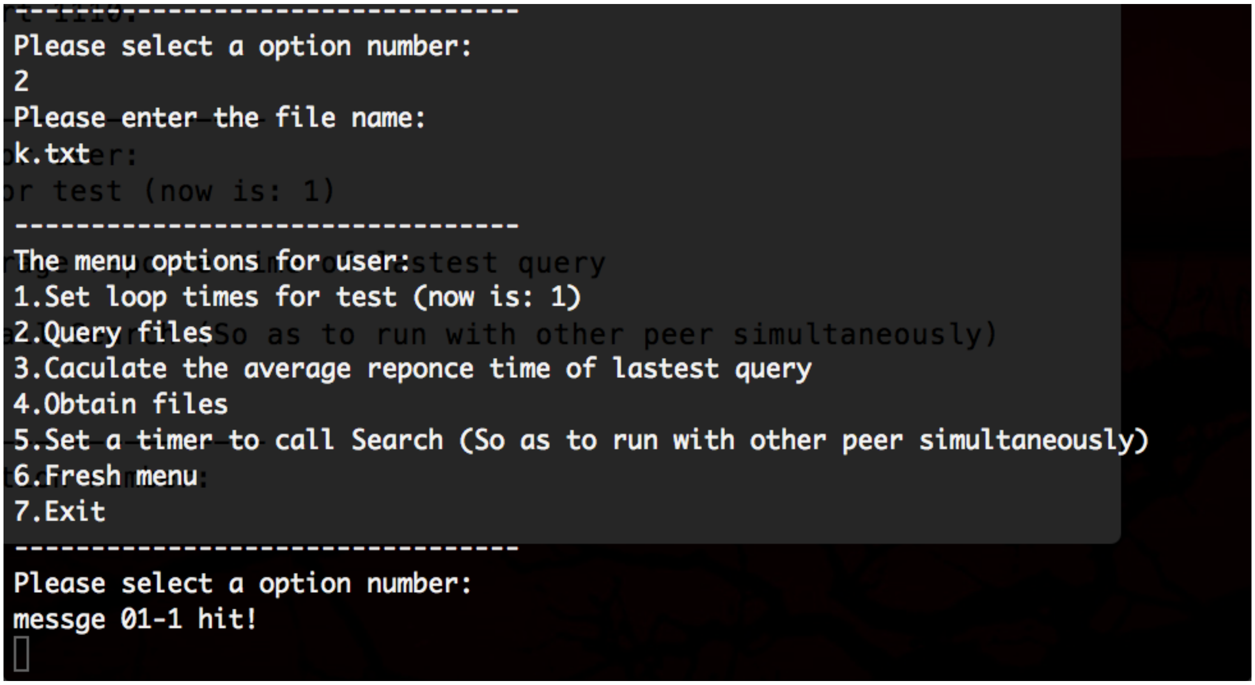
```
dhcp158:Peer1 Devin$ java Peer
start Peer ...
RMI registry at port 1101.
Bind Succussfully.

---------------------------------
The menu options for user:
1.Set loop times for test (now is: 1)
2.Query files
3.Caculate the average reponce time of lastest query
4.Obtain files
5.Set a timer to call Search (So as to run with other peer simultaneously)
6.Fresh menu
7.Exit
---------------------------------
Please select a option number:
```

We also start other 9 Peers. The Peer outputs are similar. So there we ignore their outputs.

2) Query files and Obtain

Command: option 2
file name: k.txt

Peer Output:

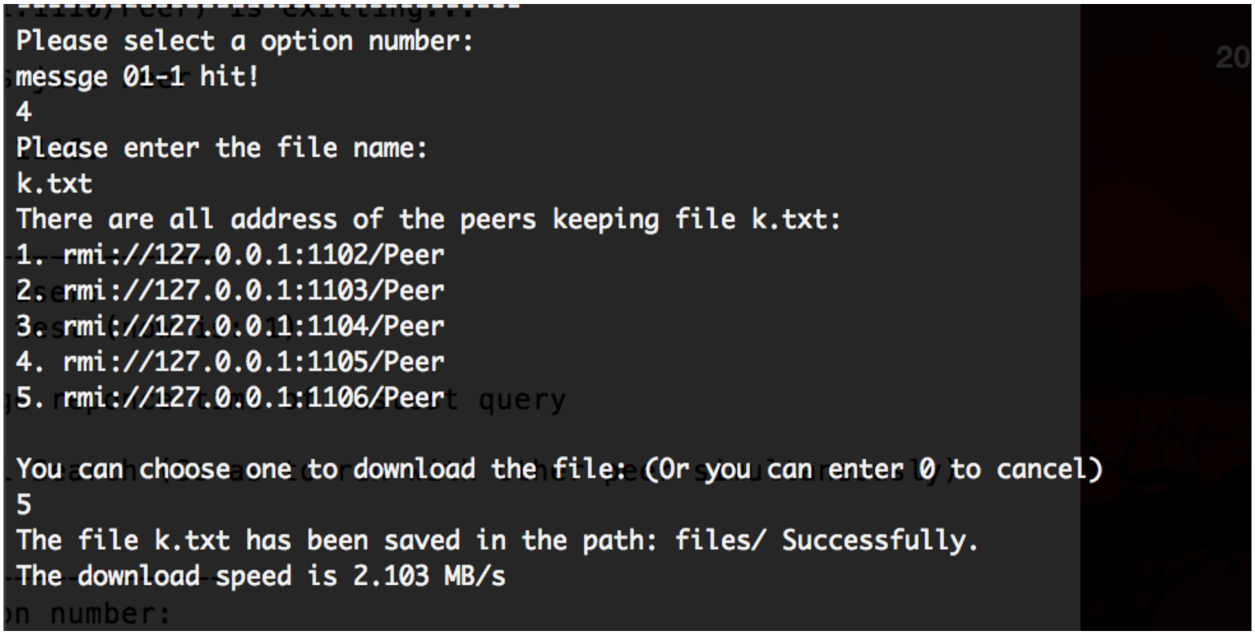


```
---------------------------------
Please select a option number:
2
Please enter the file name:
k.txt
---------------------------------
The menu options for user:
1.Set loop times for test (now is: 1)
2.Query files
3.Caculate the average reponce time of lastest query
4.Obtain files
5.Set a timer to call Search (So as to run with other peer simultaneously)
6.Fresh menu
7.Exit
---------------------------------
Please select a option number:
messge 01-1 hit!
```

The 01-1 hit proves that there is a or some queryhit() return from other peers.

Command: option 4
    file name: k.txt

Peer Output:

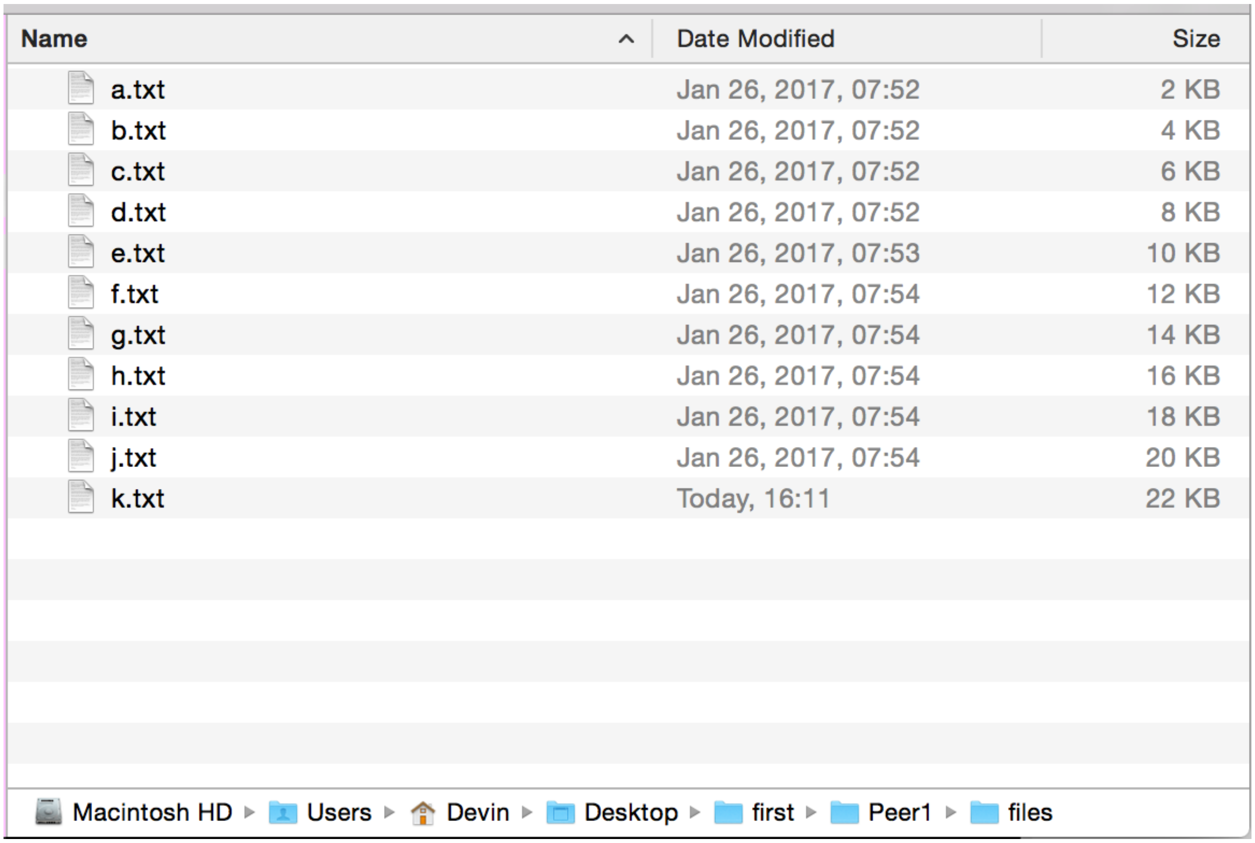


```
Please select a option number:
messge 01-1 hit!
4
Please enter the file name:
k.txt
There are all address of the peers keeping file k.txt:
1. rmi://127.0.0.1:1102/Peer
2. rmi://127.0.0.1:1103/Peer
3. rmi://127.0.0.1:1104/Peer
4. rmi://127.0.0.1:1105/Peer
5. rmi://127.0.0.1:1106/Peer

You can choose one to download the file: (Or you can enter 0 to cancel)
5
The file k.txt has been saved in the path: files/ Successfully.
The download speed is 2.103 MB/s
n number:
```

This list shows which peers have the required file, which proved the functions queryhit() and query() work correctly. In addition, these five peer actually keep the file “k.txt” which also proved the correctness.

Command: option 5 (to download the file from 5th peer)

Path Output:



Name	Date Modified	Size
a.txt	Jan 26, 2017, 07:52	2 KB
b.txt	Jan 26, 2017, 07:52	4 KB
c.txt	Jan 26, 2017, 07:52	6 KB
d.txt	Jan 26, 2017, 07:52	8 KB
e.txt	Jan 26, 2017, 07:53	10 KB
f.txt	Jan 26, 2017, 07:54	12 KB
g.txt	Jan 26, 2017, 07:54	14 KB
h.txt	Jan 26, 2017, 07:54	16 KB
i.txt	Jan 26, 2017, 07:54	18 KB
j.txt	Jan 26, 2017, 07:54	20 KB
k.txt	Today, 16:11	22 KB

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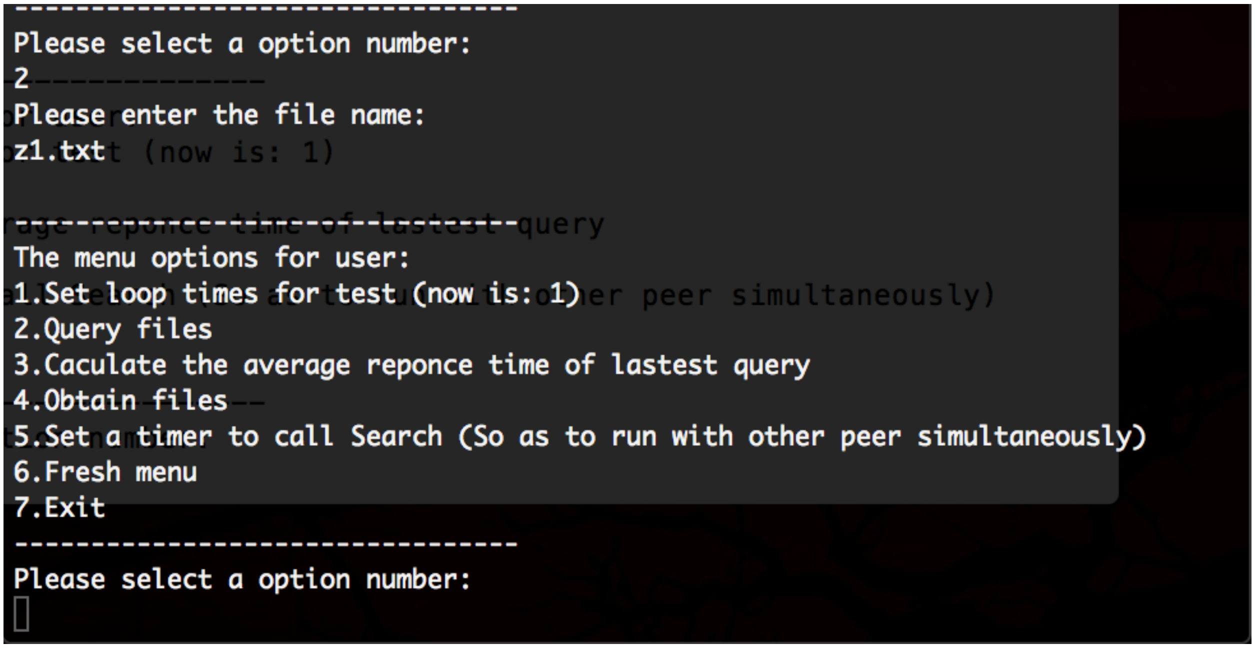
Firstly, there is no “k.txt” in the file folder, but after the obtain process, “k.txt” exist in this folder. So we can see the file “k.txt” has been successfully obtained from 5th peer.

Our TTL is 8. Whereas the file “z1.txt” is in Peer10. So the query from Peer1 cannot reach Peer10. Here is the operation:

Command: option 2
                    file name: z1.txt

Peer Output:

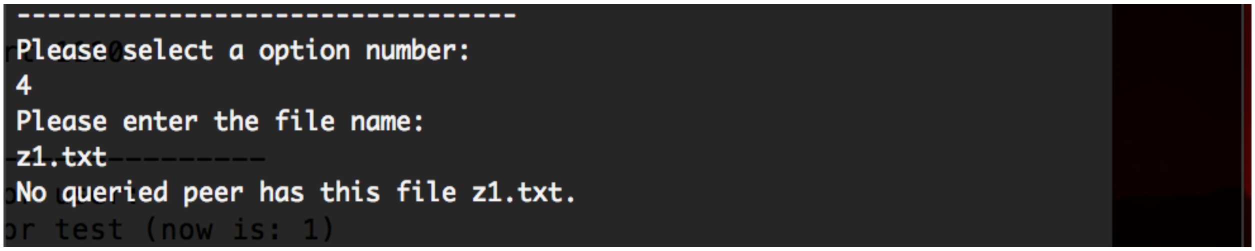


```
---------------------------------
Please select a option number:
2
Please enter the file name:
z1.txt

---------------------------------
The menu options for user:
1.Set loop times for test (now is: 1)
2.Query files
3.Caculate the average reponce time of lastest query
4.Obtain files
5.Set a timer to call Search (So as to run with other peer simultaneously)
6.Fresh menu
7.Exit
---------------------------------
Please select a option number:
```

There is no message hit, so it proves that no result return.

Command: option 4
                    file name: z1.txt

Peer Output:

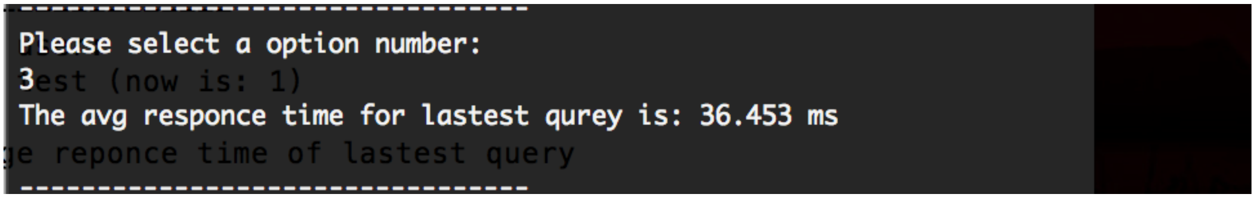


```
---------------------------------
Please select a option number:
4
Please enter the file name:
z1.txt
No queried peer has this file z1.txt.
```

3) Calculate the average response time of latest query

Command: option 3 (Loop: 1)

Peer Output:



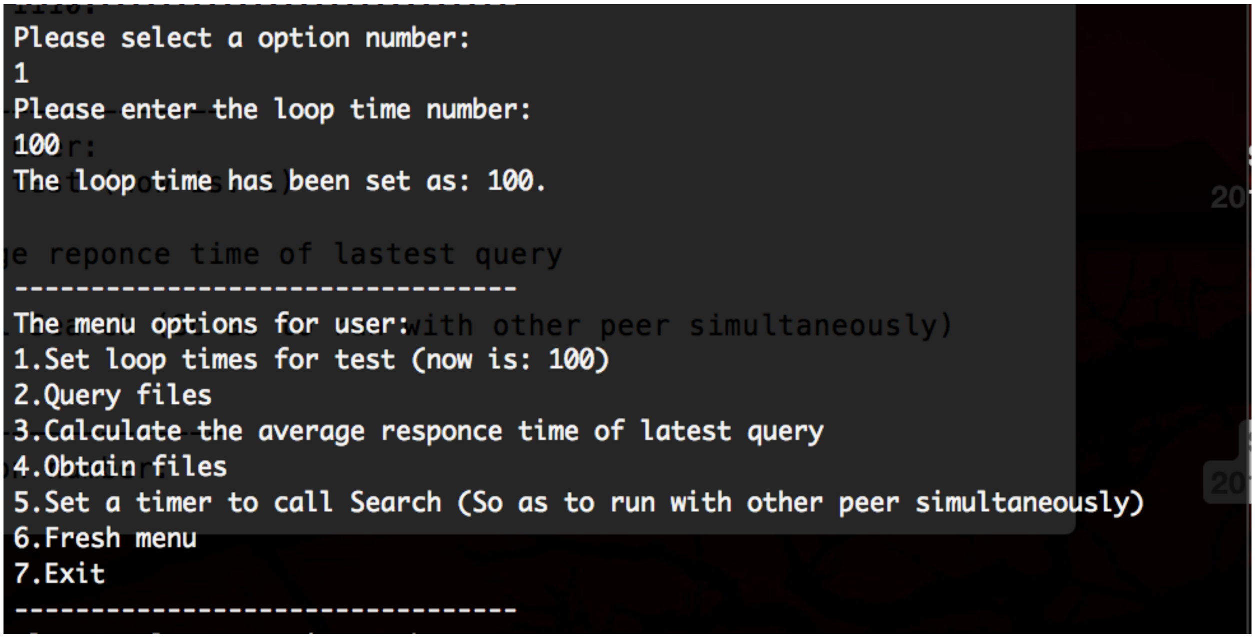
```
---------------------------------
Please select a option number:
3
The avg responce time for lastest qurey is: 36.453 ms
---------------------------------
```

The option 3 can calculate the avg. response time for the latest operation.

4) Set loop time

Command: option 1
enter 100 (Loop: 100)

Peer Output:



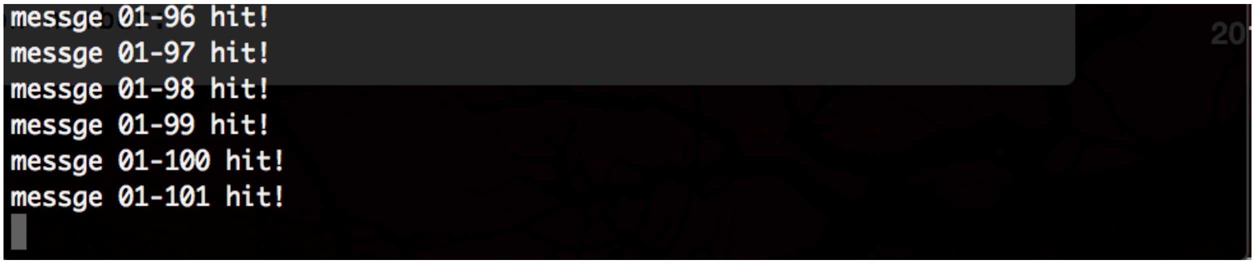
```
Please select a option number:
1
Please enter the loop time number:
100
The loop time has been set as: 100.

---------------------------------
The menu options for user:
1.Set loop times for test (now is: 100)
2.Query files
3.Calculate the average responce time of latest query
4.Obtain files
5.Set a timer to call Search (So as to run with other peer simultaneously)
6.Fresh menu
7.Exit
---------------------------------
```

Now we can see, in the new menu, the loop has been set up to 100.

Now we re-check the Query, Obtain and avg. time in the condition loop in 100.

Command: option 2
file name: n.txt

Peer Output:

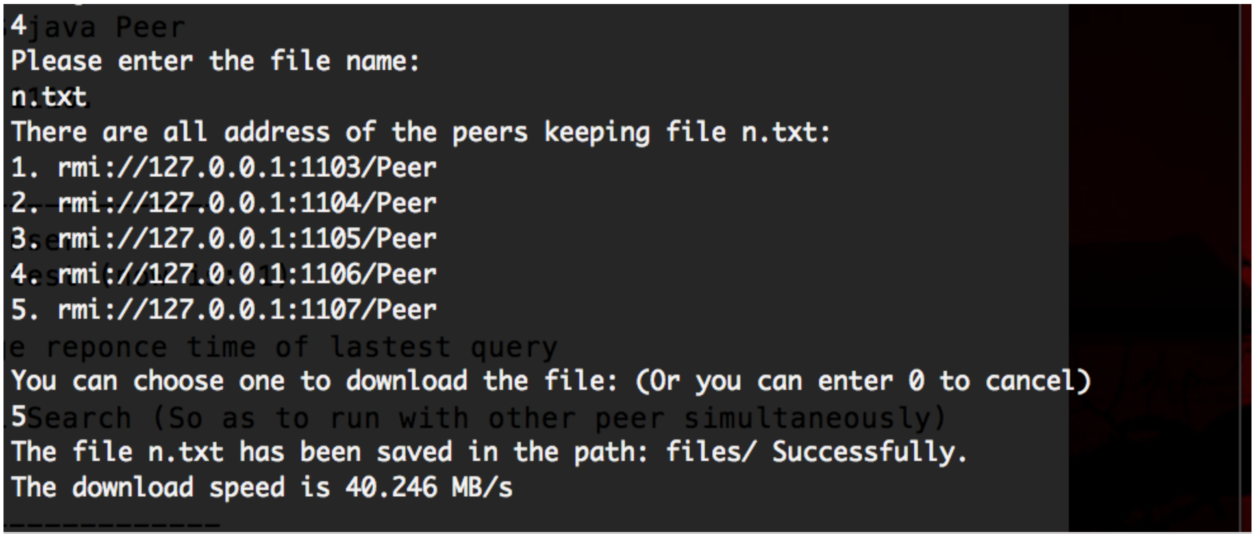


```
messge 01-96 hit!
messge 01-97 hit!
messge 01-98 hit!
messge 01-99 hit!
messge 01-100 hit!
messge 01-101 hit!
```

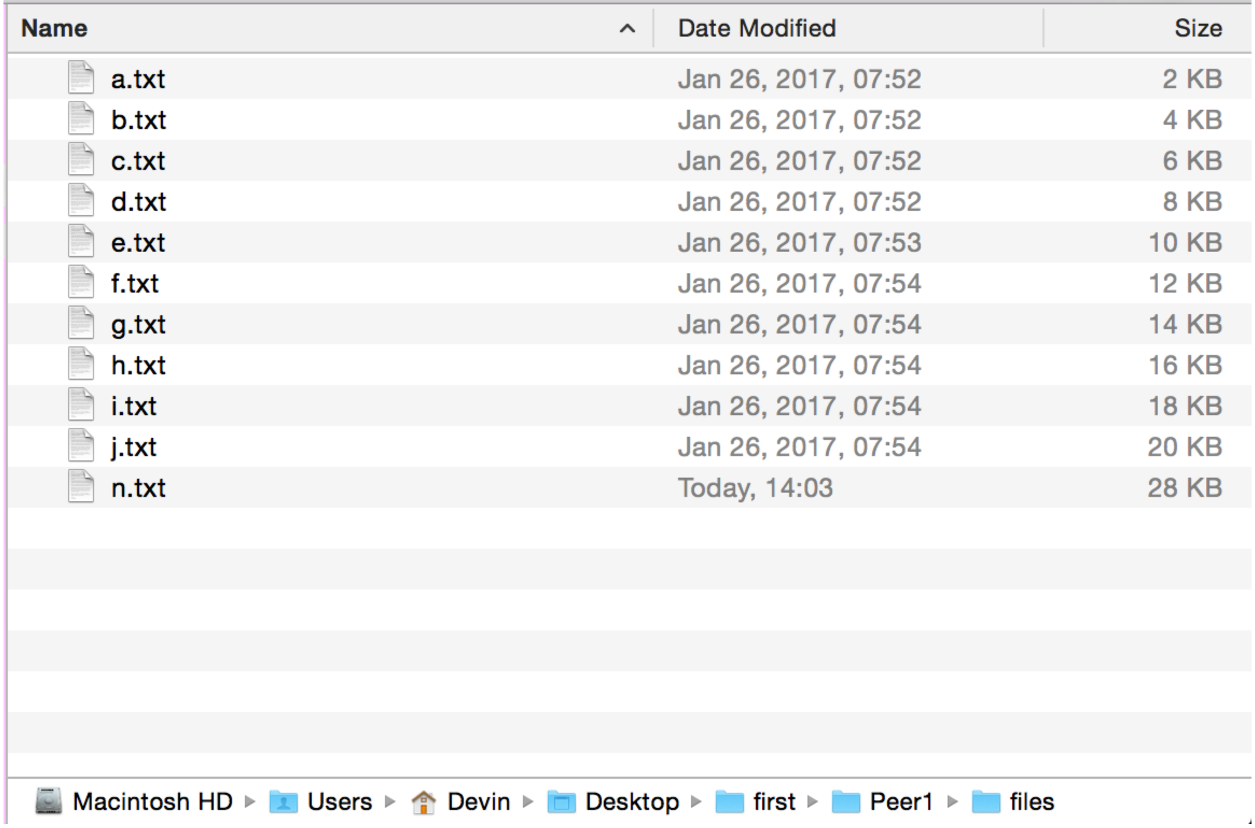
There is 100 hit appears, so it proves that query in every loop has a response.

Command: option 4
file name: n.txt
choose peer5

Peer Output:



```
4
Please enter the file name:
n.txt
There are all address of the peers keeping file n.txt:
1. rmi://127.0.0.1:1103/Peer
2. rmi://127.0.0.1:1104/Peer
3. rmi://127.0.0.1:1105/Peer
4. rmi://127.0.0.1:1106/Peer
5. rmi://127.0.0.1:1107/Peer
You can choose one to download the file: (Or you can enter 0 to cancel)
5
The file n.txt has been saved in the path: files/ Successfully.
The download speed is 40.246 MB/s
```



Name	Date Modified	Size
a.txt	Jan 26, 2017, 07:52	2 KB
b.txt	Jan 26, 2017, 07:52	4 KB
c.txt	Jan 26, 2017, 07:52	6 KB
d.txt	Jan 26, 2017, 07:52	8 KB
e.txt	Jan 26, 2017, 07:53	10 KB
f.txt	Jan 26, 2017, 07:54	12 KB
g.txt	Jan 26, 2017, 07:54	14 KB
h.txt	Jan 26, 2017, 07:54	16 KB
i.txt	Jan 26, 2017, 07:54	18 KB
j.txt	Jan 26, 2017, 07:54	20 KB
n.txt	Today, 14:03	28 KB

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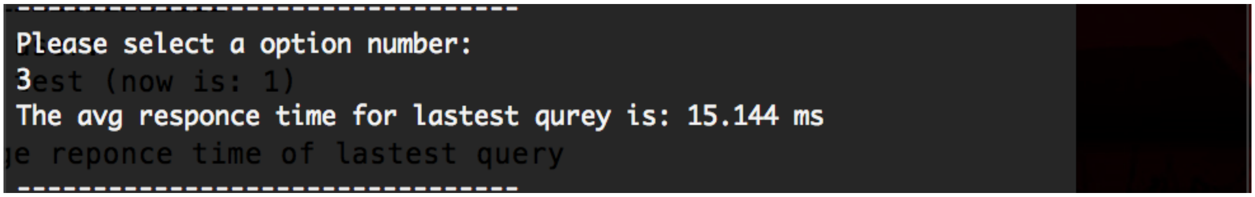
So we can see, the file “n.txt” has been successfully obtained.

Command: option 3

Peer Output:



```
---------------------------------
Please select a option number:
3
The avg responce time for lastest qurey is: 15.144 ms
---------------------------------
```

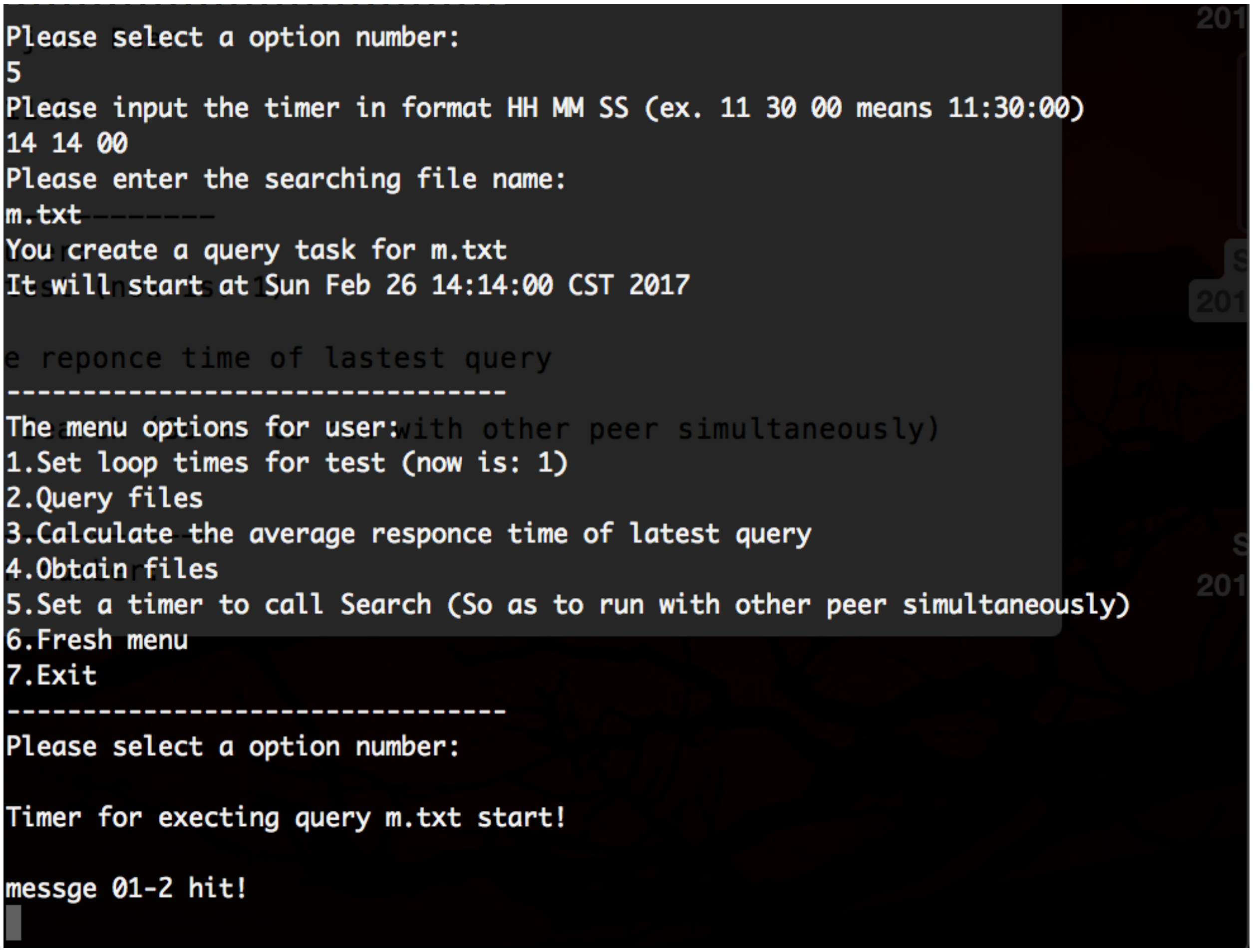
Option 3 still successfully calculate the avg. response time.

5) Set a timer

Command: option 5

set time: 14 14 00(set in 14 13 00)

Peer Output:



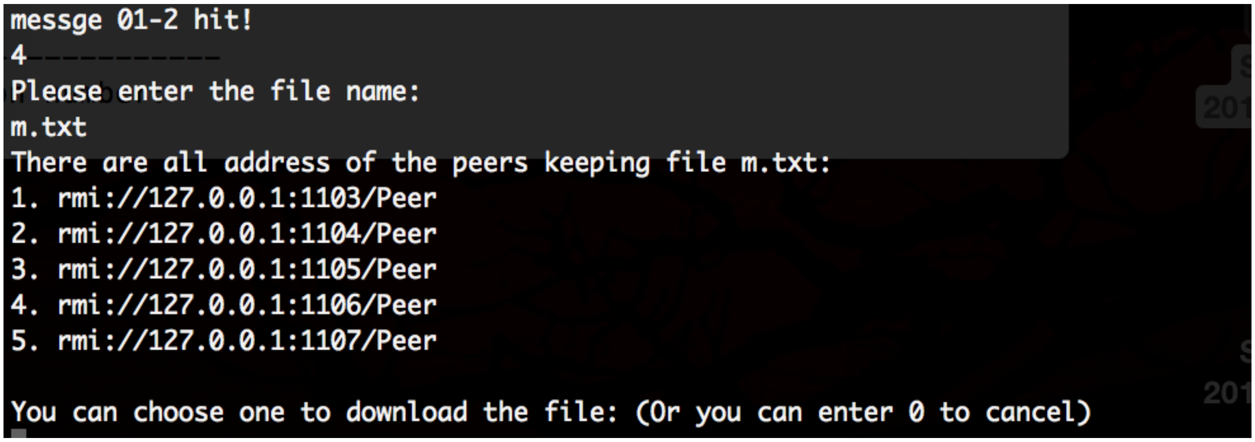
```
Please select a option number:
5
Please input the timer in format HH MM SS (ex. 11 30 00 means 11:30:00)
14 14 00
Please enter the searching file name:
m.txt
You create a query task for m.txt
It will start at Sun Feb 26 14:14:00 CST 2017

---------------------------------
The menu options for user:
1.Set loop times for test (now is: 1)
2.Query files
3.Calculate the average responce time of latest query
4.Obtain files
5.Set a timer to call Search (So as to run with other peer simultaneously)
6.Fresh menu
7.Exit
---------------------------------
Please select a option number:

Timer for execting query m.txt start!

messge 01-2 hit!
```

So we can see, we set to make a query for file “m.txt” in 14:14:00, and when clock became 14:14:00, a hit returned to show the query is successfully execute.

Command: option 4

file name: m.txt

Peer Output:



```
messge 01-2 hit!
4------------
Please enter the file name:
m.txt
There are all address of the peers keeping file m.txt:
1. rmi://127.0.0.1:1103/Peer
2. rmi://127.0.0.1:1104/Peer
3. rmi://127.0.0.1:1105/Peer
4. rmi://127.0.0.1:1106/Peer
5. rmi://127.0.0.1:1107/Peer

You can choose one to download the file: (Or you can enter 0 to cancel)
```

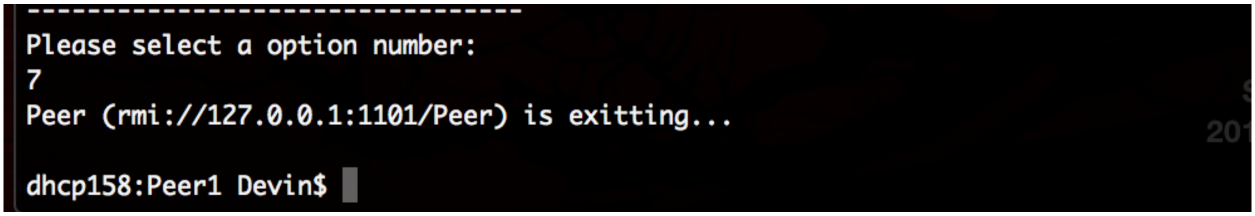
This list shows that the query with the timer is successful.

---

6) Exit Peer

Command: option 7

Peer Output:



```
---------------------------------
Please select a option number:
7
Peer (rmi://127.0.0.1:1101/Peer) is exitting...

dhcp158:Peer1 Devin$
```

This shows the Peer system exit successfully.